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TRACE-ELEMENT DATA FOR STREAM-SEDIMENT HEAVY-MINERAL CONCENTRATE SAMPLES FROM THE BRADFIELD CANAL QUADRANGLE, SOUTHEASTERN ALASKA

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This report is preliminary and
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INTRODUCTION

A reconnaissance geochemical sampling program was conducted during 1978 and 1979 in the Bradfield Canal 1:250,000-scale quadrangle, southeastern Alaska. The sampling was done to assist with evaluation of mineral resources in the area as part of the Alaska Mineral Resource Assessment Program (AMRAP). This report contains the analytical data for 219 stream-sediment heavy mineral concentrate samples collected in the Bradfield Canal quadrangle during the summer of 1979. These samples comprise all of the heavy mineral concentrate geochemical samples known to have been collected by the U.S. Geological Survey within the Bradfield Canal quadrangle through 1979. A brief statistical summary of these analytical data is included in this report.

OTHER SOURCES OF DATA

Analytical data from rock and unconcentrated stream-sediment geochemical samples collected within the Bradfield Canal quadrangle are contained in two companion reports (Koch and others, 1980a, b). Geochemical data from rock samples collected by U.S. Bureau of Mines engineers at selected prospects in the Bradfield Canal quadrangle are reported in Koch and others, (1976). Analytical data from rock and stream-sediment samples collected in the Ketchikan and Prince Rupert quadrangles, south of the Bradfield Canal quadrangle, are contained in several earlier reports (Koch and Elliott 1978a, b, c). Data from all of the normal U.S. Geological Survey rock and stream-

sediment geochemical samples collected in the Ketchikan and Prince Rupert quadrangles and from the rock, stream-sediment, and heavy-mineral concentrate samples from the Bradfield Canal quadrangle are available on magnetic computer tapes (Koch, Van Trump, and McDanal, 1978; Koch, O'Leary, and Risoli, 1980).

GEOLOGIC SETTING AND STUDIES IN THE BRADFIELD CANAL AREA

The United States portion of the Bradfield Canal quadrangle area is dominated by amphibolite-facies schists and gneisses and Cretaceous to Miocene granitic plutons of the Coast Range batholithic complex. A segment of the Coast Range megalineament (Brew and Ford, 1978), a major structural and topographic feature more than 500 km long, runs diagonally across the southwestern portion of the map area from Nelson Glacier through the areas near Eagle Bay and Eagle Lake. East of this zone, isolated roof pendants of paragneiss and schist lie amid nearly continuous orthogneisses, spectacular migmatites, and granitic plutons with compositions ranging from diorite and quartz diorite to quartz monzonite (adamellite) and alkalai-feldspar granite. Farther east, along the Canadian boundary, are roof pendants of lower grade metasedimentary, metavolcanic, and carbonate rocks. West of the megalineament, granitic rocks occur as discontinuous bodies within schist and paragneiss.

The earliest comprehensive discussions of the geology of the Bradfield Canal area are contained in reports by Wright and Wright (1908) and Buddington and Chapin (1929). Buddington (1929) also described the Hyder mining district located near the Canadian border 120 km northeast of the town of Ketchikan. Recent geologic investigations by the U.S. Geological Survey in the Bradfield Canal quadrangle began in 1968 with mapping in the Hyder area (Smith, 1977). A mineral resource evaluation of the Granite Fiords Wilderness Study area,

which included a large portion of the eastern part of the Bradfield Canal quadrangle, was conducted in 1972 and 1973 (Berg and others, 1977). Field studies continued as part of the AMRAP program in 1978 and 1979. Other discussions of Coast Range geology include reports by Hutchison (1970), Roddick and Hutchison (1974), Brew and others, (1976), and Brew and others (1977).

SAMPLING

Most of this recently glaciated study area is steep and rugged with elevations ranging from sea level to 2300 meters. Rain- and snowfall are heavy and precipitation continues year-round. Sediment in the resulting swift streams is essentially all detrital material derived from mechanical erosion of bedrock and, to a lesser extent, reworking of locally-derived glacial deposits. The bulk of most sediment collected ranges in size from very fine sand to pebbles. Samples from near the toe of a glacier may consist entirely of very fine sand and rock flour. Otherwise, samples with a large percentage of silt- and clay-size material are rare.

Standard procedures were followed in collection, preparation, and analysis of the stream-sediment heavy-mineral concentrate samples. Those collected from shoreline sites were obtained above highest high tide level whenever possible, to eliminate contamination by sediment introduced by salt-water currents. Samples generally consisted of 7 to 10 kg of the finest, most organic-free sediment in the active stream channel. If the sediment was relatively coarse, it was passed through an 8-mesh (approx. 2 mm) stainless steel screen before being put into cloth bags. In camp, where a smoothly-flowing river was available, the samples were rough-panned in standard "gold pans" to remove organic and clay-sized material, and to concentrate the heavy

minerals. Samples were then air-dried or oven-dried at low temperatures and shipped to the lab for further preparation.

LABORATORY SAMPLE PREPARATION AND ANALYTICAL PROCEDURES

Laboratory preparation and analysis was performed by members of the Branch of Exploration Research (BOER) of the U.S. Geological Survey. Samples were dry-sieved and the -20 mesh fraction was settled through undiluted bromoform (specific gravity 2.86). The light fraction was discarded. Magnetic minerals, primarily magnetite and ilmenite, were removed from the heavy fraction in the following manner. The sample was spread out over a flat tray and passed under a powerful electromagnet. The magnet of a Frantz[1] Isodynamic separator, set at 1.8 amps, was shielded with a mylar sheet and used for this purpose. The sheet could be removed for cleaning between samples. The samples were not passed through the track of the Frantz separator in the standard mannor.

After the magnetic treatment, samples were ground with a mortar and pestle. A split of this material was analyzed for copper, lead, and zinc by standard atomic absorption spectrophotometry procedures (Ward and others, 1969). The samples were also analyzed for 31 elements by a rapid six-step semiquantiative emission spectrographic method. The technique used for spectrographic analysis is similar to that described by Myers and others (1961) and Grimes and Marranzino (1968), with the following exception. To limit spectral interference caused by high iron concentrations, 5 mg of ground sample (half the normal amount) was added to 25 mg of a 4:1 mixture of

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[1]Any use of trade names and tradmarks in this publication is for descriptive purposes only and does not constitute endorsement by the U.S. Geological Survey

graphite and ground pure Arkansas quartz, to comprise a normal 30 mg analytical load. Spectral lines were recorded on film and visually compared to standards which are based on 10 mg samples. The resulting values were doubled to produce the data reported here. Doubled values occurring between six-step reporting values were "rounded up" to the higher reporting value (example: 2 ppm X 2 = 4 ppm and is reported as 5 ppm). This procedure raises the limits of analitical determination and may affect the analytical precision as discussed below. The semiquantitative spectrographic analyses were performed by D. A. Risoli and the atomic-absorption analyses by R. M. O'Leary. Sample preparators were N. G. Courtright and G. G. VanGaalen.

GEOCHEMICAL DATA

Locations of sample sites are identified by 7 character station numbers on plate 1. The analytical data for the samples are given in table 5 and are identified by a sample number which consists of the station number, with the letter "P" appended to it. Analyses are also identified in table 5 by a 6 character laboratory number; often called the "Tag Number". Locations are indicated in table 5 by latitude and longitude coordinates as degrees, minutes, and seconds.

Analytical Values

Analytical results are reported as percent of the sample (for spectrographic analyses of Fe, Mg, Ca, and Ti) and as parts per million (ppm) for all other analyses. The distribution of values for some of the determinations is truncated at one or both ends by the limits of determinability for that analytical procedure. The limits of determination and the units used for each analysis are listed in table 1 (page 7). Because

only half as much sample material is analyzed for heavy-mineral concentrates as is used for spectrographic analyses of other materials (for example of rock or unconcentrated stream-sediment samples), the determination limits are twice the normal limit values; rounded up to the next six-step reporting value when doubling produced a value not on the six-step scale.

A single-letter symbol is used by BOER analysts to indicate that no analysis was performed for an element or that the analytical result is outside the limits of determinability. These symbols (commonly called "qualification codes") are used in the statistical summary but some are represented differently in the data table. An explanation of both forms is listed in table 2. The qualifier T does not appear in these data.

Because the original computer printout is used in tables 4 and 5, element symbols are in capital letters; for example, the symbol for iron, Fe, is shown as FE, magnesium, Mg, is shown as MG, and so on. In the tables, the prefix S stands for spectrographic analysis, and AA for atomic absorption.

Results from semiquantitative emission spectrographic analyses (also referred to as six-step spectrographic analyses) are reported as the approximate midpoints of class intervals with 6 intervals per order of magnitude. These class intervals are not evenly spaced when plotted on an arithmetic scale. The values of interval boundaries and the widths (sizes) of successive class intervals increase geometrically, with each succeeding interval boundary and interval width being greater than the last by a factor of the 6th root of 10 (about 1.4678). These class intervals have a constant width when the data and interval boundary values are transformed to logarithms (Miesch, 1967, p. B3-B4).

Use of geometrically-scaled class intervals is appropriate because of characteristics of both the analytical techniques and of the normal

Table 1.--Determination limits and units for analyses of steam-sediment heavy mineral concentrate samples

[S, indicates spectrographic analysis, AA, indicates atomic absorption analysis. The units used to report values for each analytical procedure are listed after the upper determination limit.]

Analysis	Limits		Analysis	Limits		Analysis	Limits	
	Lower	Upper		Lower	Upper		Lower	Upper
S-Fe	0.1	50 percent	S-Cd	50	1,000 ppm	S-Sr	200	10,000 ppm
S-Mg	.05	20 percent	S-Co	10	5,000 ppm	S-Th	200	5,000 ppm
S-Ca	.1	50 percent	S-Cr	20	10,000 ppm	S-V	20	20,000 ppm
S-Ti	.005	2 percent	S-Cu	10	50,000 ppm	S-W	100	20,000 ppm
S-Mn	20	10,000 ppm	S-La	50	2,000 ppm	S-Y	20	5,000 ppm
S-Ag	1	10,000 ppm	S-Mo	10	5,000 ppm	S-Zn	500	20,000 ppm
S-As	500	20,000 ppm	S-Nb	50	5,000 ppm	S-Zr	20	2,000 ppm
S-Au	20	1,000 ppm	S-Ni	10	10,000 ppm	AA-Cu	5	-- ppm
S-B	20	5,000 ppm	S-Pb	20	50,000 ppm	AA-Pb	5	-- ppm
S-Ba	50	10,000 ppm	S-Sb	200	20,000 ppm	AA-Zn	5	-- ppm
S-Be	2	2,000 ppm	S-Sc	10	200 ppm			
S-Bi	20	2,000 ppm	S-Sn	20	2,000 ppm			

Table 2.--Qualification codes

Qualification code	Form in table 5	Explanation
B	--	No analytical data for this analysis.
N	N	Nothing detected by analysis.
L	<	Element detected but below listed value (lower limit of determinability).
G	>	Element detected in amount greater than listed value (upper limit of determinability).
H	(value = 0).	Interference - no valid data.
T		Trace

distribution of elements in geologic materials. Analytical variance tends to be proportional to the amount of a contituent present; and tends to be constant for the logarithms of the analytical data (Miesch, 1976, p. 58). Variability at sample localities is similar, with the amount of variance at a locality often being proportional to the mean of sample values for that site and variance tending to be constant when the logarithms of the values are used (Miesch, 1976, p. 58).

The spectrographic reporting values and the associated class interval limits and widths are listed in table 3. Element concentrations are reported as integral powers of 10 times one of the listed six-step reporting values.

Table 3.--Class intervals of the six-step scale

Six-step reporting value (approximate C. I. midpoint)	Approximate Class interval limits		Approximate Class interval width
1.0	0.825	1.21	0.385
1.5	1.21	1.78	.57
2.0	1.78	2.61	.83
3.0	2.61	3.83	1.22
5.0	3.83	5.62	1.79
7.0	5.62	8.25	2.63
10.0	8.25	12.1	3.85

Precision

Tests have been performed to determine the analytical precision of the six-step semiquantitative spectrographic technique used by the Branch of Exploration Research (Motooka and Grimes, 1976). These tests indicate that, on the average, the frequency with which values from repeated analyses of the same sample will fall within the class interval containing the "true" value (as measured by the mean of a series of analytical runs), plus or minus one and two consecutive reporting intervals is approximately 83 percent and 96 percent, respectively. For example, if a value is reported as 3.0, the probability is 0.83 that a second analysis of that sample would be reported as 2.0, 3.0, or 5.0. Because the analysis of heavy-mineral concentrates involves half of the amount of sample normally used in the six-step spectrographic method, and because of the additional rounding-off of some values after doubling, the precision of these determinations is probably less than that found by Matooka and Grimes for the semi-quantitative spectrographic technique following standard procedures. This would be especially true where values tend to fall closer to the determination limits.

The Motooka and Grimes study found analytical variance (reported as a number of steps of the six-step scale), to be consistent for a variety of geologic materials and to show no appreciable difference among most elements or concentration ranges; except near the limits of determinability where "precision of the analysis is greatly diminished" (Motooka and Grimes, 1976, p. 2).

An experiment with unconcentrated stream-sediment samples was conducted by Johnson and others (1980) in similar terrane within the Coast Range, 180 km north of Bradfield Canal. They determined the amount of variability attributable to analytical procedures and to variation in sample spacing. For spectrographic data from that area, which does not contain detected mineral enrichment, analytical variance ranged from 22 percent (Ni) to 88 percent (Ti, Mn, V) of the total variance. At the 95 percent confidence level, only four spectrographically determined elements had analytical variance greater than the two step average variation determined by Motooka and Grimes; Ti (3 steps), Cu (3 steps), La (3.5 steps), and Zr (2.5 steps). This study suggests that for data with a narrow range of values (approaching the level of analytical variance for that element), the analytical component of total variance will be responsible for a significant portion of the observed fluctuations but that for data with a relatively broad range of values, analytical variability should have only minor effect.

Data from analyses by the atomic absorption methods are not reported on the six-step scale. They are more sensitive and considered more precise than spectrographic analyses. Johnson and others determined analytical variance for atomic absorbtion analyses of Cu, Pb, and Zn to be equivalent to approximately 1.0, 1.5, and 0.5 steps of the six-step scale respectively, at the 95 percent confidence level (Johnson and others, 1980, table 3, last column).

STATISTICAL SUMMARY

The analytical data were processed using a computer to produce the statistical summary presented in table 4. All distributions are treated in terms of the six-step class intervals described above and thus the atomic absorption data are regrouped into these intervals for the summary. The program output consists of: a frequency distribution table, histogram, summary of qualified values, range of values, arithmetic and geometric means and deviations for each element. Table 4 entries are identified in an explanation at the beginning of that table.

The histograms have a quasi-logarithmic analytical value scale because they use the class intervals of the six-step semiquantitative scale. All values qualified with N, L, G, or H were omitted from the histograms. The resulting statistics are biased and the histograms incomplete.

The summary at the end of table 4 presents estimates of geometric means and geometric deviations recomputed using a method devised by A. J. Cohen (Cohen, 1959, 1961; Miesch, 1967) for treating singly censored distributions. If an element has no qualified data values, the geometric mean and geometric deviation will be the same in both this summary and on the page within the table for the particular element. Cohen's method is applicable to distributions truncated on either the high or low end but, because low end truncations (left-censored distributions) are much more common in geochemical problems, the computer program used here was designed only to handle them. If some values are coded "G", the estimates by Cohen's method where not made for that element. The estimates of geometric mean and geometric deviation are unbiased in a strict sense only where the data are derived from a log-normal parent population, but it has been shown that the method gives satisfactory results whenever the data are symmetrical about a single mode (Miesch, 1967, p. B5).

The geometric mean of N values is the Nth root of their product and can be computed as the antilogarithm of the arithmetic mean of the logarithms of the analyses. It is not an estimate of geochemical abundance but of "central tendency" (or characteristic value) for a frequency distribution which follows the exponential or "natural growth" law and is thus symmetrical on a logarithmic scale. The geometric mean has a more stable value than the arithmetic mean because it is not influenced as strongly by data at the extremes of the distribution. The geometric deviation can be computed as the antilogarithm of the standard deviation of the logarithms of the data values. The geometric mean and geometric deviation are useful for characterizing many geochemical distributions, which are often more nearly log-normally than normally distributed. Histograms of the data contained in this report are more nearly symmetrical on a logarithmic scale than when plotted with a linear scale. Cumulative frequency plots of the data values and of their logarithms also demonstrate that these data are distributed in an exponential fashion. While the geometric mean is the best estimate or predictor of values for individuals within a log-normal population, it is not an estimate of geochemical abundance. It can not be used to predict the amounts of elements present as the arithmetic mean can (Miesch, 1963, 1967). For further discussion of geometric mean and geometric deviation see Kenny, (1952) and Miesch, (1963, 1967, and 1976).

BIAS AND VARIABILITY AFFECTING INTERPRETATION

In reviewing the data in table 5 and the statistical summary in table 4, several sources of bias and variability in the data must be considered. Factors including time limitations, weather, snow and vegetative cover, type and amount of sediment accessable, and availability of helicopter landing

sites prevented uniform sampling in all areas. Uneven sample density also resulted from more concentrated sampling of some areas near evidence of mineralization such as iron-staining or visible metallic minerals. This practice has biased the data slightly in favor of samples containing values above background levels. The requirement of truly random sampling--that all potential samples have an equal likelihood of being selected--is not strictly met. In addition, these samples were collected from a large area, where lithologic units of various origins or rock types may comprise several dissimilar geochemical populations. The samples are not grouped on the basis of geological or geochemical affinity. The summary of values thus provides only a general indication of the trends that may be present.

Variability of any value may be influenced by many factors, including the difficulty of obtaining representative samples of inhomogeneous media, variation in sample preparation, and variability inherent in the analytical techniques. It is likely with any large data-set that errors have occurred in recording, key-punching and editing the data and that some have remained undetected. Because of these factors, high values for a single element or a single site should be considered questionable indicators of bedrock mineralization.

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Table 4.--Statistical summary for heavy-mineral concentrates

