UNITED STATES DEPARTMENT OF THE INTERIOR

GEOLOGICAL SURVEY

Geochemical data for the Vasquez Peak Wilderness Study Area (A2361), the Williams Fork Further Planning Area (2-114), and the St. Louis Peak Roadless Area (F2361), Clear Creek, Grand, and Summit Counties, Colorado

By

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STUDIES RELATED TO WILDERNESS

The Wilderness Act (Public Law 88-577, September 3, 1964) and related acts require the U.S. Geological Survey and the U.S. Bureau of Mines to survey certain areas on Federal lands to determine their mineral resource potential. Results must be made available to the public and be submitted to the President and the Congress. This report presents the results of a geochemical survey of the Vasquez Peak Wilderness Study Area (A2361), the Williams Fork Further Planning Area (2-114), and the St. Louis Peak Further Planning Area (E2361), in the Arapaho National Forest, Clear Creek, Grand, and Summit Counties, Colorado. The Williams Fork and St Louis Peak roadless areas were classified as further planning areas during the Second Roadless Area Review and Evaluation (RARE II) by the U.S. Forest Service, January 1979; the Vasquez Peak roadless area was established as a wilderness study area under Public Law 96-560, December, 1980.

INTRODUCTION

The U.S. Geological Survey and U.S. Bureau of Mines conducted field studies during the summers of 1979 through 1982 to evaluate the mineral resource potential of the Vasquez Peak Wilderness Study Area (16,000 acres) and the Williams Fork (74,820 acres) and St. Louis Peak (12,800 acres) Roadless Areas. Included were geologic, geochemical, and geophysical studies by the U.S. Geological Survey and investigation of known mines and prospects by the Bureau of Mines.

The mineral resource potential of the area studied has been reported by Theobald and others (1983). Eppinger and others (1983) describe the geology as being Proterozoic metamorphic and igneous rocks with a narrow strip of Mesozoic sedimentary rocks on the west side of the Williams Fork Mountains. Early and Middle Tertiary dikes in the central and eastern parts and a complex system of Proterozoic to Cenozoic faults cut the rocks. Surficial cover is extensive, ranging from periglacially deformed, deep regolith on the gentle slopes of ridges, through glacial deposits on valley walls and floors, to alluvium in the lower valley bottoms.

This report describes the techniques used for collecting and analyzing the samples and presents the data from chemical analyses. Geochemical samples were collected during a regional survey and in more detailed follow-up studies of specific areas.

The location and approximate boundaries of the three contiguous areas are shown in Figure 1. The southeastern boundary of the Williams Fork Roadless Area from approximately the Eisenhower-Johnson tunnel to near Berthoud Pass is the Continental Divide. The corridor between the Williams Fork and St. Louis Peak Roadless Areas includes the Jones Pass road, the city of Denver's road/aqueduct at an elevation of 10,400 feet on the north side of Williams Fork, and the Forest Service road to South Fork campground at the junction of the South Fork and Williams Fork. The Vasquez Peak Wilderness Study Area and St. Louis Peak Roadless Area adjoin three sides of the Fraser Experimental Forest.

SAMPLE MEDIA SELECTION

Many ore minerals are: (1) resistant to abrasion, (2) of high specific gravity, and (3) nonmagnetic. They may be separated from low-specific gravity minerals such as quartz, feldspar, and mica by field panning and laboratory specific gravity separation. In this heavy-mineral fraction, ore minerals may be separated from interfering and diluting iron and magnesium silicate minerals on the basis of magnetic susceptibility. Removed with the iron and magnesium silicate minerals are ore elements substituted in the silicate mineral lattice but the same element in an ore mineral is retained. The background for locating anomalous element concentrations related to ore mineralization is thereby lessened. Use of the nonmagnetic fraction of the heavy-mineral concentrate of the stream sediment results in more frequent detection of ore-related anomalous element concentrations whose natural abundance in stream sediments is below analytical detection limits.

The sample media chosen for the initial regional study was the nonmagnetic fraction of a heavy-mineral concentrate from stream sediment. Each site provides a composite sample of the upstream drainage basin with contributions decreasing with distance upstream. One hundred sixty-four first-order stream sites provide nearly complete sampling of the 103,620 acre study area.

More detailed studies of areas found to be anomalous in the regional study were made by taking closely spaced (at 200-yard intervals) soil samples on the high, alpine ridges. Samples were also taken on ridge flanks above glacially deposited till. As with stream-transported sediments, specific gravity and magnetic susceptibility separations were made to reduce dilution and interference.

SAMPLE COLLECTION

Heavy-mineral-concentrate samples were collected at 164 streambed sites within an area of approximately 162 mi^2 (1 sample per 1 mi^2 average). First-order streams of 0.5 to 3 mi length, draining basins up to 3 mi^2 area, were sampled. Enough material was passed through a 2-mm screen to fill a 16-inch-diameter gold pan to approximately 70-percent capacity. Panning was terminated when heavy minerals began to be lost or when the sample size was reduced to approximately 200 grams. Samples of heavy-mineral concentrate from stream sediment were collected from sites 1-129 in 1979; 1070, 1071, and 1082-1093 in 1980; 1137-1160 in 1981. Detection limits and results of analyses of the heavy-mineral concentrates from stream sediments are presented in Tables 1 and 2, respectively. Plate 1 shows the map locations.

Soil samples from ridgetops were collected in 1980 on the Ptarmigan Peak-Bottle Peak-Byres Peak-Bills Peak-Peak 11605 ridge, which encircles the upper Keyser Creek basin (sites 1052-1060, 1072-1081, 1094-1101). Samples were taken at approximately 440-yard intervals. Every fourth sample was taken in sufficient quantity to be processed for a nonmagnetic heavy-mineral concentrate. Results of analyses of these unprocessed soils and heavy-mineral concentrates are presented in Tables 3 and 5, respectively. Map locations of both sample types, in addition to streambed sample sites in the Keyser basin, are shown in Plate 2.