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 1 -        EXPLANATION OF TABLE HEADINGS AND ABBREVIATIONS
 2
 3 -  VALUE    = the data value
 4 -  NO.      = number of occurances of this value
 5 -  %        = NO. as percent of total number of data values (ANAL)
 6 -  CUM      = number unqualified records at & below this value
 7 -  CUM %    -
 8 -   (col 1)= unqual values at & below this value, as % of ANAL
 9 -   (col 2)= unqual values above this value, as % of ANAL
10 -  TOT CUM = number of values (N,L,T + unqual) at & below this value
11 -  TOT CUM % -
12 -   (col 1)= values not B,H,OTHER at & below this value, as % of ANAL
13 -   (col 2)= values not B,H,OTHER above this value, as % of ANAL
14                ------------------------------
15 -  B - value    = no. values qualified with 'B' (= no data)
16 -    - percent = % of all records read (READ)
17 -  T - value    = no. values qualified with 'T' (= trace)
18 -    - percent = % of all values not B,H, or OTHER (ANAL)
19 -  H - value    = no. values qualified with 'H' (= interference)
20 -    - percent = % of all values not B,H, or OTHER (ANAL)
21 -  N - value    = no. values qualified with 'N' (= not detected)
22 -    - percent = % of all values not B,H, or OTHER (ANAL)
23 -  L - value    = no. values qualified with 'L' (= less than)
24 -    - percent = % of all values not B,H, or OTHER (ANAL)
25 -  G - value    = no. values qualified with 'G' (= greater than)
26 -    - percent = % of all values not B,H, or OTHER (ANAL)
27 -  OTHER        = no. qualified values not equal B,T,H,N,L,G
28 -    - percent = % of all records read (READ)
29 -  UNQUAL   = no. unqualified data values
30 -  ANAL     = total no. valid data values (= unqualified + N,L,T,G)
31 -  READ     = no. input records read
32                ------------------------------
33 -  MIN      = minimum unqualified value
34 -  MAX      = maximum unqualified value
35 -  AMEAN    = arithmetic mean of unqualified values
36 -  SD       = standard deviation for unqualified values
37 -  GMEAN    = geometric mean of unqualified values
38 -  GD       = geometric deviation for unqualified values
39 -  VALUES   = no. of data values used to compute the above statistics.
40 -             Note:  geometric mean & deviation cannot be computed
41 -             for a variable if one or more values are zero or less.
42
43 -         RECOMPUTATION OF STATISTICS FOR QUALIFIED DATA
44
45 - If any data values are qualified with codes N, L, T, or G, then
46 - MIN, MAX, AMEAN, SD, GMEAN, and GD are recomputed after setting
47 - all values with N, L, or T codes equal to 1/2 the lowest qualified
48 - value and setting values with the code G equal to twice the
49 - highest qualified value.  These estimates are usually good when
50 - the % of qualified values is small; becoming increasingly poor
51 - as that percentage increases.
```

Table 4.--Statistical summary for heavy-mineral concentrates--Continued

COLUMN ID.: S-FE%

	VALUE	NO.	%	CUM.	CUM. %		TOT CUM	TOT CUM %	
1	1.500	5	2.28	5	2.3	97.7	5	2.3	97.7
2	2.000	8	3.65	13	5.9	94.1	13	5.9	94.1
3	3.000	20	9.13	33	15.1	84.9	33	15.1	84.9
4	5.000	37	16.89	70	32.0	68.0	70	32.0	68.0
5	7.000	62	28.31	132	60.3	39.7	132	60.3	39.7
6	10.000	64	29.22	196	89.5	10.5	196	89.5	10.5
7	15.000	16	7.31	212	96.8	3.2	212	96.8	3.2
8	20.000	7	3.20	219	100.0	0.0	219	100.0	0.0

B	T	H	N	L	G	OTHER	UNQUAL	ANAL	READ	
0	0	0	0	0	0	0	219	219	219	VALUES
0.0	0.0	0.0	0.0	0.0	0.0	0.0				PERCENT

MIN	MAX	AMEAN	SD	GMEAN	GD	VALUES
1.500	20.00	7.865	3.97	6.850	1.75	219

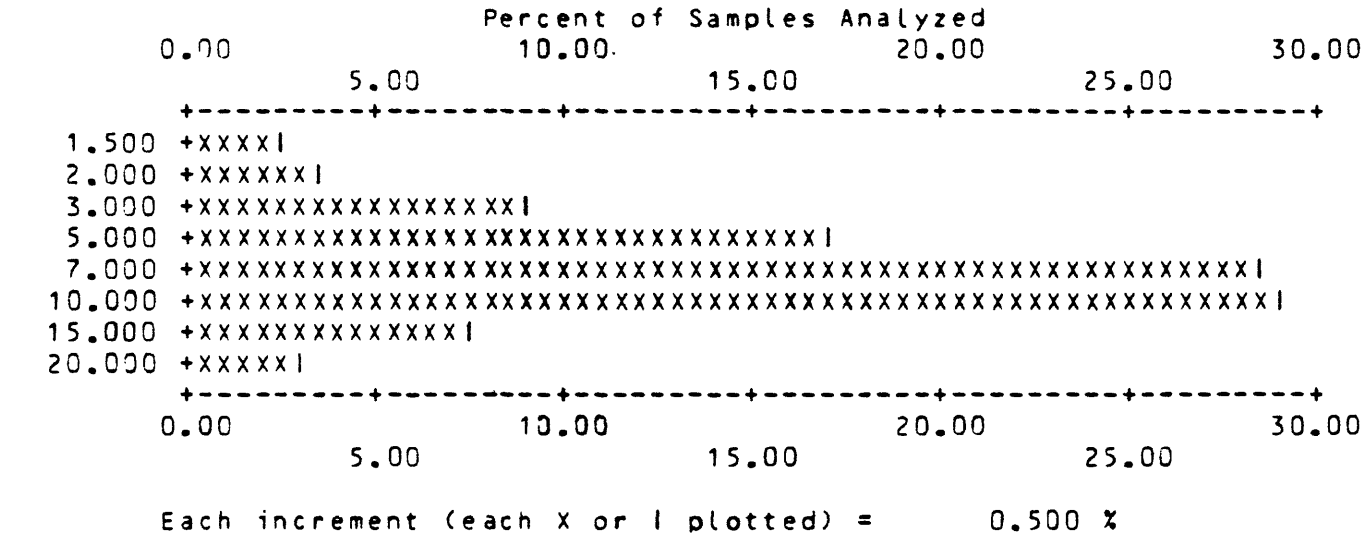


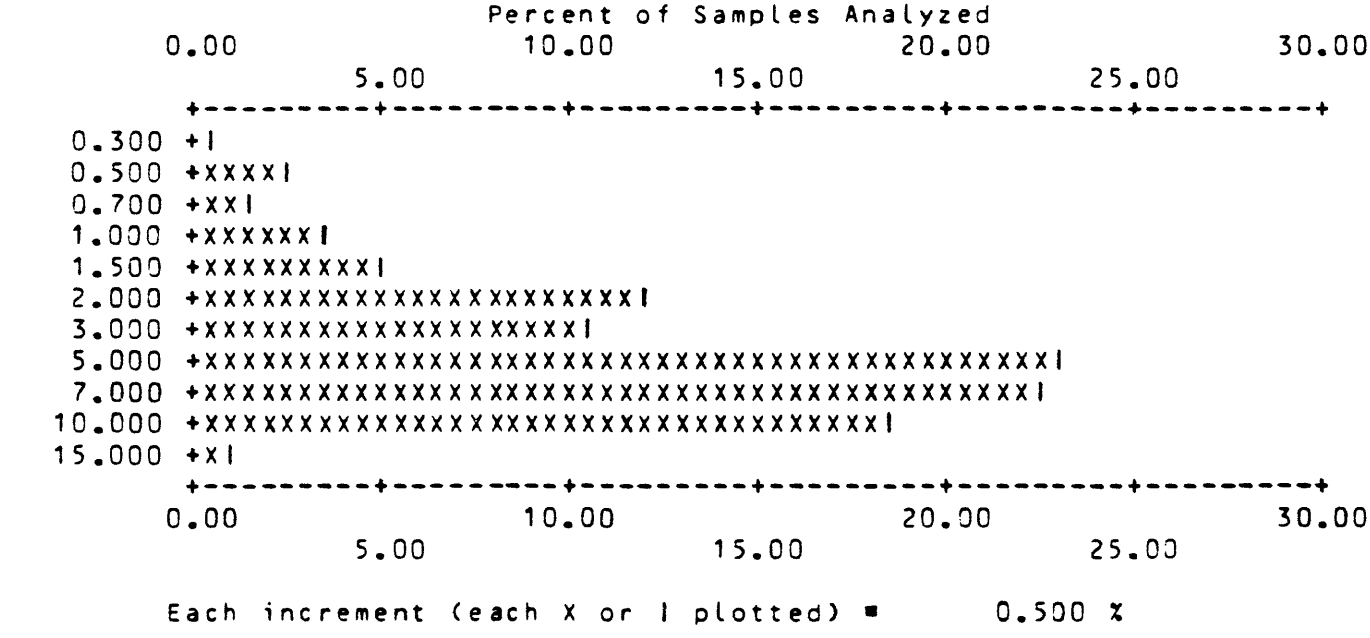
Table 4.--Statistical summary for heavy-mineral concentrates--Continued

COLUMN ID.: S-MG%

	VALUE	NO.	%	CUM.	CUM. %		TOT CUM	TOT CUM %	
1	0.300	1	0.46	1	0.5	99.5	1	0.5	99.5
2	0.500	5	2.28	6	2.7	97.3	6	2.7	97.3
3	0.700	3	1.37	9	4.1	95.9	9	4.1	95.9
4	1.000	8	3.65	17	7.8	92.2	17	7.8	92.2
5	1.500	11	5.02	28	12.8	87.2	28	12.8	87.2
6	2.000	26	11.87	54	24.7	75.3	54	24.7	75.3
7	3.000	23	10.50	77	35.2	64.8	77	35.2	64.8
8	5.000	50	22.83	127	58.0	42.0	127	58.0	42.0
9	7.000	49	22.37	176	80.4	19.6	176	80.4	19.6
10	10.000	41	18.72	217	99.1	0.9	217	99.1	0.9
11	15.000	2	0.91	219	100.0	0.0	219	100.0	0.0

B	T	H	N	L	G	OTHER	UNQUAL	ANAL	READ	
0	0	0	0	0	0	0	219	219	219	VALUES
0.0	0.0	0.0	0.0	0.0	0.0	0.0				PERCENT

MIN	MAX	AMEAN	SD	GMEAN	GD	VALUES
0.300	15.00	5.404	3.14	4.265	2.18	219



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

Table 4.--Statistical summary for heavy-mineral concentrates--Continued

COLUMN ID.: S-CA%

	VALUE	NO.	%	CUM.	CUM. %		TOT CUM	TOT CUM %	
1	2.000	1	0.46	1	0.5	99.5	1	0.5	99.5
2	3.000	2	0.91	3	1.4	98.6	3	1.4	98.6
3	5.000	46	21.00	49	22.4	77.6	49	22.4	77.6
4	7.000	67	30.59	116	53.0	47.0	116	53.0	47.0
5	10.000	83	37.90	199	90.9	9.1	199	90.9	9.1
6	15.000	17	7.76	216	98.6	1.4	216	98.6	1.4
7	20.000	3	1.37	219	100.0	0.0	219	100.0	0.0

B	T	H	N	L	G	OTHER	UNQUAL	ANAL	READ	
0	0	0	0	0	0	0	219	219	219	VALUES
0.0	0.0	0.0	0.0	0.0	0.0	0.0				PERCENT

MIN	MAX	AMEAN	SD	GMEAN	GD	VALUES
2.000	20.00	8.457	3.12	7.929	1.44	219

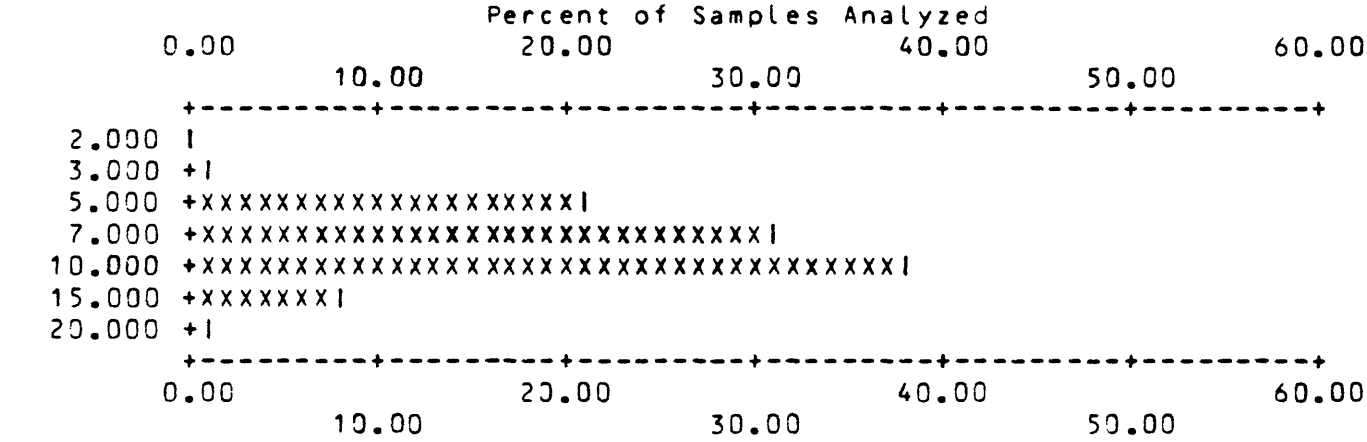


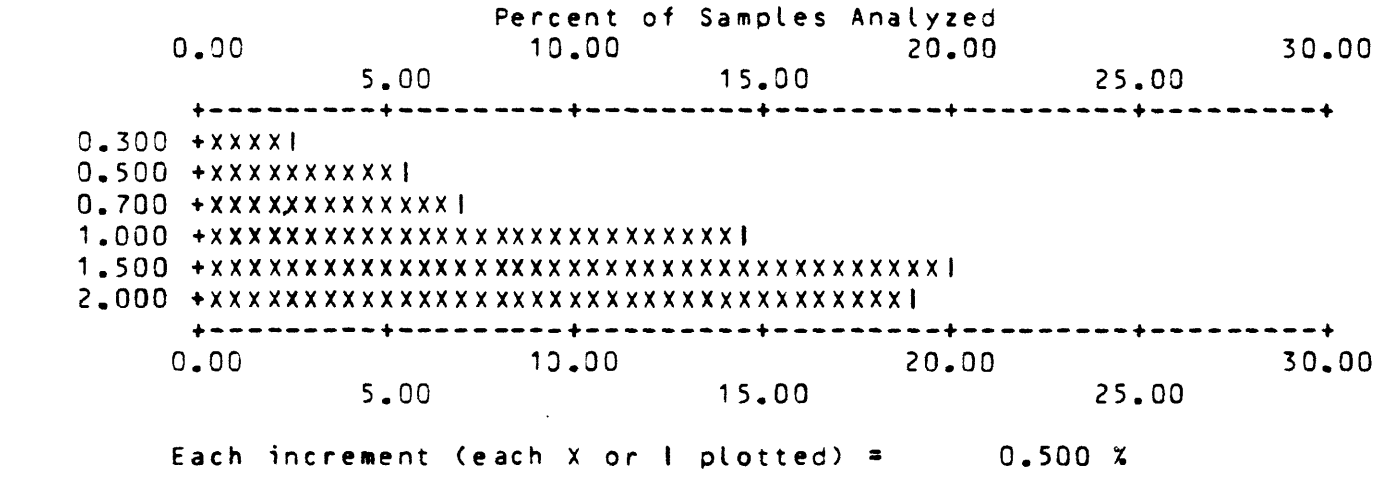
Table 4.--Statistical summary for heavy-mineral concentrates--Continued

COLUMN ID.: S-TI%

	VALUE	NO.	%	CUM.	CUM. %		TOT CUM	TOT CUM %	
1	0.300	5	2.28	5	2.3	97.7	5	2.3	97.7
2	0.500	12	5.48	17	7.8	92.2	17	7.8	92.2
3	0.700	15	6.85	32	14.6	85.4	32	14.6	85.4
4	1.000	32	14.61	64	29.2	70.8	64	29.2	70.8
5	1.500	44	20.09	108	49.3	50.7	108	49.3	50.7
6	2.000	42	19.18	150	68.5	31.5	150	68.5	31.5

B	T	H	N	L	G	OTHER	UNQUAL	ANAL	READ	
0	0	0	0	0	69	0	150	219	219	VALUES
0.0	0.0	0.0	0.0	0.0	31.5	0.0				PERCENT

MIN	MAX	AMEAN	SD	GMEAN	GD	VALUES
0.300	2.00	1.333	0.54	1.199	1.65	150
0.300	4.00	2.174	1.32	1.753	2.01	219



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

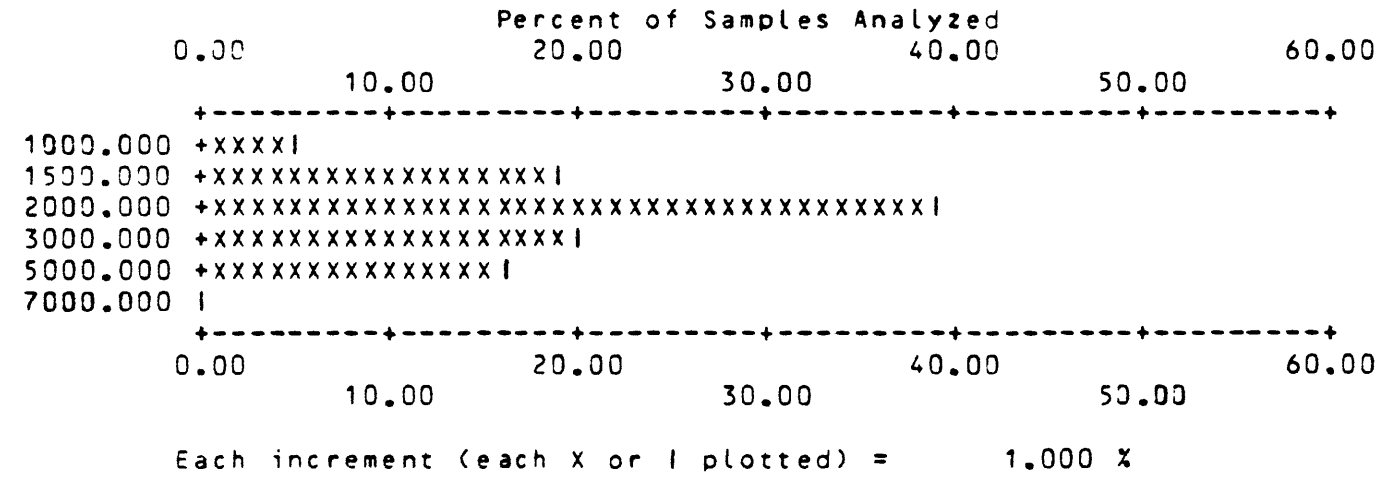
Table 4.--Statistical summary for heavy-mineral concentrates--Continued

COLUMN ID.: S-MN

	VALUE	NO.	%	CUM.	CUM. %		TOT CUM	TOT CUM %	
1	1000.000	11	5.02	11	5.0	95.0	11	5.0	95.0
2	1500.000	41	18.72	52	23.7	76.3	52	23.7	76.3
3	2000.000	86	39.27	138	63.0	37.0	138	63.0	37.0
4	3000.000	44	20.09	182	83.1	16.9	182	83.1	16.9
5	5000.000	36	16.44	218	99.5	0.5	218	99.5	0.5
6	7000.000	1	0.46	219	100.0	0.0	219	100.0	0.0

B	T	H	N	L	G	OTHER	UNQUAL	ANAL	READ	
0	0	0	0	0	0	0	219	219	219	VALUES
0.0	0.0	0.0	0.0	0.0	0.0	0.0				PERCENT

MIN	MAX	AMEAN	SD	GMEAN	GD	VALUES
1000.000	7000.00	2573.059	1253.13	2321.655	1.56	219



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

Table 4.--Statistical summary for heavy-mineral concentrates--Continued

COLUMN ID.: S-AG

	VALUE	NO.	%	CUM.	CUM. %		TOT CUM	TOT CUM %	
1	1.000	1	0.46	1	0.5	99.5	212	96.8	3.2
2	1.500	2	0.91	3	1.4	98.6	214	97.7	2.3
3	2.000	1	0.46	4	1.8	98.2	215	98.2	1.8
4	5.000	1	0.46	5	2.3	97.7	216	98.6	1.4
5	7.000	1	0.46	6	2.7	97.3	217	99.1	0.9
6	10.000	1	0.46	7	3.2	96.8	218	99.5	0.5
7	50.000	1	0.46	8	3.7	96.3	219	100.0	0.0

B	T	H	N	L	G	OTHER	UNQUAL	ANAL	READ	
0	0	0	203	8	0	0	8	219	219	VALUES
0.0	0.0	0.0	92.7	3.7	0.0	0.0				PERCENT

MIN	MAX	AMEAN	SD	GMEAN	GD	VALUES
1.000	50.00	9.750	16.57	4.093	3.68	8
0.500	50.00	0.838	3.44	0.540	1.58	219

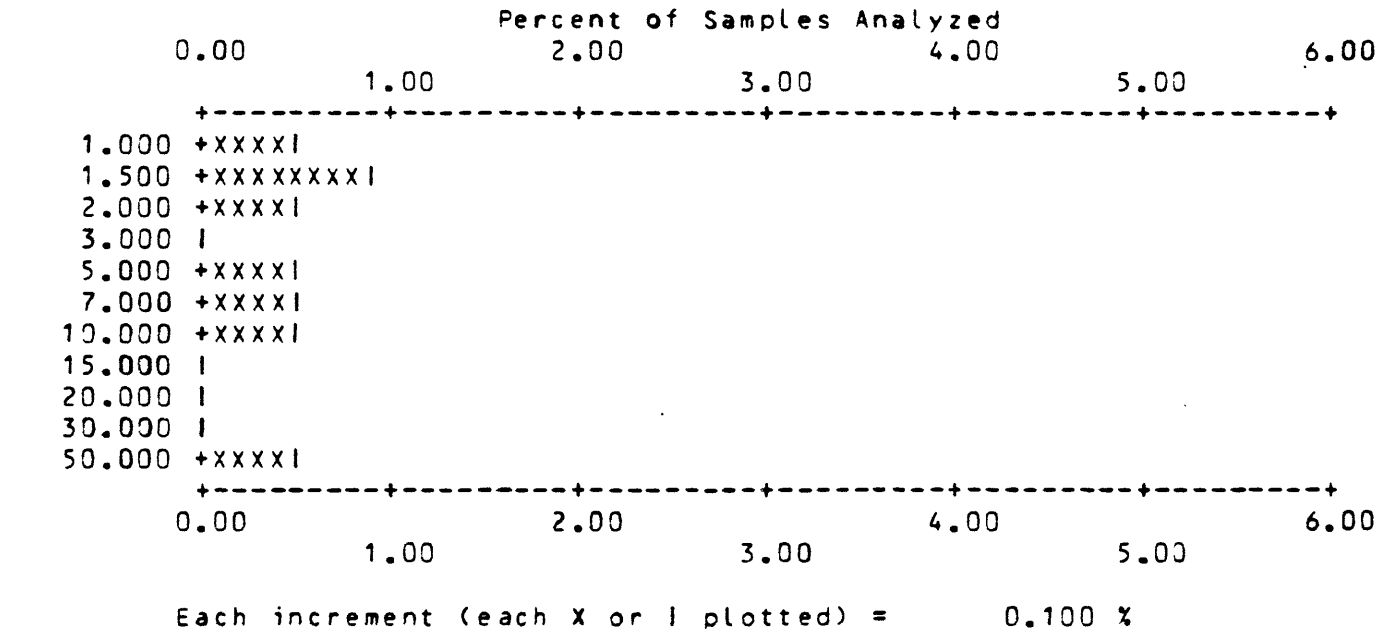


Table 4.--Statistical summary for heavy-mineral concentrates--Continued

COLUMN ID.: S-AS

NO UNQUALIFIED VALUES FOUND

B	T	H	N	L	G	OTHER	UNQUAL	ANAL	READ	
0	0	0	219	0	0	0	0	219	219	VALUES
0.0	0.0	0.0	100.0	0.0	0.0	0.0				PERCENT

Table 4.--Statistical summary for heavy-mineral concentrates--Continued

COLUMN ID.: S-AU

	VALUE	NO.	%	CUM.	CUM. %	TOT CUM	TOT CUM %
1	70.000	1	0.46	1	0.5	99.5	219	100.0	0.0

B	T	H	N	L	G	OTHER	UNQUAL	ANAL	READ	
0	0	0	218	0	0	0	1	219	219	VALUES
0.0	0.0	0.0	99.5	0.0	0.0	0.0				PERCENT

MIN	MAX	AMEAN	SD	GMEAN	GD	VALUES
70.000	70.00	70.000	0.00	70.000	********	1
10.000	70.00	10.274	4.05	10.089	1.14	219

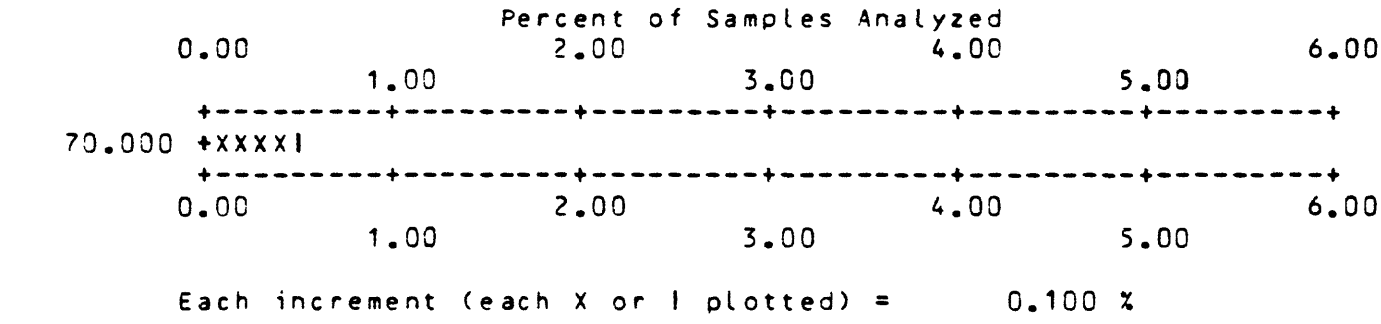


Table 4.--Statistical summary for heavy-mineral concentrates--Continued

COLUMN ID.: S-B

	VALUE	NO.	%	CUM.	CUM. %		TOT CUM	TOT CUM %	
1	20.000	55	25.11	55	25.1	74.9	198	90.4	9.6
2	30.000	4	1.83	59	26.9	73.1	202	92.2	7.8
3	50.000	8	3.65	67	30.6	69.4	210	95.9	4.1
4	70.000	2	0.91	69	31.5	68.5	212	96.8	3.2
5	100.000	4	1.83	73	33.3	66.7	216	98.6	1.4
6	150.000	2	0.91	75	34.2	65.8	218	99.5	0.5
7	200.000	1	0.46	76	34.7	65.3	219	100.0	0.0

B	T	H	N	L	G	OTHER	UNQUAL	ANAL	READ	
0	0	0	3	140	0	0	76	219	219	VALUES
0.0	0.0	0.0	1.4	63.9	0.0	0.0				PERCENT

MIN	MAX	AMEAN	SD	GMEAN	GD	VALUES
20.000	200.00	35.000	34.12	27.509	1.81	76
10.000	200.00	18.676	23.30	14.207	1.81	219

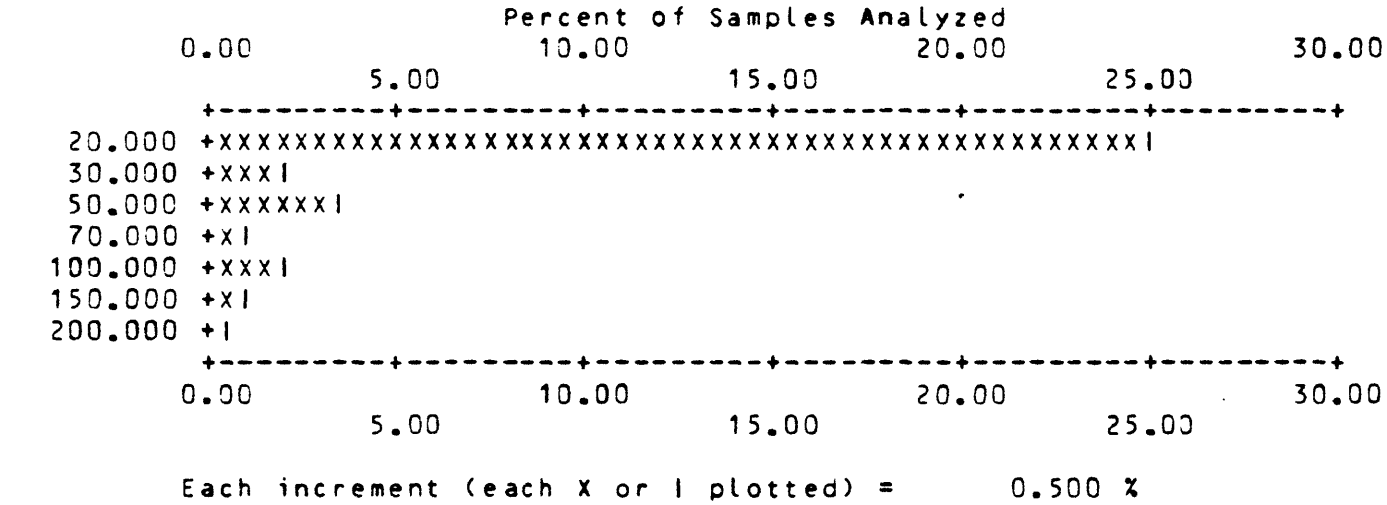


Table 4.--Statistical summary for heavy-mineral concentrates--Continued

COLUMN ID.: S-BA

	VALUE	NO.	%	CUM.	CUM. %		TOT CUM	TOT CUM %	
1	50.000	1	0.46	1	0.5	99.5	1	0.5	99.5
2	100.000	11	5.02	12	5.5	94.5	12	5.5	94.5
3	150.000	21	9.59	33	15.1	84.9	33	15.1	84.9
4	200.000	40	18.26	73	33.3	66.7	73	33.3	66.7
5	300.000	68	31.05	141	64.4	35.6	141	64.4	35.6
6	500.000	35	15.98	176	80.4	19.6	176	80.4	19.6
7	700.000	22	10.05	198	90.4	9.6	198	90.4	9.6
8	1000.000	8	3.65	206	94.1	5.9	206	94.1	5.9
9	1500.000	4	1.83	210	95.9	4.1	210	95.9	4.1
10	2000.000	3	1.37	213	97.3	2.7	213	97.3	2.7
11	3000.000	4	1.83	217	99.1	0.9	217	99.1	0.9
12	5000.000	2	0.91	219	100.0	0.0	219	100.0	0.0

B	T	H	N	L	G	OTHER	UNQUAL	ANAL	READ	
0	0	0	0	0	0	0	219	219	219	VALUES
0.0	0.0	0.0	0.0	0.0	0.0	0.0				PERCENT

MIN	MAX	AMEAN	SD	GMEAN	GD	
50.000	5000.00	491.324	642.42	341.643	2.13	VALUES
					219	

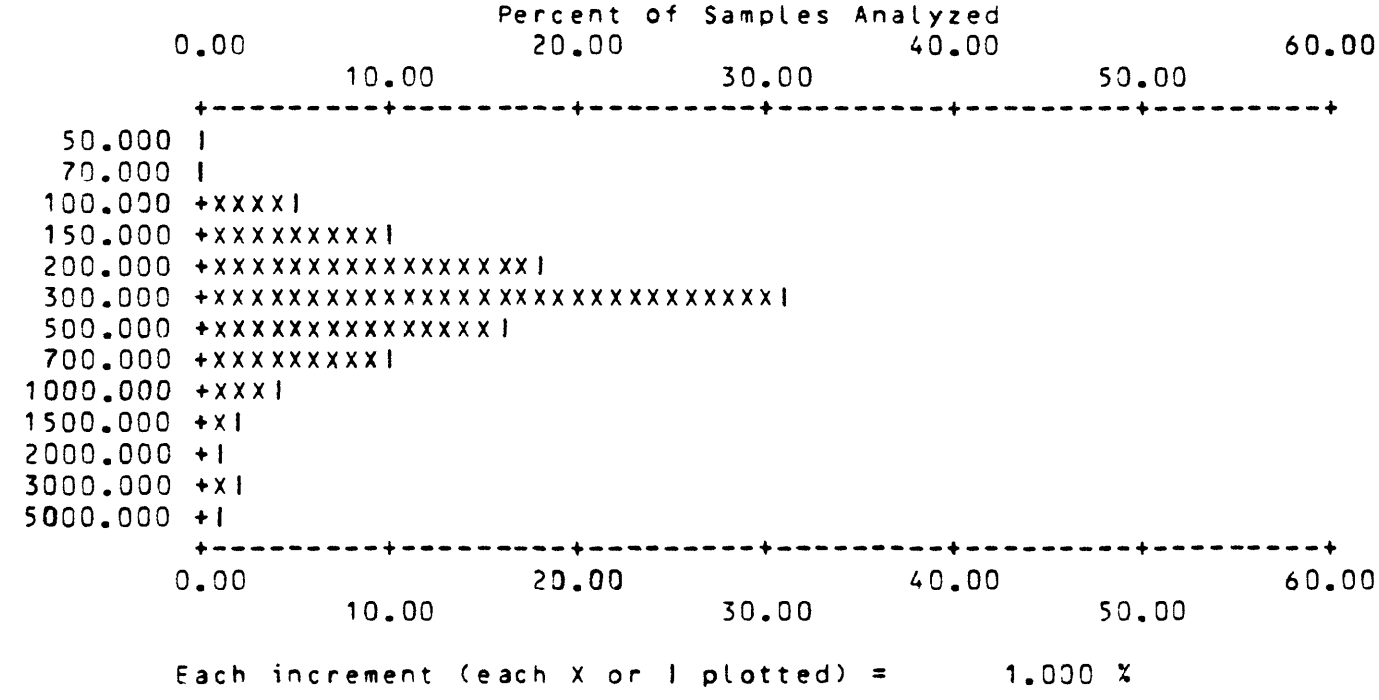


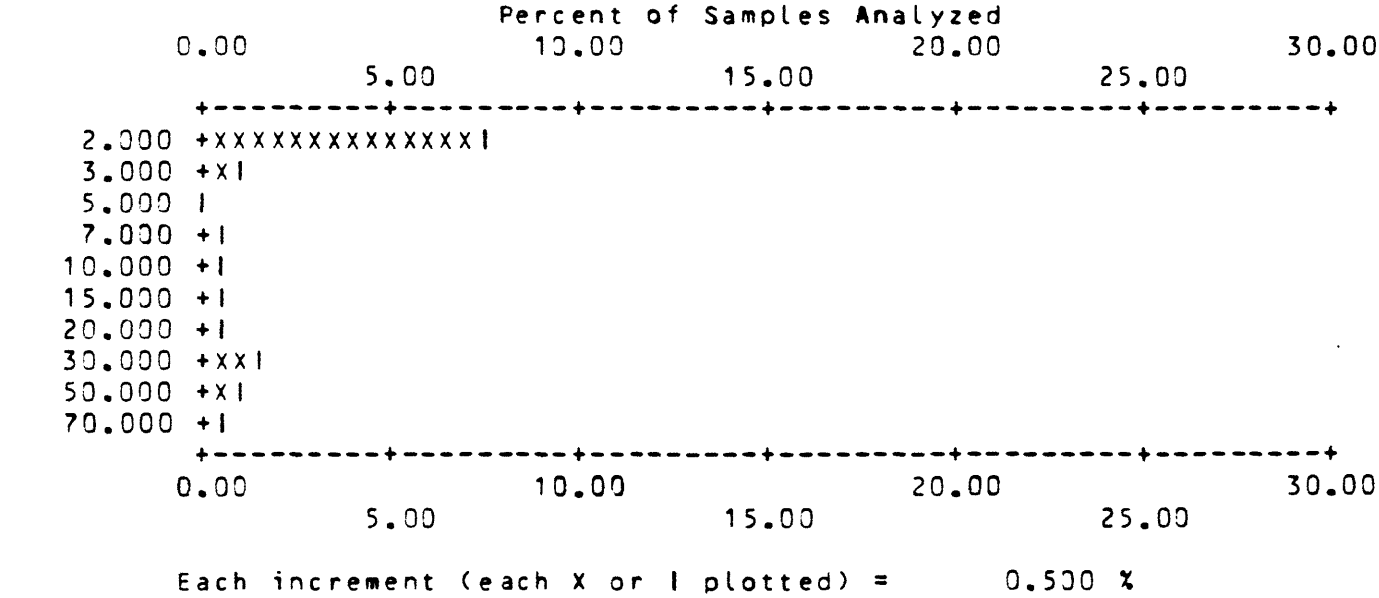
Table 4.--Statistical summary for heavy-mineral concentrates--Continued

COLUMN ID.: S-BE

	VALUE	NO.	%	CUM.	CUM. %		TOT CUM	TOT CUM %	
1	2.000	16	7.31	16	7.3	92.7	207	94.5	5.5
2	3.000	2	0.91	18	8.2	91.8	209	95.4	4.6
3	7.000	1	0.46	19	8.7	91.3	210	95.9	4.1
4	10.000	1	0.46	20	9.1	90.9	211	96.3	3.7
5	15.000	1	0.46	21	9.6	90.4	212	96.8	3.2
6	20.000	1	0.46	22	10.0	90.0	213	97.3	2.7
7	30.000	3	1.37	25	11.4	88.6	216	98.6	1.4
8	50.000	2	0.91	27	12.3	87.7	218	99.5	0.5
9	70.000	1	0.46	28	12.8	87.2	219	100.0	0.0

B	T	H	N	L	G	OTHER	UNQUAL	ANAL	READ	
0	0	0	30	161	0	0	28	219	219	VALUES
0.0	0.0	0.0	13.7	73.5	0.0	0.0				PERCENT

MIN	MAX	AMEAN	SD	GMEAN	GD	VALUES
2.000	70.00	12.500	18.34	5.081	3.63	28
1.000	70.00	2.470	7.51	1.231	2.03	219



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

Table 4.--Statistical summary for heavy-mineral concentrates--Continued

COLUMN ID.: S-BI

	VALUE	NO.	%	CUM.	CUM. %		TOT CUM	TOT CUM %	
1	20.000	1	0.46	1	0.5	99.5	215	98.2	1.8
2	30.000	3	1.37	4	1.8	98.2	218	99.5	0.5
3	70.000	1	0.46	5	2.3	97.7	219	100.0	0.0

B	T	H	N	L	G	OTHER	UNQUAL	ANAL	READ	
0	0	0	201	13	0	0	5	219	219	VALUES
0.0	0.0	0.0	91.8	5.9	0.0	0.0				PERCENT

MIN	MAX	AMEAN	SD	GMEAN	GD	VALUES
20.000	70.00	36.000	19.49	32.772	1.58	5
10.000	70.00	10.594	4.70	10.275	1.21	219

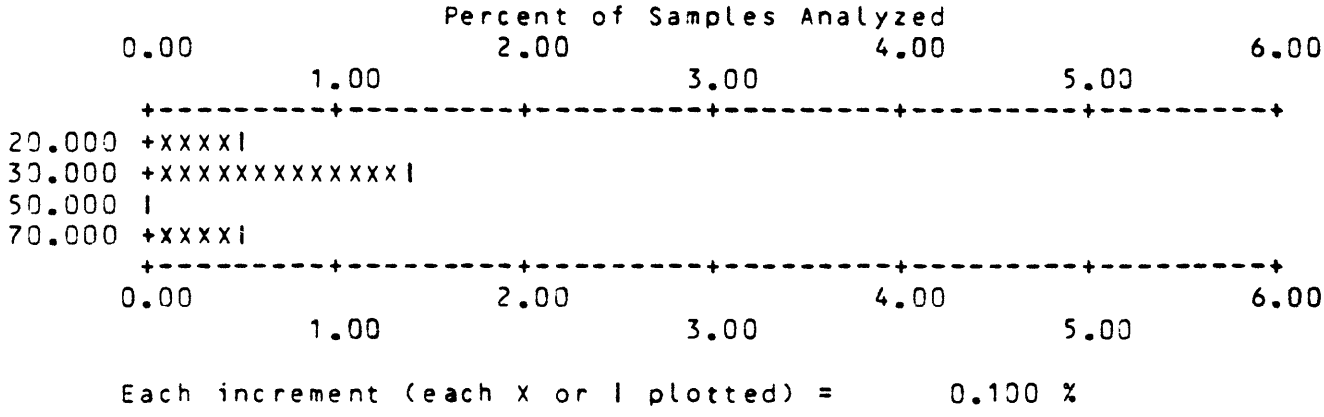


Table 4.--Statistical summary for heavy-mineral concentrates--Continued

COLUMN ID.: S-CD

NO UNQUALIFIED VALUES FOUND

B	T	H	N	L	G	OTHER	UNQUAL	ANAL	READ	
0	0	0	219	0	0	0	0	219	219	VALUES
0.0	0.0	0.0	100.0	0.0	0.0	0.0				PERCENT

Table 4.--Statistical summary for heavy-mineral concentrates--Continued

COLUMN ID.: S-CO

	VALUE	NO.	%	CUM.	CUM. %		TOT CUM	TOT CUM %	
1	10.000	12	5.48	12	5.5	94.5	16	7.3	92.7
2	15.000	9	4.11	21	9.6	90.4	25	11.4	88.6
3	20.000	26	11.87	47	21.5	78.5	51	23.3	76.7
4	30.000	53	24.20	100	45.7	54.3	104	47.5	52.5
5	50.000	70	31.96	170	77.6	22.4	174	79.5	20.5
6	70.000	35	15.98	205	93.6	6.4	209	95.4	4.6
7	100.000	10	4.57	215	98.2	1.8	219	100.0	0.0

B	T	H	N	L	G	OTHER	UNQUAL	ANAL	READ	
0	0	0	0	4	0	0	215	219	219	VALUES
0.0	0.0	0.0	0.0	1.8	0.0	0.0				PERCENT

MIN	MAX	AMEAN	SD	GMEAN	GD	VALUES
10.000	100.00	43.326	22.07	37.415	1.78	215
5.000	100.00	42.626	22.46	36.065	1.88	219

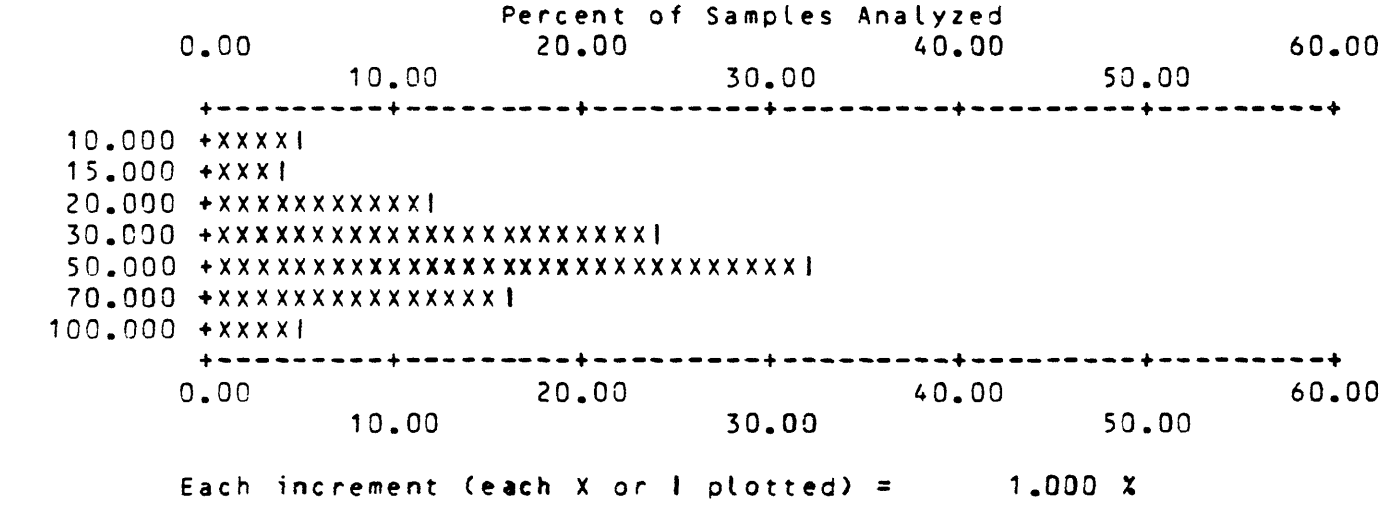


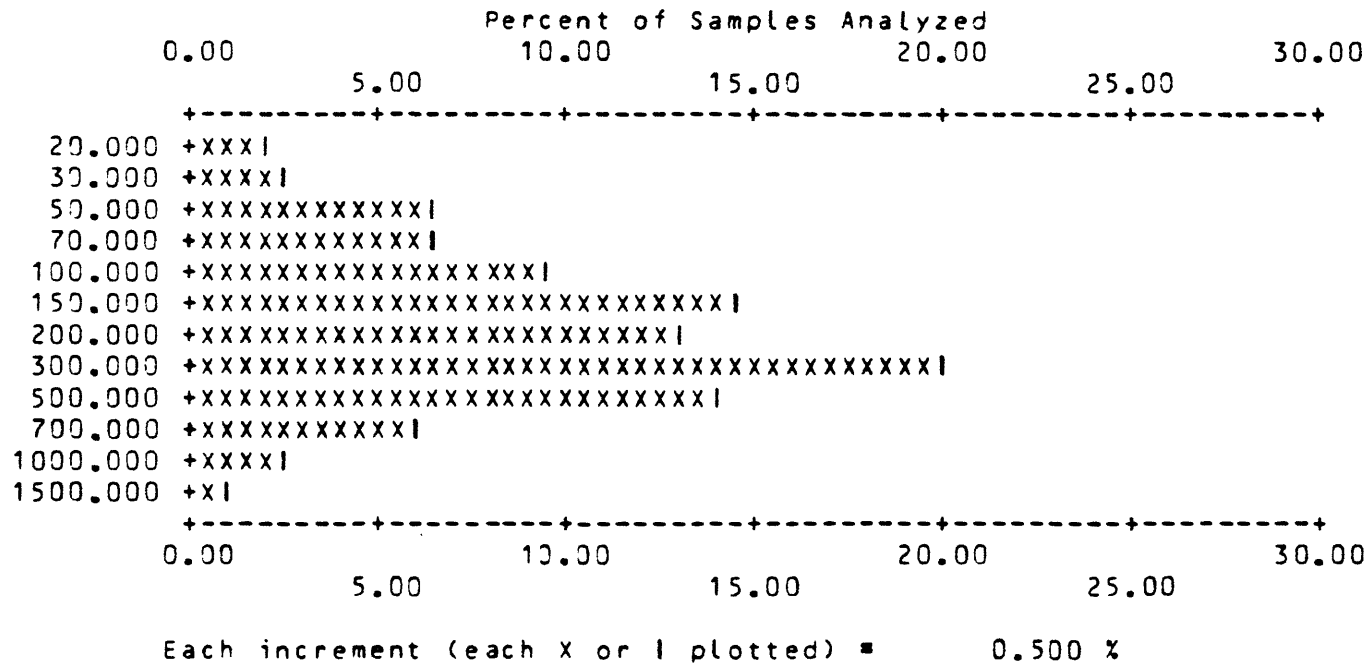
Table 4.--Statistical summary for heavy-mineral concentrates--Continued

COLUMN ID.: S-CR

	VALUE	NO.	%	CUM.	CUM. %		TOT CUM	TOT CUM %	
1	20.000	4	1.83	4	1.8	98.2	7	3.2	96.8
2	30.000	6	2.74	10	4.6	95.4	13	5.9	94.1
3	50.000	14	6.39	24	11.0	89.0	27	12.3	87.7
4	70.000	14	6.39	38	17.4	82.6	41	18.7	81.3
5	100.000	21	9.59	59	26.9	73.1	62	28.3	71.7
6	150.000	32	14.61	91	41.6	58.4	94	42.9	57.1
7	200.000	29	13.24	120	54.8	45.2	123	56.2	43.8
8	300.000	44	20.09	164	74.9	25.1	167	76.3	23.7
9	500.000	31	14.16	195	89.0	11.0	198	90.4	9.6
10	700.000	13	5.94	208	95.0	5.0	211	96.3	3.7
11	1000.000	6	2.74	214	97.7	2.3	217	99.1	0.9
12	1500.000	2	0.91	216	98.6	1.4	219	100.0	0.0

B	T	H	N	L	G	OTHER	UNQUAL	ANAL	READ	
0	0	0	0	3	0	0	216	219	219	VALUES
0.0	0.0	0.0	0.0	1.4	0.0	0.0				PERCENT

MIN	MAX	AMEAN	SD	GMEAN	GD	VALUES
20.000	1500.00	284.444	248.76	197.934	2.47	216
10.000	1500.00	280.685	249.10	190.003	2.62	219



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

Table 4.--Statistical summary for heavy-mineral concentrates--Continued

COLUMN ID.: S-CU

	VALUE	NO.	%	CUM.	CUM. %		TOT CUM	TOT CUM %	
1	10.000	22	10.05	22	10.0	90.0	56	25.6	74.4
2	15.000	26	11.87	48	21.9	78.1	82	37.4	62.6
3	20.000	27	12.33	75	34.2	65.8	109	49.8	50.2
4	30.000	19	8.68	94	42.9	57.1	128	58.4	41.6
5	50.000	30	13.70	124	56.6	43.4	158	72.1	27.9
6	70.000	19	8.68	143	65.3	34.7	177	80.8	19.2
7	100.000	27	12.33	170	77.6	22.4	204	93.2	6.8
8	150.000	5	2.28	175	79.9	20.1	209	95.4	4.6
9	200.000	10	4.57	185	84.5	15.5	219	100.0	0.0

B	T	H	N	L	G	OTHER	UNQUAL	ANAL	READ	
0	0	0	9	25	0	0	185	219	219	VALUES
0.0	0.0	0.0	4.1	11.4	0.0	0.0				PERCENT

MIN	MAX	AMEAN	SD	GMEAN	GD	VALUES
10.000	200.00	54.054	49.23	36.803	2.43	185
5.000	200.00	46.438	48.61	26.996	2.98	219

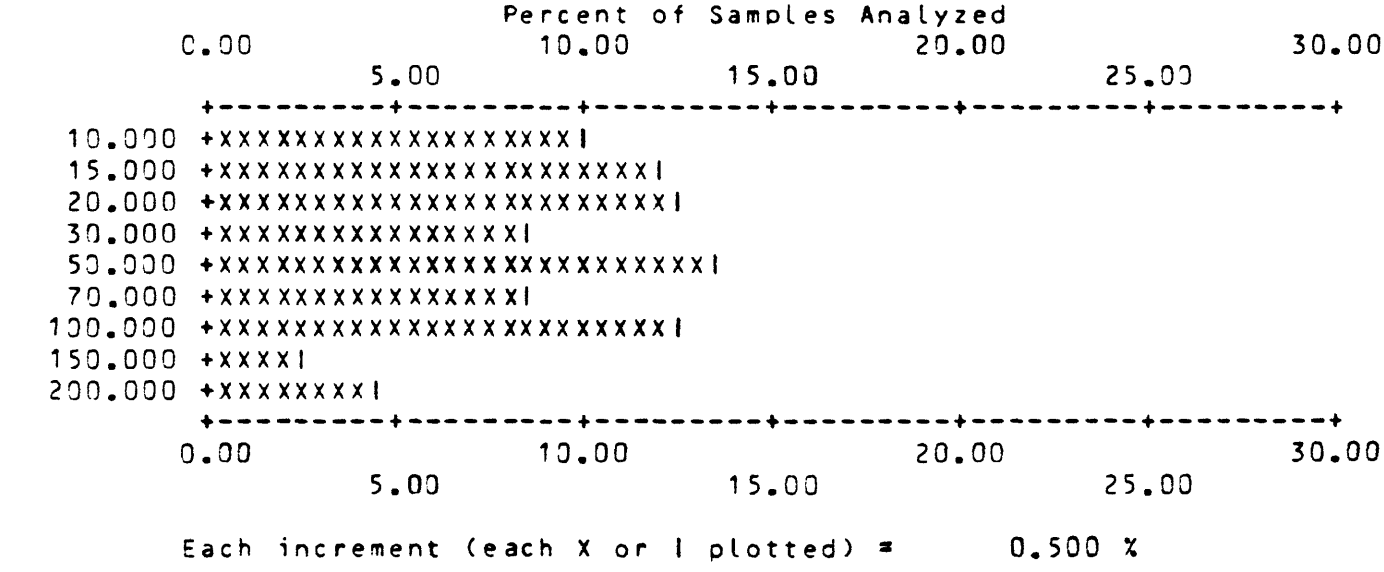


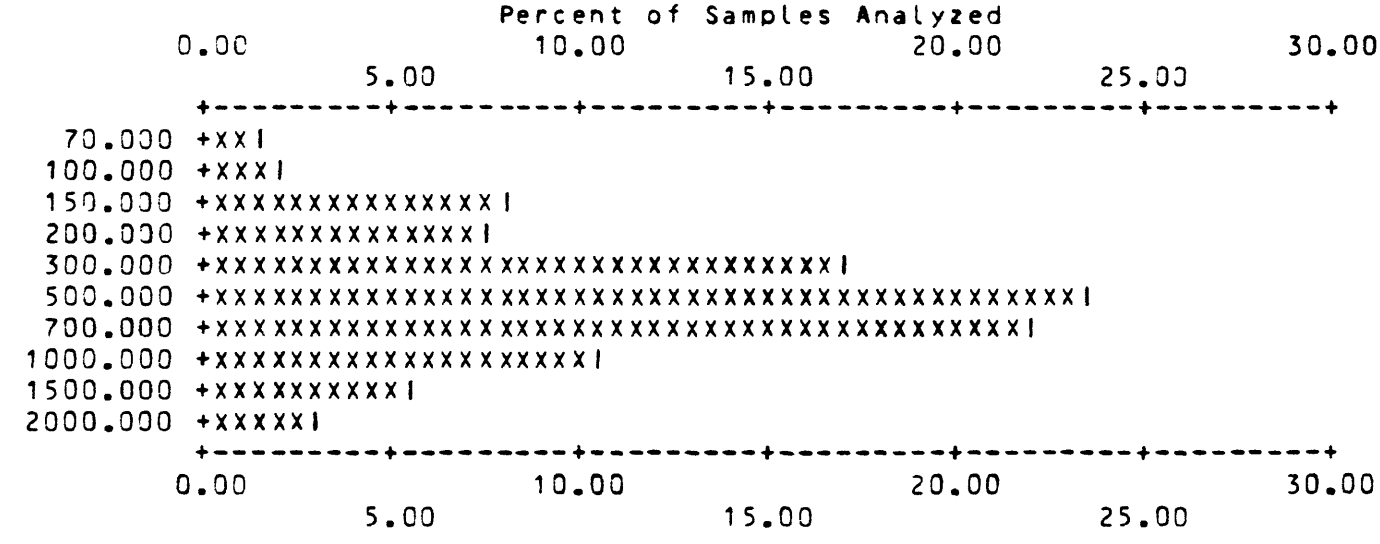
Table 4.--Statistical summary for heavy-mineral concentrates--Continued

COLUMN ID.: S-LA

	VALUE	NO.	%	CUM.	CUM. %		TOT CUM	TOT CUM %	
1	70.000	3	1.37	3	1.4	98.6	3	1.4	98.6
2	100.000	4	1.83	7	3.2	96.8	7	3.2	96.8
3	150.000	17	7.76	24	11.0	89.0	24	11.0	89.0
4	200.000	16	7.31	40	18.3	81.7	40	18.3	81.7
5	300.000	37	16.89	77	35.2	64.8	77	35.2	64.8
6	500.000	52	23.74	129	58.9	41.1	129	58.9	41.1
7	700.000	48	21.92	177	80.8	19.2	177	80.8	19.2
8	1000.000	23	10.50	200	91.3	8.7	200	91.3	8.7
9	1500.000	12	5.48	212	96.8	3.2	212	96.8	3.2
10	2000.000	7	3.20	219	100.0	0.0	219	100.0	0.0

B	T	H	N	L	G	OTHER	UNQUAL	ANAL	READ	
0	0	0	0	0	0	0	219	219	219	VALUES
0.0	0.0	0.0	0.0	0.0	0.0	0.0				PERCENT

MIN	MAX	AMEAN	SD	GMEAN	GD	
70.000	2000.00	603.014	424.55	474.672	2.06	VALUES
					219	



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

Table 4.--Statistical summary for heavy-mineral concentrates--Continued

COLUMN ID.: S-MO

	VALUE	NO.	%	CUM.	CUM. %		TOT CUM	TOT CUM %	
1	15.000	1	0.46	1	0.5	99.5	211	96.3	3.7
2	20.000	2	0.91	3	1.4	98.6	213	97.3	2.7
3	50.000	1	0.46	4	1.8	98.2	214	97.7	2.3
4	70.000	3	1.37	7	3.2	96.8	217	99.1	0.9
5	100.000	2	0.91	9	4.1	95.9	219	100.0	0.0

B	T	H	N	L	G	OTHER	UNQUAL	ANAL	READ	
0	0	0	209	1	0	0	9	219	219	VALUES
0.0	0.0	0.0	95.4	0.5	0.0	0.0				PERCENT

MIN	MAX	AMEAN	SD	GMEAN	GD	VALUES
15.000	100.00	57.222	33.08	46.564	2.10	9
5.000	100.00	7.146	12.17	5.480	1.59	219

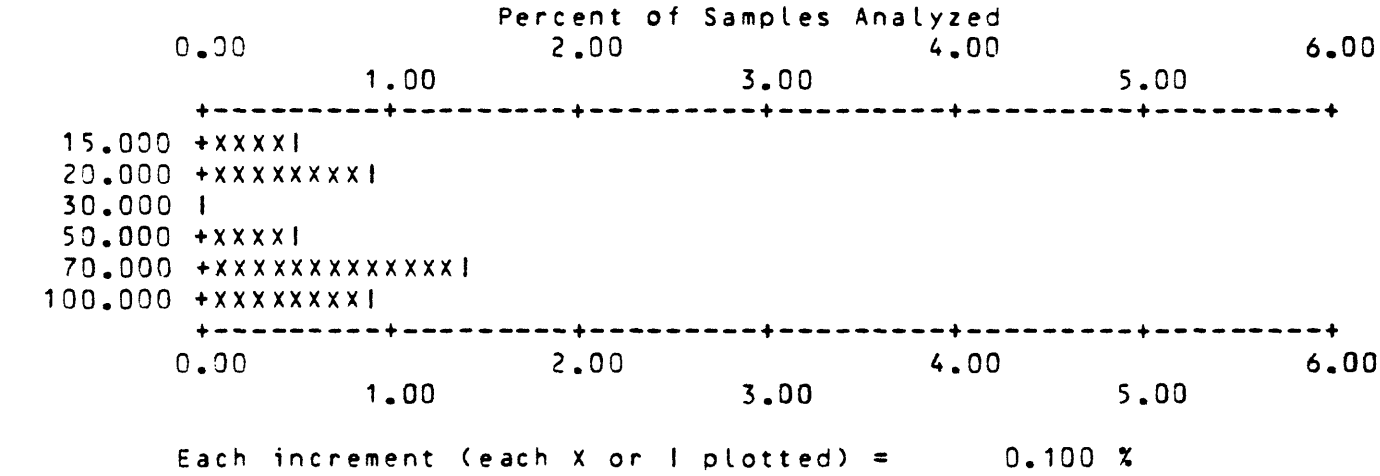


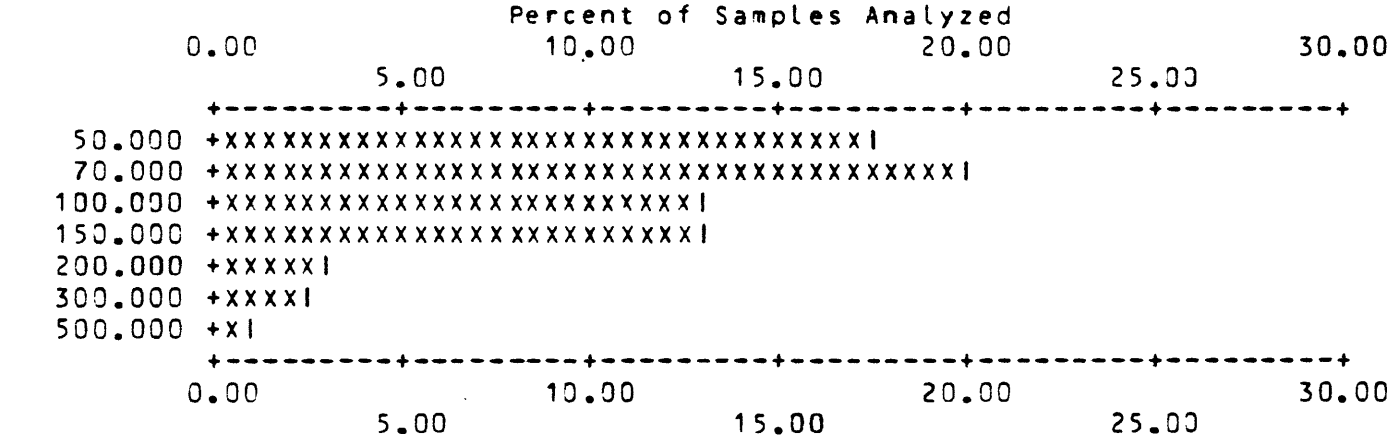
Table 4.--Statistical summary for heavy-mineral concentrates--Continued

COLUMN ID.: S-NB

	VALUE	NO.	%	CUM.	CUM. %		TOT CUM	TOT CUM %	
1	50.000	38	17.35	38	17.4	82.6	105	47.9	52.1
2	70.000	44	20.09	82	37.4	62.6	149	68.0	32.0
3	100.000	28	12.79	110	50.2	49.8	177	80.8	19.2
4	150.000	28	12.79	138	63.0	37.0	205	93.6	6.4
5	200.000	7	3.20	145	66.2	33.8	212	96.8	3.2
6	300.000	5	2.28	150	68.5	31.5	217	99.1	0.9
7	500.000	2	0.91	152	69.4	30.6	219	100.0	0.0

B	T	H	N	L	G	OTHER	UNQUAL	ANAL	READ	
0	0	0	8	59	0	0	152	219	219	VALUES
0.0	0.0	0.0	3.7	26.9	0.0	0.0				PERCENT

MIN	MAX	AMEAN	SD	GMEAN	GD	VALUES
50.000	500.00	104.474	72.40	89.350	1.69	152
25.000	500.00	80.160	70.56	60.515	2.08	219



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

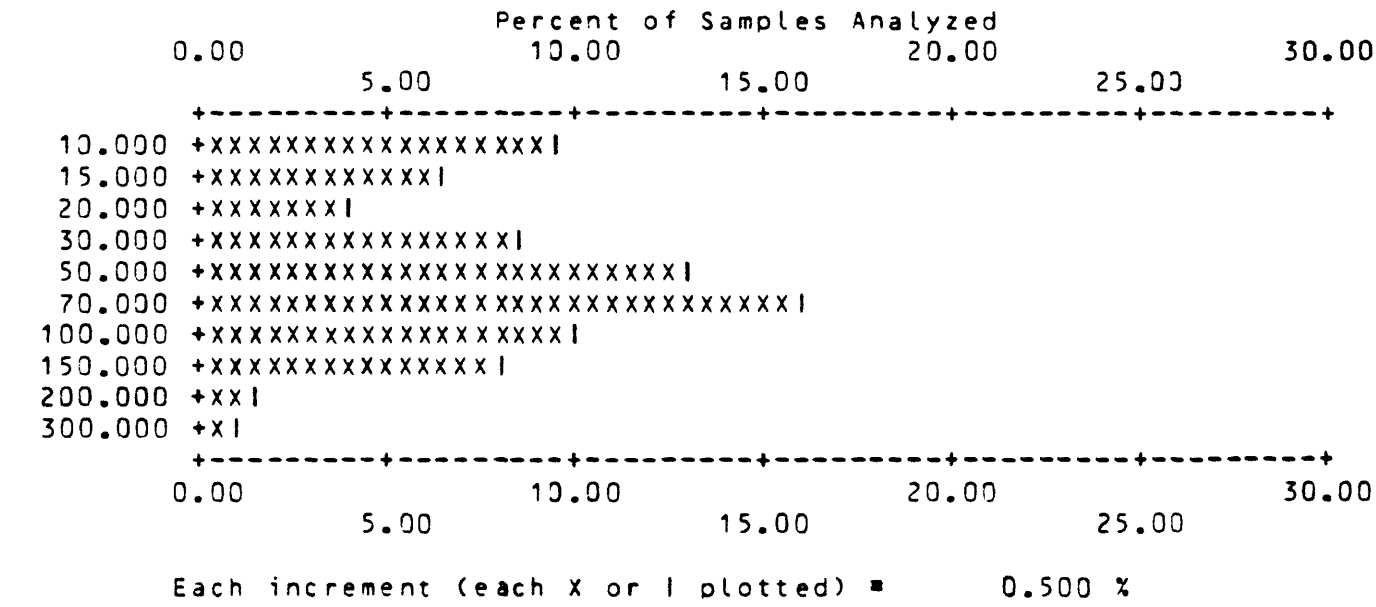
Table 4.--Statistical summary for heavy-mineral concentrates--Continued

COLUMN ID.: S-NI

	VALUE	NO.	%	CUM.	CUM. %		TOT CUM	TOT CUM %	
1	10.000	21	9.59	21	9.6	90.4	70	32.0	68.0
2	15.000	14	6.39	35	16.0	84.0	84	38.4	61.6
3	20.000	9	4.11	44	20.1	79.9	93	42.5	57.5
4	30.000	19	8.68	63	28.8	71.2	112	51.1	48.9
5	50.000	28	12.79	91	41.6	58.4	140	63.9	36.1
6	70.000	35	15.98	126	57.5	42.5	175	79.9	20.1
7	100.000	22	10.05	148	67.6	32.4	197	90.0	10.0
8	150.000	17	7.76	165	75.3	24.7	214	97.7	2.3
9	200.000	3	1.37	168	76.7	23.3	217	99.1	0.9
10	300.000	2	0.91	170	77.6	22.4	219	100.0	0.0

B	T	H	N	L	G	OTHER	UNQUAL	ANAL	READ	
0	0	0	2	47	0	0	170	219	219	VALUES
0.0	0.0	0.0	0.9	21.5	0.0	0.0				PERCENT

MIN	MAX	AMEAN	SD	GMEAN	GD	VALUES
10.000	300.00	64.529	52.29	45.734	2.43	170
5.000	300.00	51.210	52.32	27.871	3.36	219



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

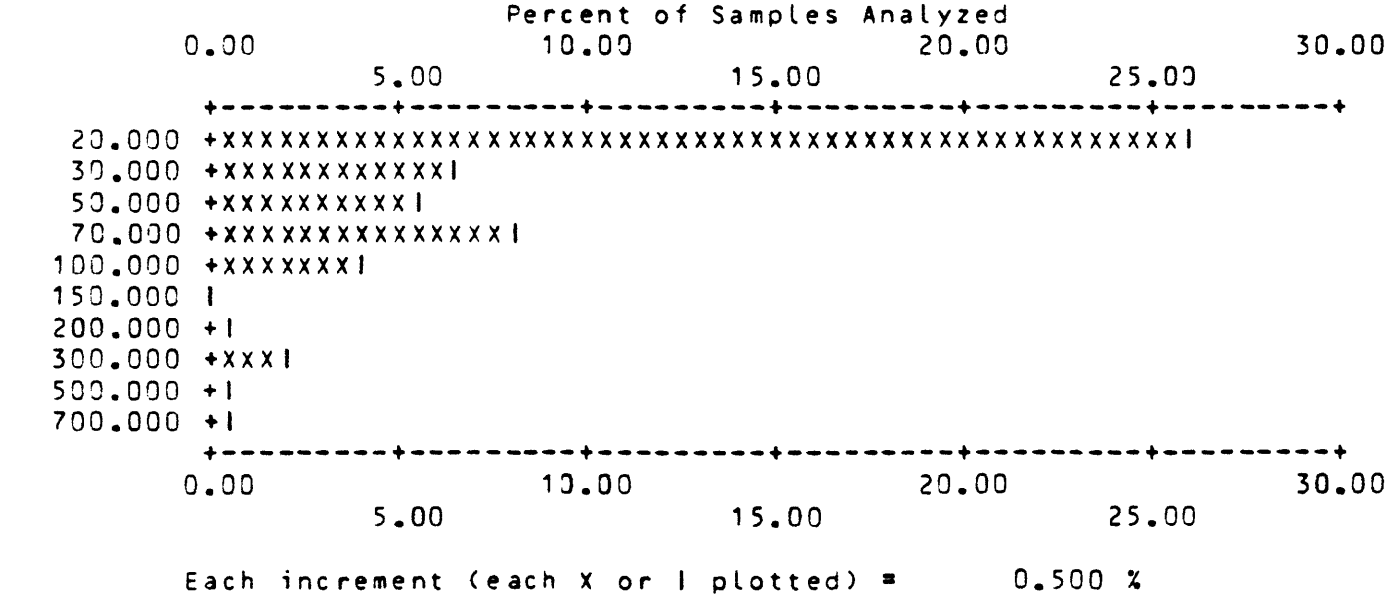
Table 4.--Statistical summary for heavy-mineral concentrates--Continued

COLUMN ID.: S-PB

	VALUE	NO.	%	CUM.	CUM. %		TOT CUM	TOT CUM %	
1	20.000	57	26.03	57	26.0	74.0	159	72.6	27.4
2	30.000	14	6.39	71	32.4	67.6	173	79.0	21.0
3	50.000	12	5.48	83	37.9	62.1	185	84.5	15.5
4	70.000	18	8.22	101	46.1	53.9	203	92.7	7.3
5	100.000	9	4.11	110	50.2	49.8	212	96.8	3.2
6	200.000	1	0.46	111	50.7	49.3	213	97.3	2.7
7	300.000	4	1.83	115	52.5	47.5	217	99.1	0.9
8	500.000	1	0.46	116	53.0	47.0	218	99.5	0.5
9	700.000	1	0.46	117	53.4	46.6	219	100.0	0.0

B	T	H	N	L	G	OTHER	UNQUAL	ANAL	READ	
0	0	0	10	92	0	0	117	219	219	VALUES
0.0	0.0	0.0	4.6	42.0	0.0	0.0				PERCENT

MIN	MAX	AMEAN	SD	GMEAN	GD	VALUES
20.000	700.00	59.145	91.65	37.522	2.24	117
10.000	700.00	36.256	71.23	20.268	2.42	219



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

Table 4.--Statistical summary for heavy-mineral concentrates--Continued

COLUMN ID.: S-SB

NO UNQUALIFIED VALUES FOUND

B	T	H	N	L	G	OTHER	UNQUAL	ANAL	READ	
0	0	0	219	0	0	0	0	219	219	VALUES
0.0	0.0	0.0	100.0	0.0	0.0	0.0				PERCENT

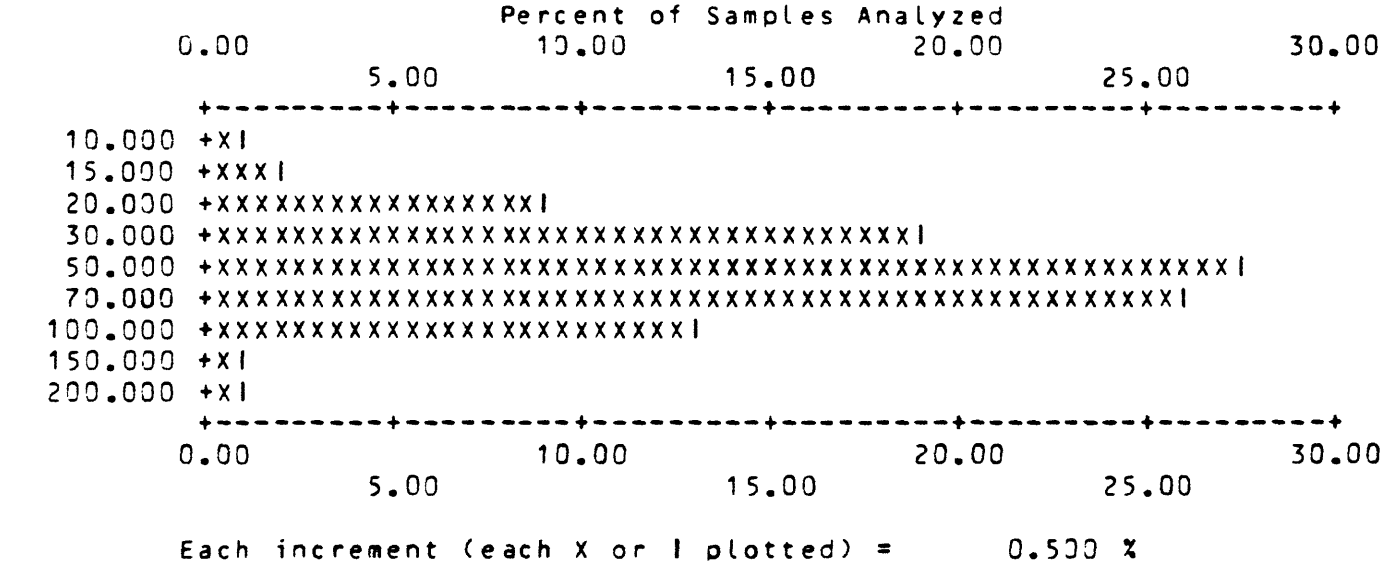
Table 4.--Statistical summary for heavy-mineral concentrates--Continued

COLUMN ID.: S-SC

	VALUE	NO.	%	CUM.	CUM. %		TOT CUM	TOT CUM %	
1	10.000	2	0.91	2	0.9	99.1	2	0.9	99.1
2	15.000	4	1.83	6	2.7	97.3	6	2.7	97.3
3	20.000	20	9.13	26	11.9	88.1	26	11.9	88.1
4	30.000	42	19.18	68	31.1	68.9	68	31.1	68.9
5	50.000	60	27.40	128	58.4	41.6	128	58.4	41.6
6	70.000	57	26.03	185	84.5	15.5	185	84.5	15.5
7	100.000	29	13.24	214	97.7	2.3	214	97.7	2.3
8	150.000	2	0.91	216	98.6	1.4	216	98.6	1.4
9	200.000	2	0.91	218	99.5	0.5	218	99.5	0.5

B	T	H	N	L	G	OTHER	UNQUAL	ANAL	READ	
0	0	0	0	0	1	0	218	219	219	VALUES
0.0	0.0	0.0	0.0	0.0	0.5	0.0				PERCENT

MIN	MAX	AMEAN	SD	GMEAN	GD	VALUES
10.000	200.00	56.560	29.89	49.189	1.73	218
10.000	400.00	58.128	37.78	49.662	1.76	219



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

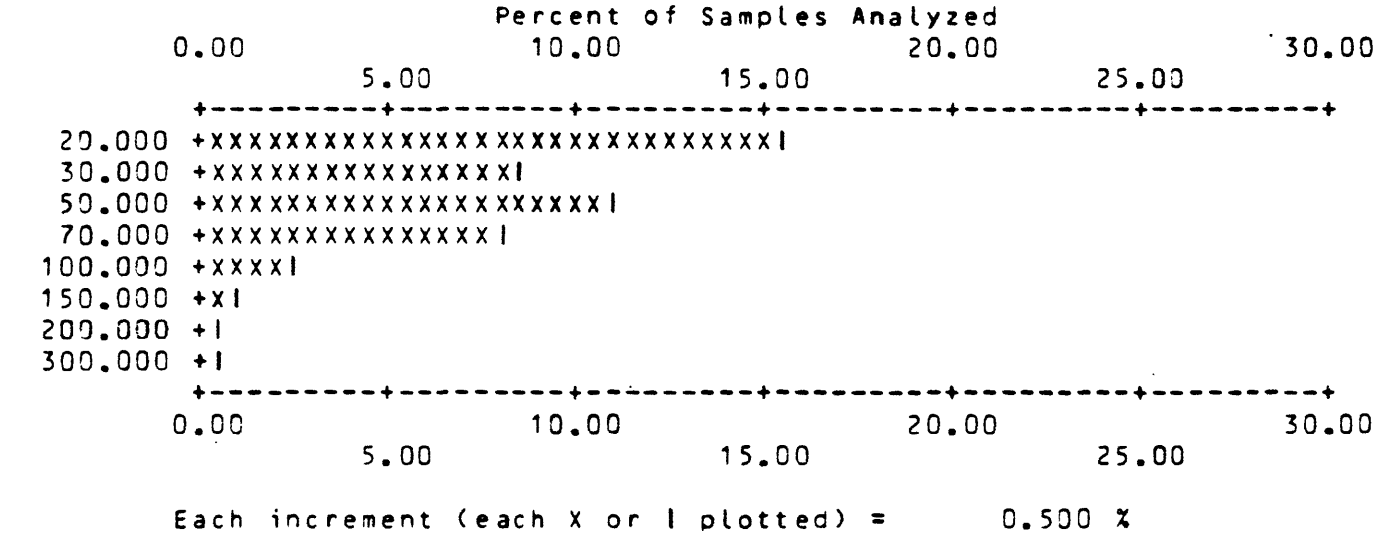
Table 4.--Statistical summary for heavy-mineral concentrates--Continued

COLUMN ID.: S-SN

	VALUE	NO.	%	CUM.	CUM. %		TOT CUM	TOT CUM %	
1	20.000	34	15.53	34	15.5	84.5	149	68.0	32.0
2	30.000	19	8.68	53	24.2	75.8	168	76.7	23.3
3	50.000	24	10.96	77	35.2	64.8	192	87.7	12.3
4	70.000	18	8.22	95	43.4	56.6	210	95.9	4.1
5	100.000	5	2.28	100	45.7	54.3	215	98.2	1.8
6	150.000	2	0.91	102	46.6	53.4	217	99.1	0.9
7	200.000	1	0.46	103	47.0	53.0	218	99.5	0.5
8	300.000	1	0.46	104	47.5	52.5	219	100.0	0.0

B	T	H	N	L	G	OTHER	UNQUAL	ANAL	READ	
0	0	0	98	17	0	0	104	219	219	VALUES
0.0	0.0	0.0	44.7	7.8	0.0	0.0				PERCENT

MIN	MAX	AMEAN	SD	GMEAN	GD	VALUES
20.000	300.00	48.173	39.73	38.954	1.85	104
10.000	300.00	28.128	33.33	19.074	2.23	219



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

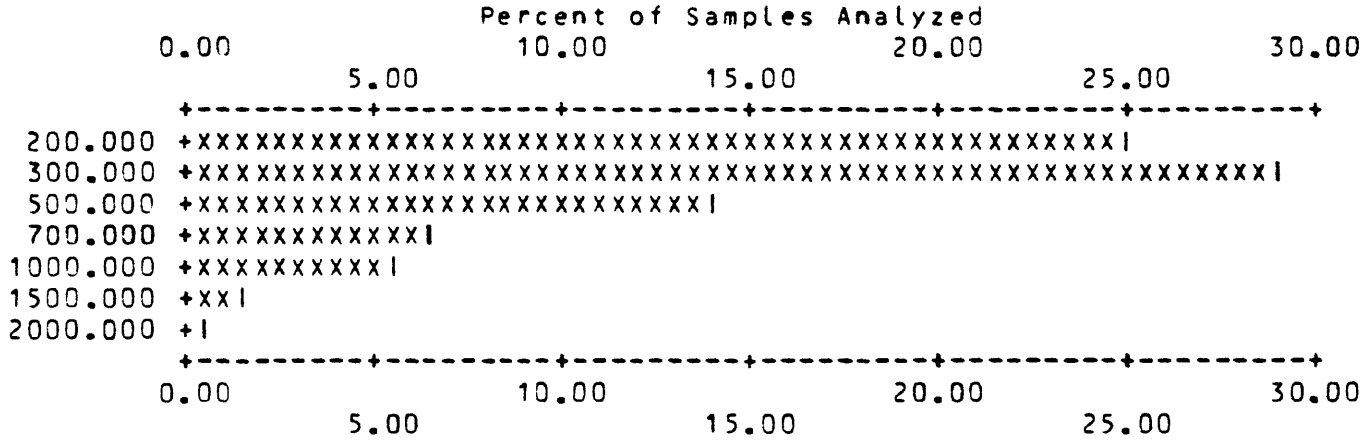
Table 4.--Statistical summary for heavy-mineral concentrates--Continued

COLUMN ID.: S-SR

	VALUE	NO.	%	CUM.	CUM. %		TOT CUM	TOT CUM %	
1	200.000	55	25.11	55	25.1	74.9	95	43.4	56.6
2	300.000	63	28.77	118	53.9	46.1	158	72.1	27.9
3	500.000	31	14.16	149	68.0	32.0	189	86.3	13.7
4	700.000	14	6.39	163	74.4	25.6	203	92.7	7.3
5	1000.000	12	5.48	175	79.9	20.1	215	98.2	1.8
6	1500.000	3	1.37	178	81.3	18.7	218	99.5	0.5
7	2000.000	1	0.46	179	81.7	18.3	219	100.0	0.0

B	T	H	N	L	G	OTHER	UNQUAL	ANAL	READ	
0	0	0	0	40	0	0	179	219	219	VALUES
0.0	0.0	0.0	0.0	18.3	0.0	0.0				PERCENT

MIN	MAX	AMEAN	SD	GMEAN	GD	VALUES
200.000	2000.00	411.732	289.18	348.006	1.72	179
100.000	2000.00	354.795	287.85	277.119	1.99	219



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

Table 4.--Statistical summary for heavy-mineral concentrates--Continued

COLUMN ID.: S-TH

	VALUE	NO.	%	CUM.	CUM. %		TOT CUM	TOT CUM %	
1	200.000	19	8.68	19	8.7	91.3	209	95.4	4.6
2	300.000	4	1.83	23	10.5	89.5	213	97.3	2.7
3	500.000	5	2.28	28	12.8	87.2	218	99.5	0.5
4	700.000	1	0.46	29	13.2	86.8	219	100.0	0.0

B	T	H	N	L	G	OTHER	UNQUAL	ANAL	READ	
0	0	0	149	41	0	0	29	219	219	VALUES
0.0	0.0	0.0	68.0	18.7	0.0	0.0				PERCENT

MIN	MAX	AMEAN	SD	GMEAN	GD	VALUES
200.000	700.00	282.759	139.05	258.636	1.49	29
100.000	700.00	124.201	79.61	113.409	1.42	219

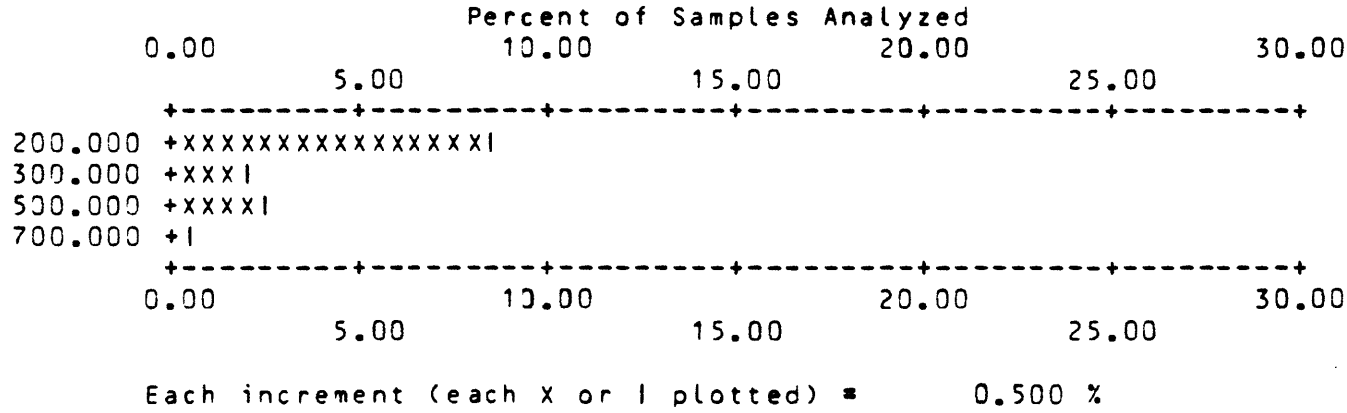


Table 4.--Statistical summary for heavy-mineral concentrates--Continued

COLUMN ID.: S-V

	VALUE	NO.	%	CUM.	CUM. %		TOT CUM	TOT CUM %	
1	150.000	9	4.11	9	4.1	95.9	9	4.1	95.9
2	200.000	29	13.24	38	17.4	82.6	38	17.4	82.6
3	300.000	105	47.95	143	65.3	34.7	143	65.3	34.7
4	500.000	56	25.57	199	90.9	9.1	199	90.9	9.1
5	700.000	16	7.31	215	98.2	1.8	215	98.2	1.8
6	1000.000	3	1.37	218	99.5	0.5	218	99.5	0.5
7	2000.000	1	0.46	219	100.0	0.0	219	100.0	0.0

B	T	H	N	L	G	OTHER	UNQUAL	ANAL	READ	
0	0	0	0	0	0	0	219	219	219	VALUES
0.0	0.0	0.0	0.0	0.0	0.0	0.0				PERCENT

MIN	MAX	AMEAN	SD	GMEAN	GD	VALUES
150.000	2000.00	378.311	195.24	343.534	1.53	219

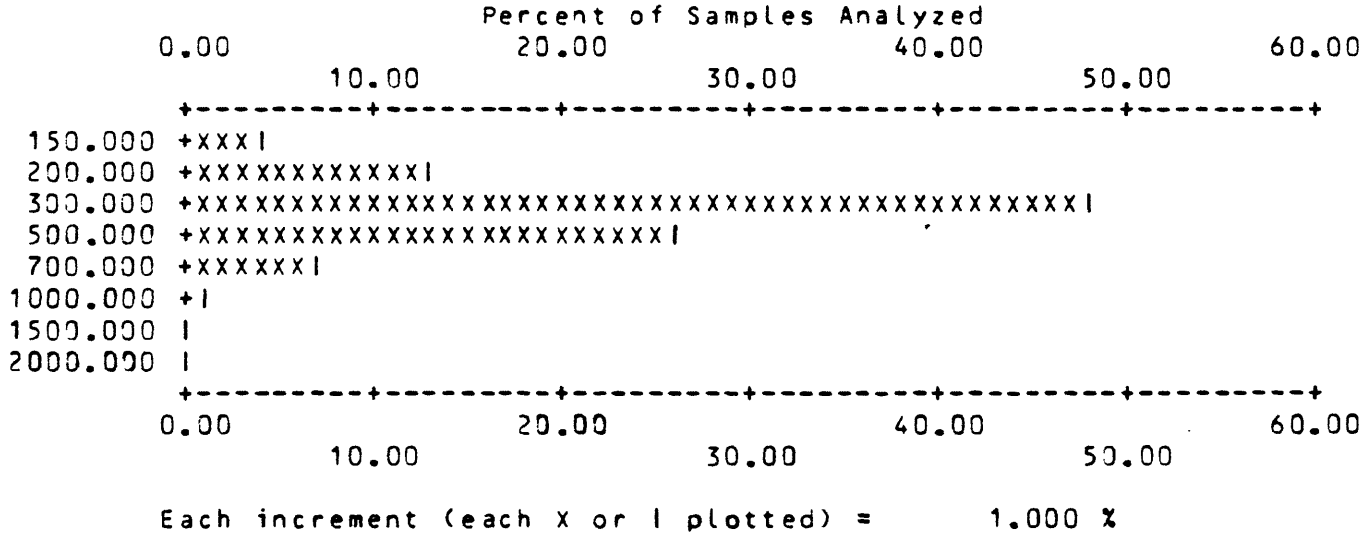


Table 4.--Statistical summary for heavy-mineral concentrates--Continued

COLUMN ID.: S-W

	VALUE	NO.	%	CUM.	CUM. %		TOT CUM	TOT CUM %	
1	100.000	4	1.83	4	1.8	98.2	216	98.6	1.4
2	150.000	2	0.91	6	2.7	97.3	218	99.5	0.5
3	200.000	1	0.46	7	3.2	96.8	219	100.0	0.0

B	T	H	N	L	G	OTHER	UNQUAL	ANAL	READ	
0	0	0	206	6	0	0	7	219	219	VALUES
0.0	0.0	0.0	94.1	2.7	0.0	0.0				PERCENT

MIN	MAX	AMEAN	SD	GMEAN	GD	VALUES
100.000	200.00	128.571	39.34	123.970	1.33	7
50.000	200.00	52.511	15.31	51.472	1.18	219

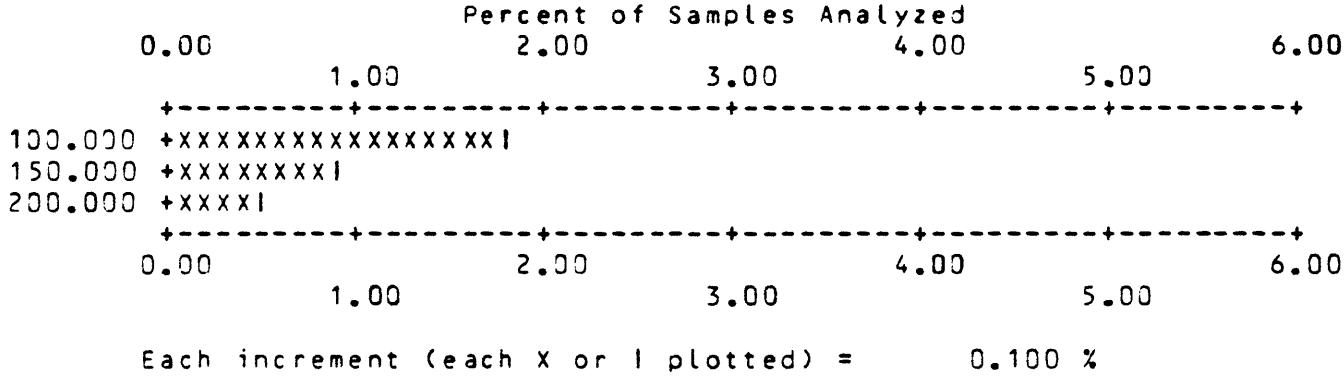


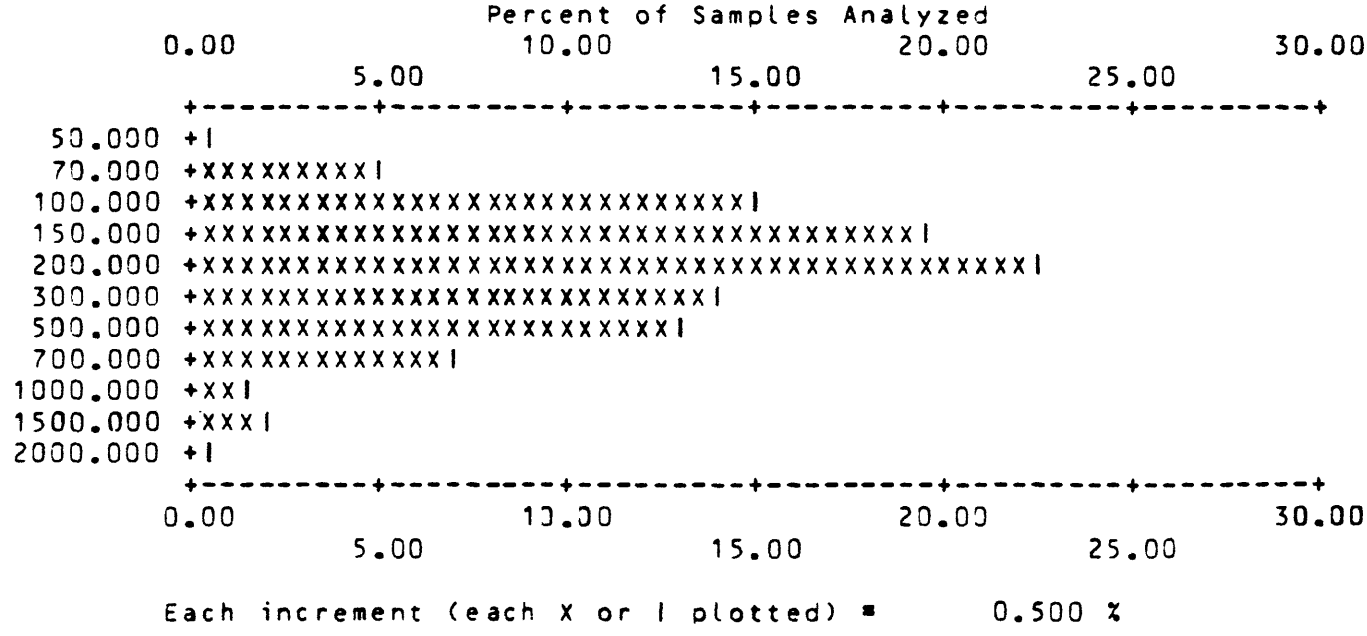
Table 4.--Statistical summary for heavy-mineral concentrates--Continued

COLUMN ID.: S-Y

	VALUE	NO.	%	CUM.	CUM. %		TOT CUM	TOT CUM %	
1	50.000	1	0.46	1	0.5	99.5	1	0.5	99.5
2	70.000	11	5.02	12	5.5	94.5	12	5.5	94.5
3	100.000	33	15.07	45	20.5	79.5	45	20.5	79.5
4	150.000	43	19.63	88	40.2	59.8	88	40.2	59.8
5	200.000	49	22.37	137	62.6	37.4	137	62.6	37.4
6	300.000	31	14.16	168	76.7	23.3	168	76.7	23.3
7	500.000	28	12.79	196	89.5	10.5	196	89.5	10.5
8	700.000	15	6.85	211	96.3	3.7	211	96.3	3.7
9	1000.000	3	1.37	214	97.7	2.3	214	97.7	2.3
10	1500.000	4	1.83	218	99.5	0.5	218	99.5	0.5
11	2000.000	1	0.46	219	100.0	0.0	219	100.0	0.0

B	T	H	N	L	G	OTHER	UNQUAL	ANAL	READ	
0	0	0	0	0	0	0	219	219	219	VALUES
0.0	0.0	0.0	0.0	0.0	0.0	0.0				PERCENT

MIN	MAX	AMEAN	SD	GMEAN	GD	VALUES
50.000	2000.00	297.580	279.75	223.193	2.05	219



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

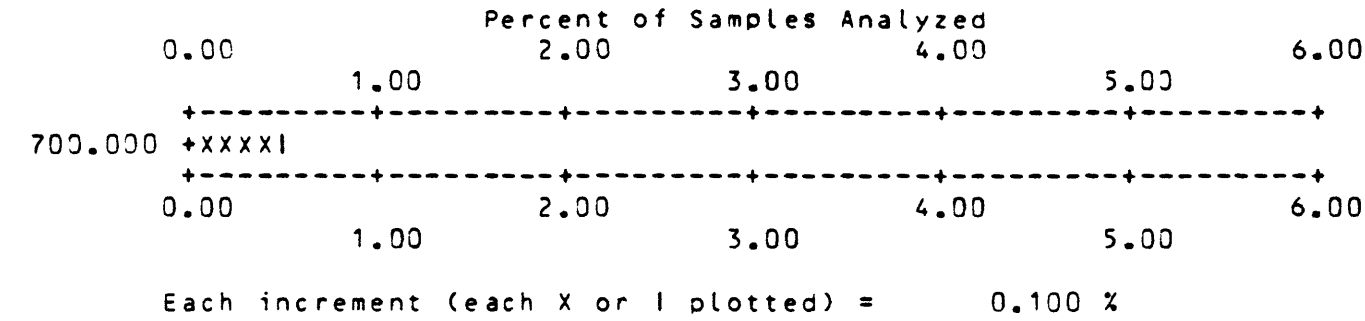
Table 4.--Statistical summary for heavy-mineral concentrates--Continued

COLUMN ID.: S-ZN

	VALUE	NO.	%	CUM.	CUM. %	TOT CUM	TOT CUM %	
1	700.000	1	0.46	1	0.5	99.5	219	100.0	0.0

B	T	H	N	L	G	OTHER	UNQUAL	ANAL	READ	
0	0	0	215	3	0	0	1	219	219	VALUES
0.0	0.0	0.0	98.2	1.4	0.0	0.0				PERCENT

MIN	MAX	AMEAN	SD	GMEAN	GD	VALUES
700.000	700.00	700.000	0.00	700.000	********	1
250.000	700.00	252.055	30.41	251.178	1.07	219



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

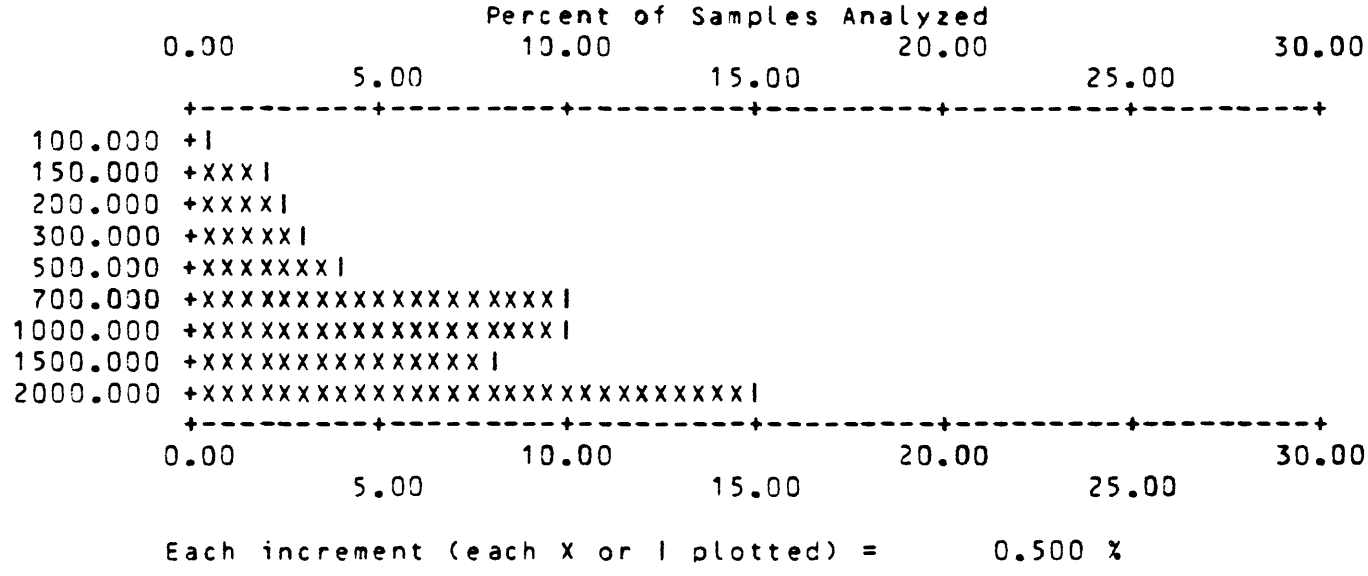
Table 4.--Statistical summary for heavy-mineral concentrates--Continued

COLUMN ID.: S-ZR

	VALUE	NO.	%	CUM.	CUM. %		TOT CUM	TOT CUM %	
1	100.000	1	0.46	1	0.5	99.5	1	0.5	99.5
2	150.000	4	1.83	5	2.3	97.7	5	2.3	97.7
3	200.000	5	2.28	10	4.6	95.4	10	4.6	95.4
4	300.000	7	3.20	17	7.8	92.2	17	7.8	92.2
5	500.000	9	4.11	26	11.9	88.1	26	11.9	88.1
6	700.000	22	10.05	48	21.9	78.1	48	21.9	78.1
7	1000.000	22	10.05	70	32.0	68.0	70	32.0	68.0
8	1500.000	17	7.76	87	39.7	60.3	87	39.7	60.3
9	2000.000	33	15.07	120	54.8	45.2	120	54.8	45.2

B	T	H	N	L	G	OTHER	UNQUAL	ANAL	READ	
0	0	0	0	0	99	0	120	219	219	VALUES
0.0	0.0	0.0	0.0	0.0	45.2	0.0				PERCENT

MIN	MAX	AMEAN	SD	GMEAN	GD	VALUES
100.000	2000.00	1143.333	643.94	914.811	2.13	120
100.000	4000.00	2434.703	1502.33	1782.280	2.52	219



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

Table 4.--Statistical summary for heavy-mineral concentrates--Continued

COLUMN ID.: AA-CU-P

	VALUE	NO.	%	CUM.	CUM. %		TOT CUM	TOT CUM %	
1	5.000	8	3.65	8	3.7	96.3	24	11.0	89.0
2	10.000	22	10.05	30	13.7	86.3	46	21.0	79.0
3	15.000	32	14.61	62	28.3	71.7	78	35.6	64.4
4	20.000	40	18.26	102	46.6	53.4	118	53.9	46.1
5	30.000	21	9.59	123	56.2	43.8	139	63.5	36.5
6	50.000	29	13.24	152	69.4	30.6	168	76.7	23.3
7	70.000	21	9.59	173	79.0	21.0	189	86.3	13.7
8	100.000	14	6.39	187	85.4	14.6	203	92.7	7.3
9	150.000	9	4.11	196	89.5	10.5	212	96.8	3.2
10	200.000	6	2.74	202	92.2	7.8	218	99.5	0.5

B	T	H	N	L	G	OTHER	UNQUAL	ANAL	READ	
0	0	0	0	16	1	0	202	219	219	VALUES
0.0	0.0	0.0	0.0	7.3	0.5	0.0				PERCENT

MIN	MAX	AMEAN	SD	GMEAN	GD	VALUES
5.000	200.00	44.752	44.49	29.767	2.45	202
2.500	200.00	41.507	44.17	24.716	2.94	219

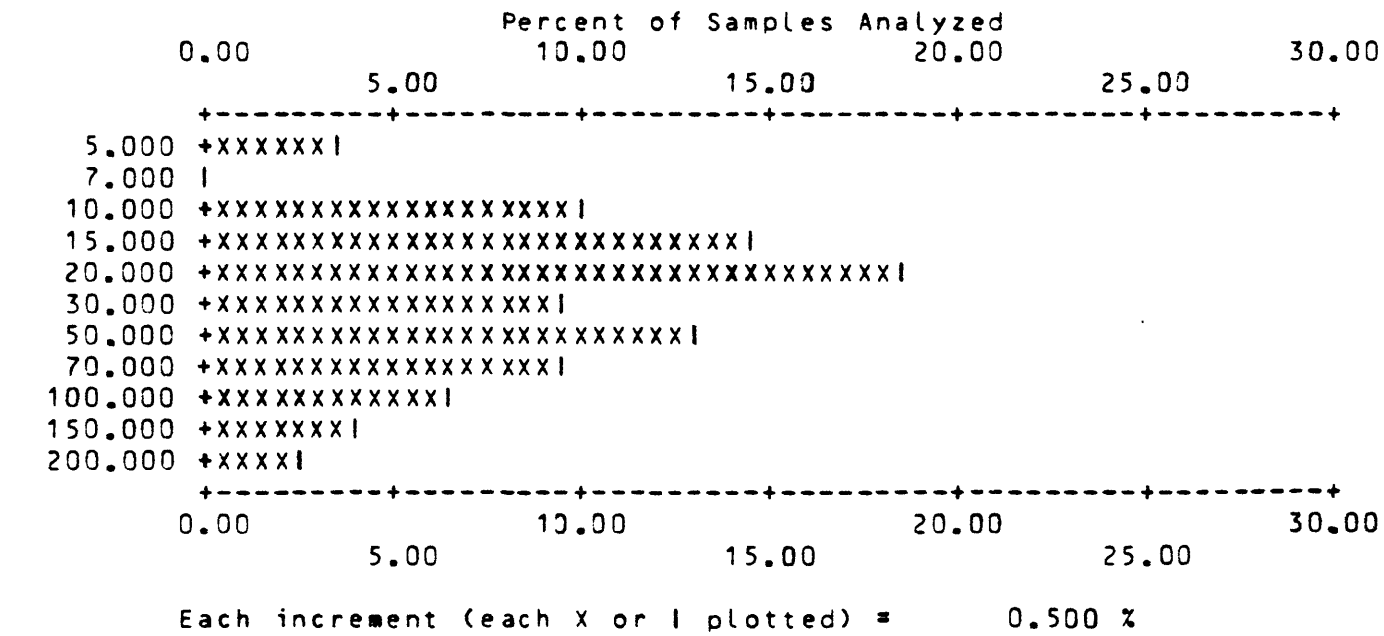


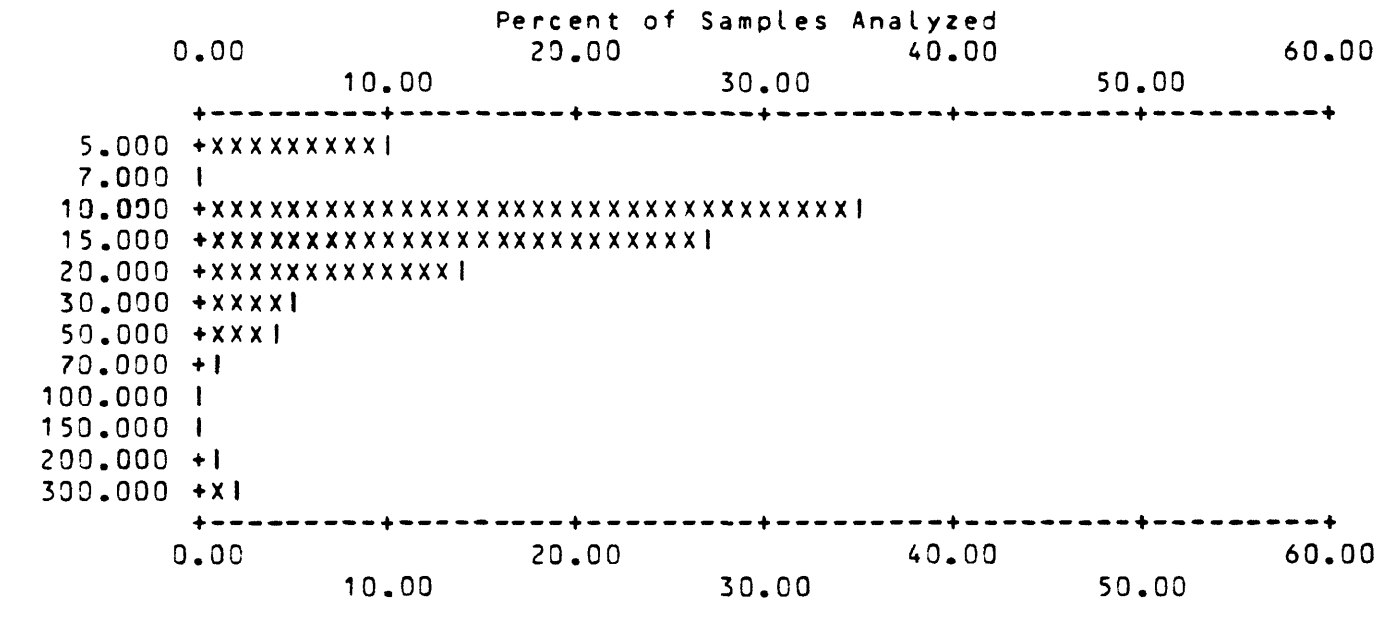
Table 4.--Statistical summary for heavy-mineral concentrates--Continued

COLUMN ID.: AA-PB-P

	VALUE	NO.	%	CUM.	CUM. %		TOT CUM	TOT CUM %	
1	5.000	21	9.59	21	9.6	90.4	24	11.0	89.0
2	10.000	77	35.16	98	44.7	55.3	101	46.1	53.9
3	15.000	59	26.94	157	71.7	28.3	160	73.1	26.9
4	20.000	30	13.70	187	85.4	14.6	190	86.8	13.2
5	30.000	10	4.57	197	90.0	10.0	200	91.3	8.7
6	50.000	9	4.11	206	94.1	5.9	209	95.4	4.6
7	70.000	3	1.37	209	95.4	4.6	212	96.8	3.2
8	100.000	1	0.46	210	95.9	4.1	213	97.3	2.7
9	200.000	2	0.91	212	96.8	3.2	215	98.2	1.8
10	300.000	4	1.83	216	98.6	1.4	219	100.0	0.0

B	T	H	N	L	G	OTHER	UNQUAL	ANAL	READ	
0	0	0	0	3	0	0	216	219	219	VALUES
0.0	0.0	0.0	0.0	1.4	0.0	0.0				PERCENT

MIN	MAX	AMEAN	SD	GMEAN	GD	VALUES
5.000	300.00	23.241	43.83	14.710	2.10	216
2.500	300.00	22.957	43.59	14.357	2.15	219



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

Table 4.--Statistical summary for heavy-mineral concentrates--Continued

COLUMN ID.: AA-ZN-P

	VALUE	NO.	%	CUM.	CUM. %		TOT CUM	TOT CUM %	
1	10.000	24	10.96	24	11.0	89.0	24	11.0	89.0
2	15.000	40	18.26	64	29.2	70.8	64	29.2	70.8
3	20.000	56	25.57	120	54.8	45.2	120	54.8	45.2
4	30.000	47	21.46	167	76.3	23.7	167	76.3	23.7
5	50.000	33	15.07	200	91.3	8.7	200	91.3	8.7
6	70.000	8	3.65	208	95.0	5.0	208	95.0	5.0
7	100.000	1	0.46	209	95.4	4.6	209	95.4	4.6
8	150.000	4	1.83	213	97.3	2.7	213	97.3	2.7
9	200.000	1	0.46	214	97.7	2.3	214	97.7	2.3
10	300.000	1	0.46	215	98.2	1.8	215	98.2	1.8
11	500.000	3	1.37	218	99.5	0.5	218	99.5	0.5
12	1000.000	1	0.46	219	100.0	0.0	219	100.0	0.0

B	T	H	N	L	G	OTHER	UNQUAL	ANAL	READ	
0	0	0	0	0	0	0	219	219	219	VALUES
0.0	0.0	0.0	0.0	0.0	0.0	0.0				PERCENT

MIN	MAX	AMEAN	SD	GMEAN	GD	
10.000	1000.00	42.374	90.48	26.234	2.13	VALUES 219

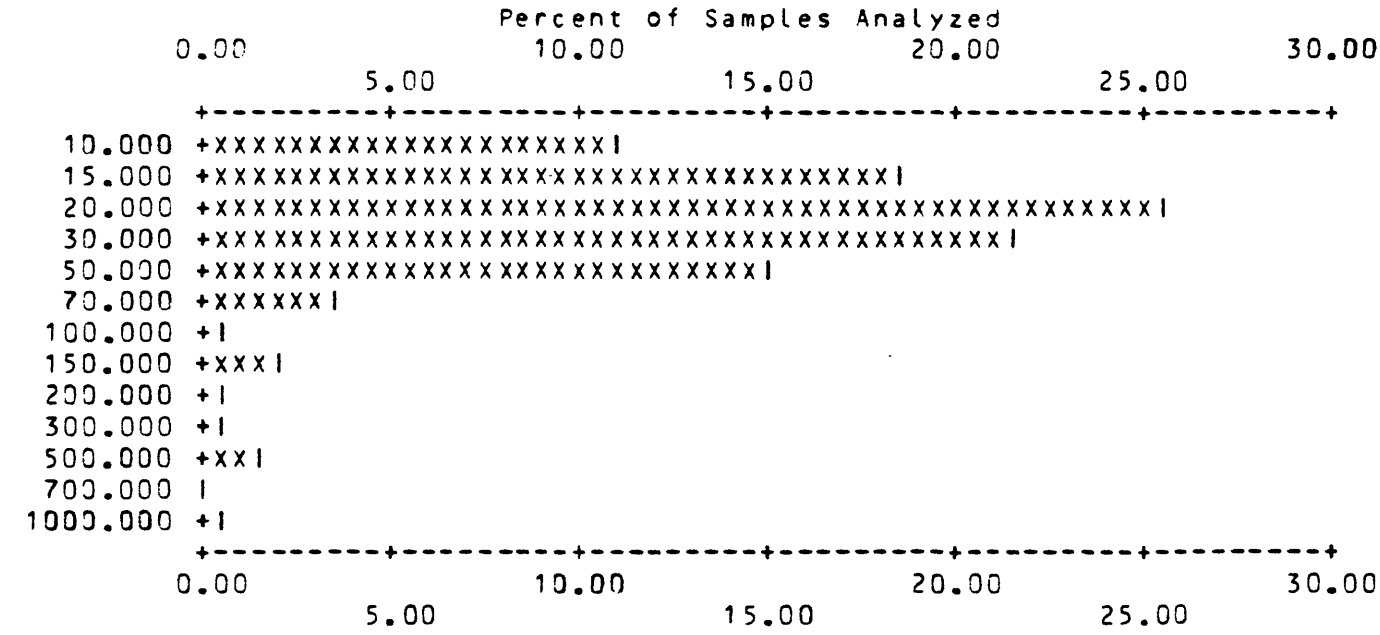


Table 4.--Statistical summary for heavy-mineral concentrates--Continued

[Estimates recomputed by the method of Cohen]

ELEMENT	GEOMETRIC MEAN	GEOMETRIC DEVIATION	REMARKS		
S-FE%	6.85	1.75	219 SAMPLES AND 219 ANALYTICAL VALUES.		
S-MG%	4.27	2.18	219 SAMPLES AND 219 ANALYTICAL VALUES.		
S-CA%	7.93	1.44	219 SAMPLES AND 219 ANALYTICAL VALUES.		
S-TI%	********	******	69 GREATER THAN VALUES. NO COMPUTATIONS.		
S-MN	2321.	1.56	219 SAMPLES AND 219 ANALYTICAL VALUES.		
S-AG	0.000701	51.82	211 NOT DETECTED, LESS THAN, OR TRACE VALUES.	8	REPORTED VALUES.
S-B	11.9	2.33	143 NOT DETECTED, LESS THAN, OR TRACE VALUES.	76	REPORTED VALUES.
S-BA	341.	2.13	219 SAMPLES AND 219 ANALYTICAL VALUES.		
S-BE	5.08	3.63	191 NOT DETECTED, LESS THAN, OR TRACE VALUES.	28	REPORTED VALUES.
S-BI	0.746	4.90	214 NOT DETECTED, LESS THAN, OR TRACE VALUES.	5	REPORTED VALUES.
S-CO	36.3	1.85	4 NOT DETECTED, LESS THAN, OR TRACE VALUES.	215	REPORTED VALUES.
S-CR	191.	2.59	3 NOT DETECTED, LESS THAN, OR TRACE VALUES.	216	REPORTED VALUES.
S-CU	26.7	3.09	34 NOT DETECTED, LESS THAN, OR TRACE VALUES.	185	REPORTED VALUES.
S-LA	475.	2.06	219 SAMPLES AND 219 ANALYTICAL VALUES.		
S-MO	0.00965	49.47	210 NOT DETECTED, LESS THAN, OR TRACE VALUES.	9	REPORTED VALUES.
S-NB	59.3	2.20	67 NOT DETECTED, LESS THAN, OR TRACE VALUES.	152	REPORTED VALUES.
S-NI	26.6	3.71	49 NOT DETECTED, LESS THAN, OR TRACE VALUES.	170	REPORTED VALUES.
S-PB	17.6	3.01	102 NOT DETECTED, LESS THAN, OR TRACE VALUES.	117	REPORTED VALUES.
S-SC	********	******	1 GREATER THAN VALUE. NO COMPUTATIONS.		
S-SN	16.6	2.78	115 NOT DETECTED, LESS THAN, OR TRACE VALUES.	104	REPORTED VALUES.
S-SR	287.	1.91	40 NOT DETECTED, LESS THAN, OR TRACE VALUES.	179	REPORTED VALUES.
S-TH	259.	1.49	190 NOT DETECTED, LESS THAN, OR TRACE VALUES.	29	REPORTED VALUES.
S-V	344.	1.53	219 SAMPLES AND 219 ANALYTICAL VALUES.		
S-W	13.0	2.72	212 NOT DETECTED, LESS THAN, OR TRACE VALUES.	7	REPORTED VALUES.
S-Y	223.	2.05	219 SAMPLES AND 219 ANALYTICAL VALUES.		
S-ZR	********	******	99 GREATER THAN VALUES. NO COMPUTATIONS.		
AA-CU-P	********	******	1 GREATER THAN VALUE. NO COMPUTATIONS.		
AA-PB-P	14.4	2.13	3 NOT DETECTED, LESS THAN, OR TRACE VALUES.	216	REPORTED VALUES.
AA-ZN-P	27.0	2.09	219 SAMPLES AND 219 ANALYTICAL VALUES.		

Table 5.--Analytical data for heavy-mineral concentrate samples

SAMPLE	LAB NO.	LATITUDE	LONGITUDE	S-FE%	S-MG%	S-CA%	S-TI%	S-MN	S-AG	S-AS	S-AU	S-B	S-BA	S-BE
79DM501P	CDY452	56 6 13	130 57 13	5.0	5.0	7	1.5	1,500	N	N	N	<20	300	<2
79DM502P	CDY472	56 5 46	130 53 27	7.0	7.0	5	.5	2,000	N	N	N	<20	150	2
79DM504P	CDY492	56 6 40	130 53 49	5.0	5.0	7	2.0	1,500	N	N	N	20	300	N
79DM506P	CDY515	56 12 2	131 0 3	5.0	1.0	10	>2.0	1,500	N	N	N	<20	700	N
79DM507P	CDY516	56 12 28	131 1 33	5.0	5.0	7	>2.0	1,500	N	N	N	<20	500	N
79DM508P	CDY453	56 12 27	131 1 43	3.0	2.0	5	2.0	2,000	<1.0	N	N	<20	150	N
79DM510P	CDY473	56 11 31	130 58 53	7.0	5.0	3	1.5	2,000	N	N	N	<20	200	<2
79DM511P	CDY493	56 10 55	130 57 20	5.0	5.0	7	>2.0	1,500	N	N	N	<20	300	N
79DM513P	CDY517	56 11 46	131 4 1	3.0	3.0	7	2.0	1,500	N	N	N	<20	300	<2
79DM516P	CDY474	56 22 32	130 56 53	7.0	7.0	5	.3	1,500	N	N	N	<20	150	<2
79DM517P	CDY494	56 22 34	130 58 8	10.0	7.0	7	1.0	2,000	N	N	N	50	700	<2
79DM523P	CDY518	56 19 54	130 53 52	5.0	1.5	7	>2.0	2,000	N	N	N	20	500	<2
79DM526P	CDY530	56 5 24	130 49 56	5.0	5.0	10	>2.0	1,500	N	N	N	<20	500	<2
79DM527P	CDY531	56 5 38	130 47 16	5.0	5.0	10	>2.0	1,500	N	N	N	<20	200	<2
79DM530P	CDY499	56 4 25	130 48 48	7.0	7.0	10	2.0	1,500	N	N	N	20	500	<2
79DM531P	CDY500	56 20 43	130 48 34	1.5	.5	10	>2.0	1,500	N	N	N	<20	300	N
79DM535P	CDY501	56 20 18	130 45 12	3.0	.7	10	>2.0	2,000	N	N	N	<20	2,000	N
79DM537P	CDY524	56 7 39	131 24 22	5.0	7.0	10	>2.0	1,500	N	N	N	<20	150	<2
79DM540P	CDY462	56 6 41	131 21 11	5.0	2.0	7	1.5	1,500	N	N	N	<20	300	<2
79DM542P	CDY482	56 6 27	131 20 12	7.0	7.0	7	.5	2,000	N	N	N	<20	300	<2
79DM544P	CDY503	56 6 29	131 18 23	2.0	3.0	10	2.0	1,000	N	N	N	<20	300	<2
79DM547P	CDY525	56 9 19	131 18 28	5.0	5.0	7	>2.0	1,000	N	N	N	<20	100	<2
79DM549P	CDY463	56 11 23	131 16 24	7.0	7.0	10	>2.0	2,000	N	N	N	<20	200	N
79DM550P	CDY483	56 9 24	131 16 51	7.0	7.0	7	1.5	2,000	N	N	N	<20	300	2
79DM555P	CDY504	56 8 28	131 16 33	3.0	3.0	10	1.5	1,500	N	N	N	<20	500	<2
79DM556P	CDY526	56 8 17	131 16 59	3.0	5.0	10	2.0	2,000	N	N	N	<20	150	<2
79DM560P	CEC138	56 11 26	131 47 9	10.0	7.0	7	1.0	5,000	N	N	N	150	200	<2
79DM565P	CEC161	56 10 4	131 52 24	20.0	10.0	20	2.0	5,000	N	N	N	20	500	<2
79DM567P	CEC184	56 9 0	131 49 29	10.0	3.0	7	1.0	5,000	N	N	N	20	200	<2
79DM568P	CEC206	56 7 26	131 47 47	7.0	1.5	15	>2.0	3,000	N	N	N	20	150	<2
79DM573P	CEC139	56 6 52	131 45 39	7.0	2.0	10	>2.0	2,000	N	N	N	<20	300	<2
79DM574P	CEC162	56 5 57	131 44 16	20.0	5.0	20	>2.0	5,000	N	N	N	20	500	<2
79DM576P	CEC185	56 5 19	131 48 45	15.0	2.0	10	>2.0	2,000	N	N	N	20	300	<2
79DM580P	CEC207	56 4 15	131 54 22	5.0	.7	10	>2.0	2,000	N	N	N	<20	100	<2
79DM597P	CEC215	56 22 37	131 38 10	7.0	10.0	7	1.0	3,000	N	N	N	<20	500	<2
79DM605P	CEC216	56 20 28	131 42 53	10.0	10.0	15	1.0	5,000	N	N	N	20	300	<2
79DM607P	CEC217	56 19 20	131 44 11	10.0	10.0	10	1.5	3,000	N	N	N	<20	200	<2
79DM610P	CEC147	56 18 2	131 42 30	10.0	10.0	10	1.0	5,000	N	N	N	20	200	<2
79DM613P	CEC170	56 16 41	131 41 54	7.0	10.0	10	1.5	5,000	N	N	N	<20	200	<2
79DM617P	CEC221	56 44 29	131 57 2	5.0	2.0	10	>2.0	3,000	N	N	N	<20	300	<2
79DM618P	CEC193	56 44 26	131 56 28	7.0	5.0	15	>2.0	2,000	N	N	N	150	1,500	N
79DM621P	CEC148	56 42 47	131 59 3	7.0	5.0	10	2.0	3,000	N	N	N	50	300	<2
79GJ101P	CEC208	56 4 8	131 29 6	7.0	5.0	7	>2.0	3,000	N	N	N	20	300	<2
79GJ103P	CEC140	56 3 28	131 28 27	10.0	10.0	7	1.0	5,000	N	N	N	20	300	<2
79GJ104P	CEC163	56 2 19	131 27 28	20.0	10.0	10	1.5	5,000	N	N	N	50	500	<2

Table 5.--Analytical data for heavy-mineral concentrate samples--Continued

SAMPLE	S-BI	S-CD	S-CO	S-CR	S-CU	S-LA	S-MO	S-NB	S-NI	S-PB	S-SB	S-SC	S-SN	S-SR	S-TH	S-V
79DM501P	N	N	30	300	20	300	N	70	100	<20	N	50	N	300	N	300
79DM502P	N	N	50	300	15	200	N	50	150	<20	N	50	N	200	N	300
79DM504P	N	N	20	150	<10	300	N	70	20	20	N	30	20	300	N	300
79DM506P	N	N	70	150	200	500	70	100	<10	30	N	30	70	300	200	300
79DM507P	N	N	30	100	100	500	N	70	10	20	N	30	50	300	<200	300
79DM508P	N	N	20	200	30	700	N	100	50	<20	N	50	30	500	N	300
79DM510P	N	N	50	70	50	1,000	N	50	20	20	N	50	20	200	<200	200
79DM511P	N	N	30	200	10	500	N	100	50	20	N	50	20	500	N	300
79DM513P	N	N	50	300	50	500	N	70	70	<20	N	30	20	500	<200	300
79DM516P	N	N	50	200	50	100	N	<50	70	<20	N	70	N	<200	N	300
79DM517P	N	N	70	150	200	200	N	50	100	20	N	50	N	200	N	500
79DM523P	<20	N	20	30	<10	1,000	N	150	<10	20	N	30	50	300	<200	300
79DM526P	N	N	30	700	70	700	N	50	100	<20	N	50	50	500	N	300
79DM527P	N	N	50	700	30	700	N	150	100	20	N	30	50	300	200	500
79DM530P	N	N	30	500	100	500	N	70	70	20	N	50	70	300	<200	700
79DM531P	N	N	<10	20	<10	700	N	300	<10	20	N	20	150	200	200	200
79DM535P	N	N	50	50	10	700	N	300	<10	70	N	20	100	200	500	200
79DM537P	N	N	20	500	50	500	N	70	70	N	N	50	<20	300	N	300
79DM540P	N	N	50	100	100	700	N	<50	50	20	N	30	N	500	<200	200
79DM542P	N	N	30	300	20	300	N	<50	100	<20	N	70	N	<200	N	200
79DM544P	N	N	20	100	70	500	N	50	<10	<20	N	20	<20	500	<200	150
79DM547P	<20	N	70	500	100	500	N	70	100	<20	N	50	20	<200	500	300
79DM549P	N	N	50	500	20	500	N	50	150	<20	N	50	30	300	<200	500
79DM550P	N	N	30	150	30	150	N	<50	70	<20	N	30	N	300	N	200
79DM555P	N	N	30	100	50	500	N	50	30	<20	N	30	N	500	<200	200
79DM556P	N	N	30	200	100	200	N	50	<10	<20	N	30	20	<200	<200	300
79DM560P	N	N	30	300	15	200	N	N	20	20	N	100	N	300	N	700
79DM565P	N	N	70	1,500	<10	1,500	N	50	50	70	N	>200	<20	1,000	N	1,000
79DM567P	N	N	20	100	<10	700	N	70	10	20	N	70	N	700	N	300
79DM568P	N	N	10	200	N	700	N	100	10	70	N	50	30	1,000	N	300
79DM573P	N	N	15	150	N	1,500	N	150	10	30	N	50	30	1,500	N	300
79DM574P	N	N	30	300	<10	1,000	N	70	10	70	N	200	20	1,500	N	1,000
79DM576P	N	N	20	150	N	700	15	150	<10	50	N	50	30	1,000	N	500
79DM580P	N	N	<10	100	N	500	N	150	<10	50	N	50	50	1,000	N	500
79DM597P	N	N	70	500	100	1,000	N	<50	150	<20	N	70	N	200	<200	300
79DM605P	N	N	70	300	50	1,000	N	<50	70	<20	N	100	N	200	N	500
79DM607P	N	N	50	500	70	300	N	70	100	<20	N	70	N	200	N	500
79DM610P	<20	N	70	700	50	300	N	50	100	<20	N	70	N	<200	N	500
79DM613P	N	N	70	500	15	300	N	50	100	<20	N	100	N	<200	N	500
79DM617P	N	N	20	200	15	1,000	N	150	15	<20	N	30	20	200	200	700
79DM618P	N	N	70	300	200	700	N	100	50	<20	N	50	<20	500	N	500
79DM621P	N	N	50	200	50	700	N	70	30	<20	N	50	N	300	N	300
79GJ101P	N	N	20	300	N	700	N	100	<10	<20	N	70	N	300	N	500
79GJ103P	N	N	50	300	<10	300	N	N	10	20	N	100	N	200	N	700
79GJ104P	N	N	50	500	10	300	N	<50	20	20	N	100	N	300	N	700

Table 5.--Analytical data for heavy-mineral concentrate samples--Continued

SAMPLE	S-W	S-Y	S-ZN	S-ZR	AA-CU-P	AA-PB-P	AA-ZN-P
79DM501P	N	150	N	>2,000	15	20	15
79DM502P	N	150	N	500	15	15	15
79DM504P	<100	200	N	2,000	10	15	15
79DM506P	N	700	N	>2,000	160	30	35
79DM507P	N	300	N	>2,000	90	20	10
79DM508P	N	300	N	700	15	10	10
79DM510P	N	200	N	>2,000	50	15	15
79DM511P	N	200	N	1,500	20	15	15
79DM513P	N	200	N	>2,000	50	20	15
79DM516P	N	70	N	500	45	10	15
79DM517P	100	150	N	2,000	200	15	25
79DM523P	N	500	N	>2,000	25	20	10
79DM526P	N	300	N	>2,000	40	20	25
79DM527P	N	700	N	>2,000	40	20	15
79DM530P	N	300	N	>2,000	60	10	30
79DM531P	N	700	N	>2,000	10	20	15
79DM535P	<100	700	N	>2,000	20	40	30
79DM537P	N	500	N	>2,000	45	10	10
79DM540P	N	150	N	>2,000	25	10	10
79DM542P	N	100	N	500	25	15	30
79DM544P	N	200	N	>2,000	50	25	10
79DM547P	N	500	N	>2,000	75	20	15
79DM549P	N	300	N	2,000	20	15	15
79DM550P	N	100	N	1,000	45	15	10
79DM555P	N	300	N	>2,000	30	20	25
79DM556P	N	200	N	>2,000	80	15	25
79DM560P	N	100	<500	200	15	10	40
79DM565P	N	200	N	200	<5	10	35
79DM567P	N	150	N	700	<5	10	45
79DM568P	N	300	N	1,500	<5	10	15
79DM573P	N	200	N	500	<5	10	45
79DM574P	N	300	N	300	<5	35	35
79DM576P	N	200	N	500	<5	10	25
79DM580P	N	500	N	>2,000	<5	10	15
79DM597P	N	200	N	>2,000	75	10	25
79DM605P	N	200	N	>2,000	50	15	50
79DM607P	N	150	N	2,000	45	10	35
79DM610P	N	150	N	1,000	25	10	30
79DM613P	N	150	N	>2,000	25	10	25
79DM617P	N	500	N	>2,000	25	10	20
79DM618P	N	500	N	2,000	160	10	10
79DM621P	N	200	N	1,000	50	10	30
79GJ101P	N	200	N	>2,000	<5	5	35
79GJ103P	N	150	N	1,000	<5	5	35
79GJ104P	N	100	<500	700	10	10	45

Table 5.--Analytical data for heavy-mineral concentrate samples--Continued

SAMPLE	LAB NO.	LATITUDE	LONGITUDE	S-FE%	S-MG%	S-CA%	S-TI%	S-MN	S-AG	S-AS	S-AU	S-B	S-BA	S-BE
79GJ108P	CEC186	56 3 33	131 28 0	7.0	5.0	10	1.5	2,000	N	N	N	<20	150	<2
79GJ501P	CDY513	56 10 43	130 46 39	3.0	1.5	7	>2.0	1,500	N	N	N	20	1,000	N
79GJ505P	CDY451	56 9 35	130 50 20	5.0	3.0	5	1.0	2,000	N	N	N	<20	200	<2
79GJ506P	CDY471	56 9 39	130 50 10	7.0	5.0	5	1.5	2,000	N	N	N	20	300	2
79GJ512P	CDY455	56 22 18	130 52 39	2.0	.5	10	>2.0	2,000	N	N	N	20	200	<2
79GJ516P	CDY479	56 9 7	130 53 52	10.0	7.0	7	>2.0	2,000	N	N	N	20	300	<2
79GJ521P	CDY521	56 1 35	131 1 37	5.0	5.0	10	>2.0	1,500	N	N	N	<20	300	<2
79GJ523P	CDY460	56 2 32	130 59 14	5.0	5.0	5	2.0	2,000	N	N	N	<20	300	<2
79GJ525P	CDY480	56 1 24	130 56 31	10.0	5.0	5	1.0	2,000	N	N	N	<20	200	2
79GJ527P	CDY498	56 1 16	130 53 49	3.0	5.0	10	.7	2,000	N	N	N	<20	500	<2
79GJ530P	CDY522	56 2 19	130 55 34	7.0	10.0	7	1.5	2,000	N	N	N	<20	200	<2
79GJ546P	CDY523	56 8 3	130 48 59	5.0	5.0	10	>2.0	1,000	N	N	N	<20	300	<2
79GJ556P	CEC142	56 17 43	131 35 13	10.0	10.0	10	.7	5,000	N	N	N	20	200	<2
79GJ557P	CEC165	56 18 2	131 35 17	7.0	7.0	15	1.0	5,000	N	N	N	<20	300	2
79GJ558P	CEC188	56 17 56	131 35 26	5.0	10.0	10	.5	2,000	10.0	N	N	<20	500	<2
79GJ567P	CEC152	56 4 4	131 54 40	10.0	2.0	10	2.0	3,000	N	N	N	20	300	<2
79GJ568P	CEC174	56 4 0	131 54 50	7.0	2.0	15	>2.0	2,000	N	N	N	<20	150	N
79GJ574P	CEC199	56 0 17	131 46 51	5.0	1.0	15	>2.0	2,000	N	N	N	<20	100	<2
79GJ584P	CEC222	56 2 7	131 43 3	5.0	2.0	7	1.0	3,000	N	N	N	<20	700	2
79GJ596P	CEC153	56 8 0	131 29 11	15.0	10.0	15	1.0	5,000	N	N	N	20	1,000	<2
79GJ597P	CEC175	56 7 32	131 32 15	7.0	3.0	10	2.0	2,000	N	N	N	20	700	<2
79GJ599P	CEC200	56 9 58	131 36 10	7.0	10.0	10	1.0	2,000	N	N	N	20	150	<2
79JD830P	CDY454	56 2 9	131 5 51	3.0	7.0	7	.7	2,000	N	N	N	<20	100	<2
79JD900P	CDY508	56 7 18	130 51 45	3.0	1.5	7	2.0	1,500	N	N	N	N	500	N
79MH501P	CDY448	56 9 53	131 11 21	1.5	2.0	2	.7	1,000	N	N	N	N	50	<2
79MH505P	CDY449	56 8 38	131 11 15	2.0	2.0	7	2.0	1,500	N	N	N	20	300	<2
79MH507P	CDY468	56 8 21	131 11 1	7.0	7.0	7	1.5	1,500	N	N	N	<20	300	<2
79MH508P	CDY488	56 8 18	131 11 13	10.0	10.0	7	1.0	2,000	N	N	N	<20	200	<2
79MH510P	CDY510	56 7 53	131 8 30	7.0	10.0	10	2.0	3,000	N	N	N	<20	300	<2
79MH511P	CDY469	56 7 38	131 7 20	10.0	10.0	7	2.0	5,000	N	N	N	<20	300	<2
79MH515P	CDY489	56 6 38	131 7 17	7.0	3.0	5	2.0	1,500	N	N	N	<20	300	<2
79MH516P	CDY497	56 10 0	130 53 41	5.0	5.0	7	>2.0	1,500	N	N	N	20	300	<2
79MH517P	CDY533	56 13 37	130 53 44	3.0	3.0	10	>2.0	1,000	N	N	N	20	700	<2
79MH518P	CDY459	56 14 52	130 52 34	1.5	1.0	5	>2.0	1,500	<1.0	N	N	<20	200	N
79MH528P	CDY461	56 13 58	130 45 14	7.0	7.0	7	2.0	2,000	N	N	N	<20	3,000	<2
79MH530P	CDY481	56 15 4	130 45 37	7.0	2.0	5	>2.0	1,500	<1.0	N	N	<20	3,000	<2
79MH532P	CDY502	56 5 20	131 5 42	5.0	7.0	10	1.5	1,500	N	N	N	<20	1,500	<2
79MH534P	CEC209	56 18 38	131 30 5	3.0	2.0	7	1.0	1,500	N	N	N	20	1,000	<2
79MH535P	CEC141	56 18 0	131 29 55	7.0	5.0	7	.7	3,000	N	N	N	<20	300	<2
79MH538P	CEC164	56 16 54	131 30 5	10.0	7.0	10	1.0	3,000	N	N	N	20	500	<2
79MH539P	CEC187	56 16 17	131 29 28	10.0	10.0	7	.7	2,000	N	N	N	<20	150	<2
79MH542P	CEC210	56 17 24	131 27 38	10.0	10.0	10	1.0	5,000	N	N	N	<20	300	2
79MH546P	CEC211	56 17 49	131 48 25	10.0	10.0	10	1.0	3,000	N	N	N	100	300	2
79MH550P	CEC144	56 18 3	131 52 34	10.0	3.0	10	>2.0	5,000	N	N	N	20	500	<2
79MH552P	CEC143	56 17 33	131 51 59	5.0	3.0	10	>2.0	3,000	N	N	N	<20	200	<2

Table 5.--Analytical data for heavy-mineral concentrate samples--Continued

SAMPLE	S-BI	S-CD	S-CO	S-CR	S-CU	S-LA	S-MO	S-NB	S-NI	S-PB	S-SB	S-SC	S-SN	S-SR	S-TH	S-V
79GJ108P	N	N	30	500	50	500	N	70	70	<20	N	50	N	200	N	500
79GJ501P	N	N	20	70	10	700	N	50	N	70	N	30	50	300	500	200
79GJ505P	N	N	30	300	15	300	N	50	70	<20	N	50	N	300	N	300
79GJ506P	N	N	30	100	20	500	N	70	50	20	N	50	20	300	N	300
79GJ512P	N	N	20	30	10	1,500	N	300	<10	20	N	15	100	200	200	200
79GJ516P	N	N	70	150	50	700	N	70	50	30	N	100	20	500	N	300
79GJ521P	N	N	50	500	50	500	N	70	70	20	N	50	50	700	N	300
79GJ523P	N	N	10	150	70	300	N	70	<10	30	N	50	20	1,000	N	300
79GJ525P	N	N	50	200	15	300	N	<50	150	<20	N	70	N	200	N	500
79GJ527P	N	N	15	300	50	300	N	<50	15	<20	N	30	N	500	200	300
79GJ530P	N	N	50	1,000	20	300	N	50	200	<20	N	70	N	300	N	500
79GJ546P	N	N	50	700	10	300	N	70	150	<20	N	50	<20	300	<200	300
79GJ556P	N	N	100	1,000	100	700	N	<50	150	<20	N	70	N	200	N	700
79GJ557P	N	N	50	300	20	700	N	<50	30	<20	N	70	N	200	N	300
79GJ558P	N	N	50	500	100	700	N	N	300	N	N	50	N	<200	N	200
79GJ567P	N	N	20	150	<10	700	N	100	10	30	N	70	20	1,000	N	500
79GJ568P	N	N	15	150	<10	700	N	100	<10	100	N	50	20	700	N	300
79GJ574P	N	N	10	100	N	500	N	100	<10	50	N	50	20	1,000	N	300
79GJ584P	N	N	10	50	<10	500	N	50	<10	30	N	30	<20	500	N	150
79GJ596P	N	N	100	500	100	1,000	N	N	70	20	N	150	20	700	N	300
79GJ597P	N	N	50	300	70	500	N	50	50	<20	N	50	N	700	N	300
79GJ599P	N	N	50	700	20	150	N	<50	70	<20	N	70	N	300	N	500
79JD830P	N	N	20	150	20	200	N	50	30	20	N	30	N	500	N	200
79JD900P	N	N	10	200	20	700	N	100	<10	30	N	30	50	700	N	300
79MH501P	N	N	15	100	<10	70	N	50	20	N	N	20	N	<200	<200	150
79MH505P	N	N	30	200	50	300	N	70	70	<20	N	20	30	500	<200	300
79MH507P	N	N	50	500	50	300	N	50	70	<20	N	70	20	200	<200	500
79MH508P	N	N	50	300	30	200	N	<50	100	<20	N	100	N	<200	N	500
79MH510P	N	N	50	700	50	300	N	50	100	<20	N	70	20	300	N	500
79MH511P	N	N	50	300	50	300	N	70	70	<20	N	70	<20	200	N	500
79MH515P	N	N	30	200	10	500	N	50	50	<20	N	50	<20	300	<200	300
79MH516P	N	N	15	150	15	500	N	70	30	20	N	50	30	300	N	300
79MH517P	20	N	30	700	100	500	N	70	15	20	N	30	50	500	<200	500
79MH518P	N	N	10	100	<10	700	N	200	<10	20	N	10	70	<200	200	300
79MH528P	N	N	50	300	100	500	N	70	100	70	N	50	20	700	200	300
79MH530P	N	N	70	150	100	500	N	100	70	70	N	20	30	300	N	300
79MH532P	N	N	20	300	20	500	N	50	100	<20	N	50	N	300	<200	200
79MH534P	N	N	30	70	15	700	N	<50	N	20	N	30	N	700	200	150
79MH535P	N	N	70	300	20	300	N	<50	50	<20	N	50	N	200	N	300
79MH538P	N	N	100	300	15	1,000	N	N	30	<20	N	100	N	200	N	500
79MH539P	N	N	70	500	15	300	N	<50	70	<20	N	70	N	<200	N	500
79MH542P	N	N	70	300	10	500	N	50	50	<20	N	70	N	300	N	500
79MH546P	N	N	50	500	30	200	N	50	70	<20	N	70	N	300	N	700
79MH550P	N	N	30	300	<10	2,000	N	150	15	50	N	200	70	300	<200	200
79MH552P	N	N	20	300	15	1,500	N	150	10	20	N	100	50	300	N	200

Table 5.--Analytical data for heavy-mineral concentrate samples--Continued

SAMPLE	S-W	S-Y	S-ZN	S-ZR	AA-CU-P	AA-PB-P	AA-ZN-P
79GJ108P	N	200	N	>2,000	25	5	25
79GJ501P	150	700	N	>2,000	15	35	10
79GJ505P	N	100	N	2,000	15	15	15
79GJ506P	N	200	N	2,000	20	15	25
79GJ512P	N	500	N	>2,000	40	10	30
79GJ516P	N	200	N	2,000	15	20	20
79GJ521P	N	500	N	2,000	40	20	30
79GJ523P	N	150	N	2,000	200	30	30
79GJ525P	N	100	N	700	15	15	20
79GJ527P	N	200	N	>2,000	40	15	20
79GJ530P	N	150	N	2,000	30	15	20
79GJ546P	N	200	N	>2,000	20	20	10
79GJ556P	N	150	N	1,500	75	15	25
79GJ557P	N	150	N	>2,000	20	10	25
79GJ558P	N	150	N	>2,000	140	10	45
79GJ567P	N	200	N	700	5	10	40
79GJ568P	N	500	N	1,500	<5	15	25
79GJ574P	N	300	N	2,000	<5	10	15
79GJ584P	N	150	N	150	10	10	130
79GJ596P	N	300	N	>2,000	50	10	45
79GJ597P	N	200	N	>2,000	70	15	40
79GJ599P	N	100	N	1,500	30	5	20
79JD830P	N	150	N	2,000	20	55	15
79JD900P	N	300	N	>2,000	15	10	10
79MH501P	N	70	N	500	15	15	15
79MH505P	N	200	N	>2,000	45	15	10
79MH507P	N	150	N	>2,000	20	15	15
79MH508P	N	150	N	2,000	35	15	20
79MH510P	N	200	N	>2,000	30	15	15
79MH511P	N	150	N	1,000	15	10	15
79MH515P	N	200	N	1,500	10	10	20
79MH516P	100	300	N	2,000	15	15	15
79MH517P	<100	500	N	>2,000	80	20	10
79MH518P	100	500	N	1,000	15	20	20
79MH528P	N	300	N	2,000	35	15	10
79MH530P	<100	300	N	1,500	75	45	50
79MH532P	N	150	N	2,000	25	15	30
79MH534P	N	300	N	>2,000	<5	15	15
79MH535P	N	150	N	>2,000	15	5	30
79MH538P	N	200	N	>2,000	10	10	25
79MH539P	N	150	N	2,000	20	5	25
79MH542P	N	200	N	>2,000	10	5	35
79MH546P	N	150	N	1,000	20	10	35
79MH550P	N	300	N	>2,000	10	15	150
79MH552P	N	200	N	>2,000	15	10	50

Table 5.--Analytical data for heavy-mineral concentrate samples--Continued

SAMPLE	LAB NO.	LATITUDE	LONGITUDE	S-FE%	S-MG%	S-CA%	S-TI%	S-MN	S-AG	S-AS	S-AU	S-B	S-BA	S-BE
79MH554P	CEC166	56 17 0	131 50 55	10.0	5.0	10	2.0	5,000	N	N	N	20	200	2
79MH559P	CEC189	56 16 3	131 50 43	7.0	5.0	7	.5	3,000	N	N	N	20	200	2
79MH560P	CEC212	56 16 33	131 51 18	7.0	1.5	10	>2.0	5,000	N	N	N	<20	100	<2
79MH570P	CEC167	56 25 4	131 33 24	7.0	5.0	10	1.5	5,000	N	N	N	<20	700	<2
79MH576P	CEC190	56 23 34	131 36 29	7.0	7.0	10	2.0	2,000	N	N	N	<20	500	<2
79MH577P	CEC213	56 22 51	131 36 59	10.0	10.0	10	2.0	3,000	N	N	N	<20	700	<2
79MH586P	CEC145	56 22 39	131 43 1	7.0	10.0	10	.5	2,000	N	N	N	20	300	<2
79MH588P	CEC168	56 20 44	131 42 20	7.0	10.0	15	1.0	3,000	N	N	N	20	300	<2
79MH593P	CEC191	56 21 43	131 48 17	10.0	7.0	10	1.0	3,000	N	N	N	<20	300	<2
79MH594P	CEC214	56 21 25	131 47 44	20.0	15.0	10	1.5	5,000	N	N	N	<20	300	<2
79MH597P	CEC146	56 48 47	131 58 18	2.0	1.0	7	>2.0	1,500	N	N	N	<20	150	N
79MH606P	CEC169	56 47 52	131 58 11	3.0	2.0	10	>2.0	2,000	<1.0	N	N	20	200	<2
79MH608P	CEC192	56 47 18	131 59 29	3.0	1.0	15	>2.0	2,000	N	N	N	20	300	N
79MH614P	CEC196	56 11 49	131 23 2	7.0	5.0	15	>2.0	2,000	N	N	N	<20	500	N
79MH615P	CEC219	56 12 49	131 22 32	7.0	7.0	10	>2.0	5,000	N	N	N	<20	300	N
79MH623P	CEC150	56 9 29	131 25 31	10.0	10.0	10	1.5	5,000	N	N	N	<20	300	<2
79MH624P	CEC172	56 10 31	131 27 24	7.0	3.0	10	1.5	3,000	N	N	N	<20	700	<2
79MH635P	CEC197	56 17 26	131 45 31	10.0	10.0	10	.7	3,000	N	N	N	50	700	<2
79MH639P	CEC220	56 14 14	131 41 1	5.0	5.0	15	>2.0	5,000	N	N	N	100	200	N
79MH643P	CEC151	56 8 36	131 42 27	10.0	10.0	15	1.5	5,000	1.5	N	N	70	300	<2
79MH645P	CEC173	56 8 2	131 40 34	7.0	10.0	15	1.0	5,000	N	N	N	20	200	<2
79MH651P	CEC198	56 5 4	131 33 45	5.0	5.0	10	2.0	1,500	N	N	N	<20	700	<2
79MH656P	CEC230	56 28 58	131 39 10	10.0	7.0	5	2.0	5,000	N	N	N	<20	300	<2
79MH659P	CEC241	56 28 35	131 40 10	10.0	7.0	7	2.0	3,000	N	N	N	<20	300	<2
79MH663P	CEC252	56 26 55	131 38 44	7.0	7.0	5	2.0	2,000	N	N	N	<20	200	<2
79MH670P	CEC262	56 26 33	131 42 25	20.0	10.0	7	2.0	3,000	N	N	N	<20	700	<2
79MH671P	CEC231	56 26 29	131 42 30	15.0	7.0	5	.7	2,000	N	N	N	<20	1,000	<2
79MH682P	CEC242	56 27 33	131 49 37	10.0	7.0	5	1.0	3,000	N	N	N	<20	200	<2
79MH690P	CEC253	56 24 43	131 48 40	7.0	7.0	5	.5	2,000	N	N	N	20	200	<2
79MH692P	CEC263	56 25 44	131 50 0	7.0	10.0	10	.3	2,000	N	N	N	<20	150	<2
79MH699P	CEC232	56 30 36	131 57 50	10.0	5.0	5	1.0	2,000	N	N	N	<20	500	<2
79MH700P	CEC243	56 30 3	131 57 9	10.0	7.0	5	.7	2,000	N	N	N	<20	700	<2
79MH701P	CEC254	56 30 13	131 54 35	15.0	10.0	7	1.0	2,000	N	N	N	<20	500	<2
79MH705P	CEC264	56 29 40	131 56 48	10.0	10.0	5	1.5	2,000	N	N	N	<20	100	<2
79MH709P	CEC233	56 33 49	131 53 29	10.0	7.0	5	.7	2,000	N	N	N	<20	300	<2
79MH713P	CEC244	56 32 52	131 50 29	10.0	7.0	7	1.0	3,000	N	N	N	<20	300	2
79MH717P	CEC255	56 34 19	131 52 0	15.0	7.0	7	1.0	2,000	N	N	N	<20	700	<2
79MH718P	CEC265	56 34 10	131 51 40	15.0	10.0	5	1.5	2,000	N	N	N	<20	700	<2
79MH720P	CEC234	56 36 30	131 52 40	15.0	7.0	7	1.5	5,000	N	N	N	<20	200	<2
79MH727P	CEC245	56 36 23	131 59 15	10.0	7.0	5	1.0	3,000	N	N	N	<20	300	<2
79MH730P	CEC256	56 35 15	131 57 32	15.0	5.0	3	.5	2,000	N	N	N	<20	500	<2
79MH733P	CEC266	56 27 31	131 14 4	7.0	2.0	7	>2.0	3,000	N	N	N	<20	300	N
79MH737P	CEC235	56 29 4	131 17 18	10.0	3.0	7	2.0	3,000	50.0	N	70	<20	700	<2
79MH739P	CEC246	56 30 5	131 20 15	15.0	7.0	7	1.5	3,000	N	N	N	50	300	<2
79MH743P	CEC257	56 28 35	131 23 42	10.0	5.0	5	2.0	2,000	N	N	N	<20	500	<2

Table 5.--Analytical data for heavy-mineral concentrate samples--Continued

SAMPLE	S-BI	S-CD	S-CO	S-CR	S-CU	S-LA	S-MO	S-NB	S-NI	S-PB	S-SB	S-SC	S-SN	S-SR	S-TH	S-V
79MH554P	N	N	50	500	10	700	N	150	50	30	N	100	30	500	N	300
79MH559P	N	N	50	500	20	100	N	<50	70	<20	N	70	N	<200	N	500
79MH560P	N	N	10	150	N	1,000	N	150	10	20	N	70	70	500	N	300
79MH570P	N	N	30	150	70	500	N	50	30	<20	N	70	N	300	N	300
79MH576P	N	N	70	300	70	500	N	100	70	<20	N	50	N	200	<200	300
79MH577P	N	N	70	200	20	700	N	70	15	<20	N	100	<20	300	N	500
79MH586P	N	N	50	300	50	300	N	N	150	<20	N	50	N	200	N	300
79MH588P	N	N	50	500	50	500	N	<50	150	<20	N	70	N	200	N	300
79MH593P	N	N	50	500	70	300	N	50	100	<20	N	70	N	<200	N	500
79MH594P	N	N	100	1,000	100	500	N	50	150	20	N	100	N	<200	N	700
79MH597P	N	N	10	300	<10	700	N	100	10	70	N	20	70	200	N	300
79MH606P	N	N	10	70	<10	1,500	N	300	10	50	N	30	70	300	<200	300
79MH608P	N	N	10	30	N	2,000	N	150	<10	70	N	20	70	300	200	300
79MH614P	N	N	70	500	10	700	N	150	100	<20	N	30	70	300	200	300
79MH615P	N	N	70	500	20	700	N	100	70	<20	N	70	50	300	<200	500
79MH623P	N	N	70	300	15	500	N	70	70	<20	N	70	20	200	N	500
79MH624P	N	N	30	300	15	700	N	100	70	50	N	50	N	500	200	300
79MH635P	N	N	50	700	20	70	N	<50	70	<20	N	100	N	200	N	700
79MH639P	N	N	15	300	10	1,000	N	<50	<10	<20	N	70	20	200	<200	700
79MH643P	<20	N	50	1,000	70	700	N	<50	30	<20	N	100	N	500	N	2,000
79MH645P	N	N	20	500	<10	300	N	<50	15	<20	N	70	N	300	N	1,000
79MH651P	N	N	20	300	15	300	N	50	10	<20	N	70	N	500	N	300
79MH656P	N	N	50	70	15	1,000	<10	100	10	30	N	50	20	<200	<200	300
79MH659P	N	N	50	50	10	500	N	70	10	20	N	50	20	<200	N	300
79MH663P	N	N	30	70	50	500	N	70	15	<20	N	50	<20	<200	N	300
79MH670P	N	N	70	300	70	700	N	<50	50	<20	N	70	N	200	N	700
79MH671P	N	N	70	50	15	300	N	<50	<10	20	N	100	150	<200	N	500
79MH682P	N	N	50	50	15	1,000	20	<50	<10	20	N	100	N	<200	N	200
79MH690P	N	N	30	200	30	150	N	<50	100	N	N	50	N	<200	N	300
79MH692P	N	N	20	300	30	150	N	<50	70	N	N	50	N	<200	N	300
79MH699P	N	N	50	70	30	500	N	50	<10	20	N	100	N	<200	N	300
79MH700P	N	N	50	200	20	300	N	<50	70	<20	N	70	N	<200	N	200
79MH701P	N	N	70	1,000	50	300	N	<50	150	20	N	100	N	<200	<200	500
79MH705P	N	N	30	500	50	200	N	50	70	N	N	70	N	<200	N	300
79MH709P	N	N	30	70	10	300	N	<50	<10	<20	N	100	N	<200	N	300
79MH713P	N	N	30	200	50	150	N	<50	70	<20	N	50	N	200	N	300
79MH717P	N	N	50	150	30	300	N	<50	30	20	N	100	N	200	N	500
79MH718P	N	N	50	100	30	150	20	<50	30	<20	N	100	N	200	N	500
79MH720P	N	N	70	200	50	200	N	<50	30	20	N	70	30	200	N	500
79MH727P	N	N	50	50	10	300	N	<50	15	20	N	100	N	<200	N	300
79MH730P	N	N	50	50	10	150	N	<50	10	<20	N	70	N	<200	N	300
79MH733P	N	N	15	50	<10	700	N	70	<10	20	N	20	N	300	N	200
79MH737P	N	N	30	150	150	1,500	N	70	10	50	N	50	20	700	N	300
79MH739P	N	N	50	150	200	150	N	50	50	20	N	70	N	200	N	500
79MH743P	N	N	50	50	100	500	N	70	15	<20	N	50	20	<200	N	300

Table 5.--Analytical data for heavy-mineral concentrate samples--Continued

SAMPLE	S-W	S-Y	S-ZN	S-ZR	AA-CU-P	AA-PB-P	AA-ZN-P
79MH554P	N	200	N	>2,000	10	10	35
79MH559P	N	70	N	150	20	5	30
79MH560P	N	700	N	700	<5	10	30
79MH570P	N	150	N	2,000	60	10	20
79MH576P	N	200	N	>2,000	50	20	20
79MH577P	N	200	N	>2,000	10	15	55
79MH586P	N	100	N	1,000	45	10	35
79MH588P	N	150	N	>2,000	45	15	30
79MH593P	N	150	N	2,000	>5	10	75
79MH594P	N	200	N	1,500	35	10	40
79MH597P	N	700	N	700	<5	5	10
79MH606P	N	700	N	300	5	15	60
79MH608P	N	700	N	2,000	<5	20	15
79MH614P	N	700	N	>2,000	30	15	35
79MH615P	N	500	N	>2,000	25	10	30
79MH623P	N	200	N	700	15	10	30
79MH624P	N	200	N	>2,000	15	10	20
79MH635P	N	150	N	300	35	10	45
79MH639P	N	500	N	>2,000	20	15	20
79MH643P	N	200	N	700	25	10	90
79MH645P	N	150	N	>2,000	5	10	35
79MH651P	N	200	N	>2,000	10	10	35
79MH656P	N	200	N	700	15	10	40
79MH659P	N	300	N	300	10	10	25
79MH663P	N	200	N	1,000	30	10	20
79MH670P	N	200	N	1,500	30	10	40
79MH671P	N	100	N	>2,000	10	15	70
79MH682P	N	150	N	>2,000	15	10	20
79MH690P	N	70	N	200	30	5	25
79MH692P	N	100	N	700	25	10	15
79MH699P	N	150	N	>2,000	35	15	30
79MH700P	N	70	N	1,000	30	10	50
79MH701P	N	100	N	2,000	25	5	20
79MH705P	N	100	N	>2,000	25	5	15
79MH709P	N	150	N	>2,000	10	10	30
79MH713P	N	70	N	300	30	10	40
79MH717P	N	100	N	1,000	30	10	25
79MH718P	N	100	N	1,000	25	5	45
79MH720P	N	100	N	1,500	20	10	15
79MH727P	N	100	N	1,500	5	<5	20
79MH730P	N	70	N	300	10	10	30
79MH733P	N	300	N	2,000	10	15	45
79MH737P	N	300	N	1,000	110	20	35
79MH739P	N	100	N	300	160	15	30
79MH743P	N	200	N	1,000	95	10	45

Table 5.--Analytical data for heavy-mineral concentrate samples--Continued

SAMPLE	LAB NO.	LATITUDE	LONGITUDE	S-FE%	S-MG%	S-CA%	S-TI%	S-MN	S-AG	S-AS	S-AU	S-B	S-BA	S-BE
79MH744P	CEC267	56 29 5	131 22 0	10.0	5.0	7	>2.0	7,000	N	N	N	70	200	N
79MH745P	CEC236	56 27 56	131 24 48	10.0	5.0	5	2.0	2,000	N	N	N	<20	500	<2
79MH747P	CEC247	56 30 15	131 26 21	7.0	2.0	10	>2.0	1,500	<1.0	N	N	<20	150	<2
79MH750P	CEC258	56 29 18	131 25 14	10.0	3.0	7	>2.0	2,000	N	N	N	<20	150	N
79MH751P	CEC268	56 25 5	131 25 30	10.0	7.0	5	2.0	2,000	N	N	N	<20	300	<2
79MH752P	CEC237	56 25 13	131 25 9	15.0	5.0	7	>2.0	5,000	N	N	N	<20	300	<2
79MH753P	CEC248	56 22 50	131 25 12	10.0	7.0	5	1.5	2,000	N	N	N	<20	500	<2
79MH754P	CEC259	56 22 17	131 25 1	15.0	10.0	10	1.5	3,000	N	N	N	<20	700	2
79MH757P	CEC269	56 3 51	131 37 50	10.0	3.0	5	1.5	2,000	N	N	N	<20	200	<2
79MH758P	CEC238	56 3 45	131 37 18	15.0	5.0	7	1.5	2,000	N	N	N	20	300	<2
79MH761P	CEC249	56 1 20	131 37 55	7.0	1.5	5	1.5	1,500	1.5	N	N	<20	200	<2
79MH762P	CEC260	56 1 28	131 32 45	20.0	7.0	10	1.0	3,000	N	N	N	30	300	<2
79MH763P	CEC270	56 0 15	131 31 40	20.0	15.0	7	1.5	3,000	N	N	N	20	500	<2
79MH770P	CEC239	56 4 0	131 25 32	10.0	5.0	5	1.0	2,000	N	N	N	<20	300	<2
79MH771P	CEC261	56 4 3	131 25 43	15.0	5.0	5	.3	2,000	N	N	N	<20	150	<2
79MH772P	CEC250	56 8 32	131 33 57	10.0	7.0	5	.5	2,000	N	N	N	<20	200	<2
79RK232P	CEC171	56 34 42	131 36 25	7.0	2.0	10	2.0	3,000	N	N	N	20	300	10
79RK259P	CEC195	56 22 28	131 20 32	3.0	2.0	10	>2.0	1,500	N	N	N	<20	1,000	<2
79RK800P	CDY511	56 10 45	131 7 45	2.0	.5	7	>2.0	1,000	N	N	N	<20	300	N
79RK806P	CDY450	56 9 12	131 7 42	5.0	2.0	7	2.0	2,000	N	N	N	20	300	<2
79RK808P	CDY470	56 15 22	130 39 38	7.0	5.0	5	2.0	2,000	N	N	N	<20	300	<2
79RK813P	CDY529	56 13 30	130 38 44	2.0	1.5	10	>2.0	1,000	N	N	N	<20	300	<2
79RK814P	CDY490	56 12 13	130 39 54	7.0	7.0	7	2.0	2,000	N	N	N	<20	500	<2
79RK817P	CDY512	56 11 49	130 43 0	3.0	2.0	5	>2.0	1,500	N	N	N	30	5,000	N
79RK821P	CDY491	56 9 49	131 4 32	5.0	5.0	7	>2.0	2,000	N	N	N	<20	150	N
79RK824P	CDY514	56 10 53	131 3 33	5.0	5.0	5	>2.0	1,500	N	N	N	<20	200	N
79RK825P	CDY475	56 22 8	131 3 10	10.0	5.0	5	2.0	3,000	N	N	N	20	150	<2
79RK826P	CDY456	56 22 8	131 3 0	3.0	2.0	10	>2.0	1,500	N	N	N	<20	300	<2
79RK827P	CDY476	56 22 33	131 2 20	7.0	7.0	7	.3	2,000	1.0	N	N	100	300	<2
79RK832P	CDY495	56 22 49	130 59 0	7.0	5.0	7	2.0	1,500	N	N	N	20	500	<2
79RK835P	CDY519	56 17 43	131 0 31	2.0	.5	7	>2.0	1,000	N	N	N	20	200	<2
79RK836P	CDY457	56 17 47	131 0 38	1.5	.5	5	>2.0	1,000	N	N	N	20	300	N
79RK839P	CDY477	56 18 52	130 58 48	10.0	5.0	5	2.0	2,000	N	N	N	<20	300	<2
79RK841P	CDY496	56 20 6	130 58 5	5.0	1.0	7	>2.0	1,000	N	N	N	<20	500	N
79RK842P	CDY520	56 21 8	130 56 45	5.0	1.0	7	>2.0	1,500	N	N	N	30	700	<2
79RK843P	CDY458	56 18 37	130 55 35	1.5	.3	5	>2.0	1,500	N	N	N	N	300	<2
79RK844P	CDY478	56 16 27	130 56 13	10.0	7.0	5	2.0	5,000	N	N	N	<20	300	<2
79RK845P	CDY464	56 5 20	131 18 4	3.0	2.0	5	2.0	1,500	N	N	N	<20	200	<2
79RK850P	CDY532	56 6 35	131 13 12	10.0	5.0	10	1.5	2,000	N	N	N	50	500	<2
79RK854P	CDY505	56 3 41	131 16 48	7.0	7.0	7	1.0	2,000	N	N	N	<20	150	<2
79RK855P	CDY485	56 4 5	131 14 50	7.0	7.0	5	.5	2,000	5.0	N	N	<20	150	<2
79RK857P	CDY484	56 3 30	131 14 3	7.0	7.0	5	.7	2,000	N	N	N	<20	100	<2
79RK859P	CDY528	56 4 33	131 12 41	7.0	10.0	10	.7	2,000	N	N	N	20	200	<2
79RK861P	CDY465	56 5 49	131 14 52	10.0	10.0	5	.5	3,000	N	N	N	20	500	<2
79RK862P	CDY527	56 5 50	131 15 51	3.0	3.0	10	>2.0	1,500	N	N	N	20	150	<2

Table 5.--Analytical data for heavy-mineral concentrate samples--Continued

SAMPLE	S-BI	S-CD	S-CO	S-CR	S-CU	S-LA	S-MO	S-NB	S-NI	S-PB	S-SB	S-SC	S-SN	S-SR	S-TH	S-V
79MH744P	N	N	70	150	200	700	N	100	50	30	N	30	30	300	<200	300
79MH745P	N	N	30	30	70	700	N	100	<10	20	N	50	<20	200	N	300
79MH747P	N	N	20	70	50	1,500	N	150	10	30	N	30	50	300	N	500
79MH750P	N	N	70	70	150	1,000	N	150	15	<20	N	30	30	<200	N	300
79MH751P	N	N	50	100	70	300	N	70	20	<20	N	50	20	<200	N	300
79MH752P	N	N	50	100	15	1,000	N	100	15	20	N	30	20	300	N	300
79MH753P	N	N	70	200	30	300	N	50	70	<20	N	70	N	200	N	500
79MH754P	N	N	70	300	20	300	N	<50	50	<20	N	70	N	200	N	500
79MH757P	N	N	20	150	10	200	N	<50	10	<20	N	50	N	300	N	300
79MH758P	N	N	20	150	<10	200	N	<50	<10	20	N	70	N	300	N	300
79MH761P	N	N	15	150	15	500	N	70	<10	30	N	50	<20	700	N	300
79MH762P	N	N	30	300	10	150	N	<50	10	<20	N	100	N	200	N	500
79MH763P	N	N	30	200	10	150	N	<50	20	<20	N	70	N	200	N	700
79MH770P	N	N	30	200	15	150	N	<50	50	<20	N	50	N	<200	N	200
79MH771P	N	N	30	200	30	100	N	N	50	N	N	50	N	<200	N	300
79MH772P	N	N	50	150	15	500	N	<50	30	<20	N	100	N	200	N	500
79RK232P	N	N	20	100	100	700	70	500	<10	700	N	50	20	1,000	200	300
79RK259P	N	N	20	150	20	700	N	150	20	20	N	20	N	700	N	300
79RK800P	N	N	<10	50	N	500	N	150	<10	20	N	15	70	300	N	500
79RK806P	N	N	30	150	50	500	70	150	50	<20	N	30	30	300	300	500
79RK808P	N	N	30	150	50	1,000	N	100	30	30	N	30	50	200	<200	200
79RK813P	N	N	15	300	<10	1,000	N	70	50	20	N	20	50	200	N	200
79RK814P	<20	N	50	150	200	500	N	70	50	20	N	50	20	200	N	300
79RK817P	N	N	30	100	100	500	N	100	15	70	N	20	70	500	<200	200
79RK821P	N	N	30	200	<10	700	N	100	30	<20	N	30	30	300	N	500
79RK824P	N	N	30	200	100	300	N	150	70	20	N	30	50	200	<200	300
79RK825P	N	N	50	150	70	500	N	70	50	<20	N	70	<20	<200	<200	300
79RK826P	N	N	50	200	150	1,500	N	70	30	50	N	30	70	500	<200	300
79RK827P	N	N	30	50	200	70	N	<50	15	<20	N	50	N	300	N	500
79RK832P	N	N	50	300	100	700	N	70	70	30	N	50	30	300	<200	300
79RK835P	N	N	10	20	15	1,000	N	150	<10	20	N	15	70	200	200	500
79RK836P	N	N	10	20	30	700	N	70	<10	20	N	15	50	300	N	300
79RK839P	N	N	50	<20	10	500	N	70	<10	20	N	70	20	300	<200	300
79RK841P	N	N	50	100	200	1,000	N	150	<10	20	N	20	100	200	200	300
79RK842P	70	N	50	50	100	1,500	N	100	<10	50	N	30	30	500	300	300
79RK843P	N	N	<10	<20	<10	1,000	N	70	<10	20	N	10	50	300	<200	300
79RK844P	N	N	50	20	<10	300	N	70	<10	20	N	100	<20	200	<200	300
79RK845P	N	N	30	150	30	1,000	N	70	50	<20	N	30	<20	500	200	200
79RK850P	N	N	30	300	<10	2,000	N	<50	<10	70	N	150	20	1,000	<200	500
79RK854P	N	N	30	200	70	150	N	50	150	N	N	70	N	200	N	200
79RK855P	N	N	30	200	15	150	N	<50	100	<20	N	70	N	<200	N	300
79RK857P	N	N	50	300	20	200	N	<50	150	<20	N	70	N	<200	N	300
79RK859P	N	N	50	1,500	20	700	N	<50	300	<20	N	70	N	200	<200	300
79RK861P	N	N	50	700	20	500	N	<50	200	20	N	100	<20	200	N	300
79RK862P	N	N	30	300	70	2,000	N	50	50	<20	N	30	30	200	<200	200

Table 5.--Analytical data for heavy-mineral concentrate samples--Continued

SAMPLE	S-W	S-Y	S-ZN	S-ZR	AA-CU-P	AA-PB-P	AA-ZN-P
79MH744P	N	500	N	1,000	140	15	25
79MH745P	N	150	N	700	45	15	35
79MH747P	N	500	N	700	45	15	15
79MH750P	N	300	N	700	120	10	25
79MH751P	N	200	N	1,000	25	10	25
79MH752P	N	300	N	500	15	10	55
79MH753P	N	100	N	2,000	35	5	25
79MH754P	N	150	N	700	10	<5	25
79MH757P	N	100	N	1,000	10	5	40
79MH758P	N	100	N	700	10	5	30
79MH761P	N	150	N	500	5	15	30
79MH762P	N	100	N	700	5	5	35
79MH763P	N	100	<500	200	5	<5	35
79MH770P	N	100	N	1,000	20	10	25
79MH771P	N	70	N	200	35	5	35
79MH772P	N	150	N	1,500	10	10	25
79RK232P	N	1,000	N	>2,000	50	290	450
79RK259P	N	300	N	1,500	45	15	25
79RK800P	N	500	N	>2,000	<5	10	15
79RK806P	N	200	N	>2,000	50	15	50
79RK808P	N	300	N	>2,000	20	15	20
79RK813P	N	500	N	>2,000	15	20	15
79RK814P	N	200	N	>2,000	200	20	30
79RK817P	200	500	N	>2,000	85	40	35
79RK821P	N	500	N	1,500	15	5	10
79RK824P	N	300	N	2,000	95	15	10
79RK825P	N	150	N	>2,000	75	15	10
79RK826P	N	300	N	2,000	25	5	15
79RK827P	N	50	N	150	250	20	35
79RK832P	<100	300	N	>2,000	120	15	20
79RK835P	N	700	N	>2,000	60	15	15
79RK836P	N	300	N	2,000	35	15	10
79RK839P	N	200	N	>2,000	15	15	15
79RK841P	100	500	N	>2,000	190	20	25
79RK842P	150	500	N	>2,000	75	20	10
79RK843P	N	500	N	2,000	20	15	10
79RK844P	N	150	N	2,000	15	15	15
79RK845P	N	200	N	>2,000	60	15	20
79RK850P	N	300	N	>2,000	15	20	20
79RK854P	<100	100	N	1,500	65	10	10
79RK855P	N	100	N	500	65	15	10
79RK857P	N	100	N	700	20	10	15
79RK859P	N	150	N	2,000	20	10	20
79RK861P	N	150	N	>2,000	65	35	20
79RK862P	N	700	N	>2,000	45	15	15

Table 5.--Analytical data for heavy-mineral concentrate samples--Continued

SAMPLE	LAB NO.	LATITUDE	LONGITUDE	S-FE%	S-MG%	S-CA%	S-TI%	S-MN	S-AG	S-AS	S-AU	S-B	S-BA	S-BE
79RK864P	CDY506	56 3 2	131 20 20	7.0	10.0	7	.5	2,000	N	N	N	<20	700	<2
79RK865P	CDY486	56 2 28	131 19 29	7.0	10.0	5	.3	2,000	7.0	N	N	<20	100	<2
79RK867P	CDY466	56 1 11	131 20 24	7.0	7.0	5	1.5	1,500	N	N	N	<20	100	<2
79RK868P	CDY507	56 0 18	131 18 52	3.0	7.0	7	1.5	2,000	N	N	N	<20	100	<2
79RK870P	CDY487	56 1 57	131 12 48	10.0	10.0	7	1.0	2,000	N	N	N	<20	100	2
79RK871P	CDY467	56 3 15	131 12 25	7.0	7.0	5	.7	2,000	N	N	N	<20	150	<2
79RK872P	CDY509	56 16 24	130 56 10	2.0	.7	7	2.0	1,000	N	N	N	<20	1,000	N
79RK877P	CEC155	56 31 2	131 32 27	5.0	1.5	7	2.0	2,000	N	N	N	<20	1,500	<2
79RK878P	CEC176	56 31 3	131 32 17	10.0	3.0	20	>2.0	5,000	N	N	N	<20	3,000	N
79RK880P	CEC201	56 32 15	131 31 48	5.0	1.5	10	>2.0	1,500	N	N	N	<20	2,000	N
79RK881P	CEC224	56 31 56	131 29 11	5.0	2.0	10	>2.0	2,000	N	N	N	<20	500	<2
79RK883P	CEC156	56 32 54	131 31 1	7.0	7.0	10	.5	2,000	N	N	N	<20	200	7
79RK884P	CEC229	56 33 40	131 30 42	10.0	3.0	15	>2.0	3,000	N	N	N	<20	5,000	<2
79RK885P	CEC177	56 33 40	131 30 47	5.0	1.0	5	>2.0	3,000	N	N	N	<20	1,000	<2
79RK886P	CEC202	56 34 43	131 32 36	3.0	1.5	10	>2.0	1,500	N	N	N	<20	2,000	<2
79RK888P	CEC225	56 34 49	131 34 48	10.0	3.0	15	1.5	5,000	2.0	N	N	30	700	30
79RK889P	CEC157	56 34 8	131 36 42	15.0	3.0	7	2.0	3,000	<1.0	N	N	50	500	20
79RK890P	CEC178	56 35 20	131 36 32	10.0	3.0	10	.7	2,000	<1.0	N	N	200	700	<2
79RK891P	CEC203	56 35 15	131 37 13	7.0	2.0	10	2.0	2,000	N	N	N	<20	300	30
79RK892P	CEC179	56 34 2	131 40 14	10.0	3.0	10	1.5	3,000	N	N	N	20	500	15
79RK894P	CEC204	56 35 19	131 41 0	10.0	2.0	10	1.5	2,000	N	N	N	50	300	50
79RK896P	CEC180	56 36 22	131 40 27	10.0	2.0	7	1.5	3,000	N	N	N	20	500	50
79RK897P	CEC226	56 29 55	131 44 19	7.0	3.0	10	>2.0	3,000	N	N	N	<20	500	<2
79RK898P	CEC158	56 31 16	131 48 42	10.0	5.0	10	.7	5,000	N	N	N	<20	700	2
79RK899P	CEC181	56 31 11	131 48 36	15.0	10.0	15	1.5	5,000	N	N	N	<20	500	3
79RK900P	CEC182	56 31 38	131 46 22	10.0	5.0	10	1.5	3,000	N	N	N	<20	700	2
79RK902P	CEC227	56 34 34	131 46 12	5.0	2.0	10	>2.0	3,000	N	N	N	<20	200	<2
79RK903P	CEC159	56 34 48	131 45 56	7.0	5.0	10	1.5	2,000	N	N	N	20	300	30
79RK905P	CEC183	56 33 50	131 44 1	7.0	3.0	7	1.5	3,000	N	N	N	20	200	70
79RK906P	CEC205	56 34 42	131 48 4	5.0	5.0	10	>2.0	3,000	N	N	N	<20	200	2
79RK909P	CEC228	56 36 30	131 43 3	10.0	7.0	15	>2.0	3,000	N	N	N	<20	1,500	<2
79RK910P	CEC160	56 36 26	131 48 48	15.0	10.0	10	>2.0	5,000	N	N	N	20	200	3
79RK912P	CEC251	55 59 50	131 17 55	10.0	7.0	7	1.5	2,000	N	N	N	<20	200	<2
79RK913P	CEC240	55 59 57	131 16 48	10.0	7.0	7	1.0	2,000	<1.0	N	N	20	200	<2
79SK502P	CEC194	56 34 36	131 32 14	7.0	1.5	10	>2.0	2,000	N	N	N	20	3,000	<2
79SK503P	CEC218	56 39 48	131 59 8	5.0	5.0	10	1.5	2,000	N	N	N	<20	300	<2
79SK504P	CEC149	56 21 41	131 18 12	10.0	10.0	10	1.5	5,000	N	N	N	100	500	<2
79SK505P	CEC223	56 12 29	131 33 53	10.0	5.0	10	1.5	5,000	N	N	N	20	1,000	<2
79SK506P	CEC154	56 12 42	131 33 43	10.0	10.0	10	1.5	5,000	N	N	N	20	300	<2

Table 5.--Analytical data for heavy-mineral concentrate samples--Continued

SAMPLE	S-BI	S-CD	S-CO	S-CR	S-CU	S-LA	S-MO	S-NB	S-NI	S-PB	S-SB	S-SC	S-SN	S-SR	S-TH	S-V
79RK864P	N	N	50	700	70	300	N	<50	150	<20	N	70	N	200	N	150
79RK865P	N	N	50	1,000	20	150	N	<50	200	<20	N	70	N	<200	N	300
79RK867P	N	N	30	300	30	150	N	<50	100	<20	N	50	N	200	N	300
79RK868P	N	N	20	200	15	200	N	<50	70	N	N	30	N	300	N	150
79RK870P	N	N	50	700	20	150	N	50	150	<20	N	70	N	<200	N	300
79RK871P	N	N	50	500	<10	200	N	<50	150	<20	N	70	N	200	N	300
79RK872P	N	N	70	30	70	700	N	100	<10	70	N	20	50	300	200	150
79RK877P	N	N	100	100	150	700	N	70	<10	70	N	30	30	500	N	200
79RK878P	30	N	70	30	50	2,000	N	100	<10	100	N	50	70	300	<200	500
79RK880P	N	N	50	50	100	1,000	N	150	<10	100	N	20	50	500	N	200
79RK881P	N	N	20	70	50	2,000	N	200	<10	70	N	20	70	300	200	300
79RK883P	<20	N	50	500	10	700	N	150	10	70	N	100	50	<200	200	300
79RK884P	N	N	50	70	20	1,000	N	150	<10	<20	N	30	70	300	N	500
79RK885P	<20	N	70	<20	100	1,500	N	150	<10	50	N	20	20	<200	N	150
79RK886P	N	N	50	50	100	700	N	150	<10	100	N	20	50	500	<200	300
79RK888P	N	N	50	100	200	150	N	50	30	300	N	50	N	2,000	N	700
79RK889P	<20	N	30	150	70	500	N	100	15	200	N	70	50	700	N	500
79RK890P	N	N	100	100	100	100	N	N	30	20	N	70	N	1,000	N	700
79RK891P	N	N	20	100	100	700	N	200	10	300	N	30	30	700	<200	300
79RK892P	N	N	30	150	150	700	100	200	50	300	N	30	100	700	300	300
79RK894P	30	N	30	200	100	1,500	100	300	20	500	N	30	200	500	500	200
79RK896P	30	N	30	150	100	1,500	50	200	30	300	N	30	300	500	700	150
79RK897P	N	N	30	70	30	700	N	200	<10	70	N	70	50	500	N	500
79RK898P	<20	N	70	100	20	500	N	<50	<10	50	N	70	N	300	N	200
79RK899P	N	N	70	700	50	500	N	70	70	100	N	50	<20	1,500	N	500
79RK900P	N	N	70	500	70	300	N	<50	70	100	N	30	N	1,000	N	500
79RK902P	N	N	30	200	20	500	N	150	50	100	N	20	50	300	N	300
79RK903P	<20	N	30	500	15	700	N	150	100	70	N	50	100	300	300	300
79RK905P	N	N	30	300	<10	1,000	N	500	100	100	N	30	70	300	500	200
79RK906P	N	N	50	300	10	500	N	150	50	70	N	30	N	200	N	500
79RK909P	N	N	70	300	15	500	N	100	30	50	N	100	N	1,000	N	700
79RK910P	N	N	100	500	30	500	N	100	70	20	N	70	20	200	N	500
79RK912P	N	N	50	700	30	200	N	<50	150	<20	N	70	N	300	N	500
79RK913P	N	N	50	300	20	200	N	<50	100	20	N	70	N	200	N	300
79SK502P	<20	N	100	70	100	2,000	N	200	<10	100	N	20	70	300	N	300
79SK503P	N	N	30	200	50	500	N	<50	50	N	N	50	N	300	N	300
79SK504P	<20	N	100	500	200	500	N	50	150	20	N	100	N	500	N	700
79SK505P	N	N	70	500	10	700	N	50	70	20	N	50	20	500	N	300
79SK506P	<20	N	100	500	30	500	N	70	100	20	N	70	20	300	N	500

Table 5.--Analytical data for heavy-mineral concentrate samples--Continued

SAMPLE	S-W	S-Y	S-ZN	S-ZR	AA-CU-P	AA-PB-P	AA-ZN-P
79RK864P	N	70	N	700	65	10	25
79RK865P	N	70	N	150	25	10	15
79RK867P	N	100	N	1,000	110	15	15
79RK868P	N	100	N	700	15	20	15
79RK870P	N	100	N	1,000	15	10	10
79RK871P	N	100	N	>2,000	5	10	15
79RK872P	N	300	N	>2,000	80	60	35
79RK877P	N	200	N	>2,000	120	45	30
79RK878P	N	1,000	N	>2,000	80	45	45
79RK880P	N	500	N	>2,000	120	35	30
79RK881P	N	500	N	>2,000	35	15	25
79RK883P	N	1,000	N	>2,000	10	35	60
79RK884P	N	700	N	>2,000	15	10	15
79RK885P	N	300	N	>2,000	130	35	25
79RK886P	N	500	N	>2,000	100	45	25
79RK888P	N	100	700	700	230	230	520
79RK889P	N	300	N	2,000	40	95	130
79RK890P	N	70	N	100	70	10	45
79RK891P	N	700	N	>2,000	170	280	1,200
79RK892P	N	1,500	N	>2,000	150	200	380
79RK894P	N	1,500	N	>2,000	120	270	400
79RK896P	N	2,000	N	>2,000	110	300	250
79RK897P	N	500	N	>2,000	45	25	45
79RK898P	N	100	N	>2,000	40	25	65
79RK899P	N	200	N	2,000	20	30	65
79RK900P	N	150	N	2,000	40	40	170
79RK902P	N	500	N	>2,000	30	60	60
79RK903P	N	1,500	N	>2,000	20	35	50
79RK905P	N	1,500	N	>2,000	20	45	60
79RK906P	N	500	N	>2,000	20	25	45
79RK909P	N	200	N	1,500	15	20	40
79RK910P	N	200	N	1,000	15	10	40
79RK912P	N	150	N	1,500	15	10	25
79RK913P	N	100	N	700	20	5	25
79SK502P	N	700	N	>2,000	110	60	35
79SK503P	N	150	N	>2,000	60	15	25
79SK504P	N	150	N	1,000	170	10	40
79SK505P	N	200	N	>2,000	10	20	40
79SK506P	N	200	N	>2,000	15	15	35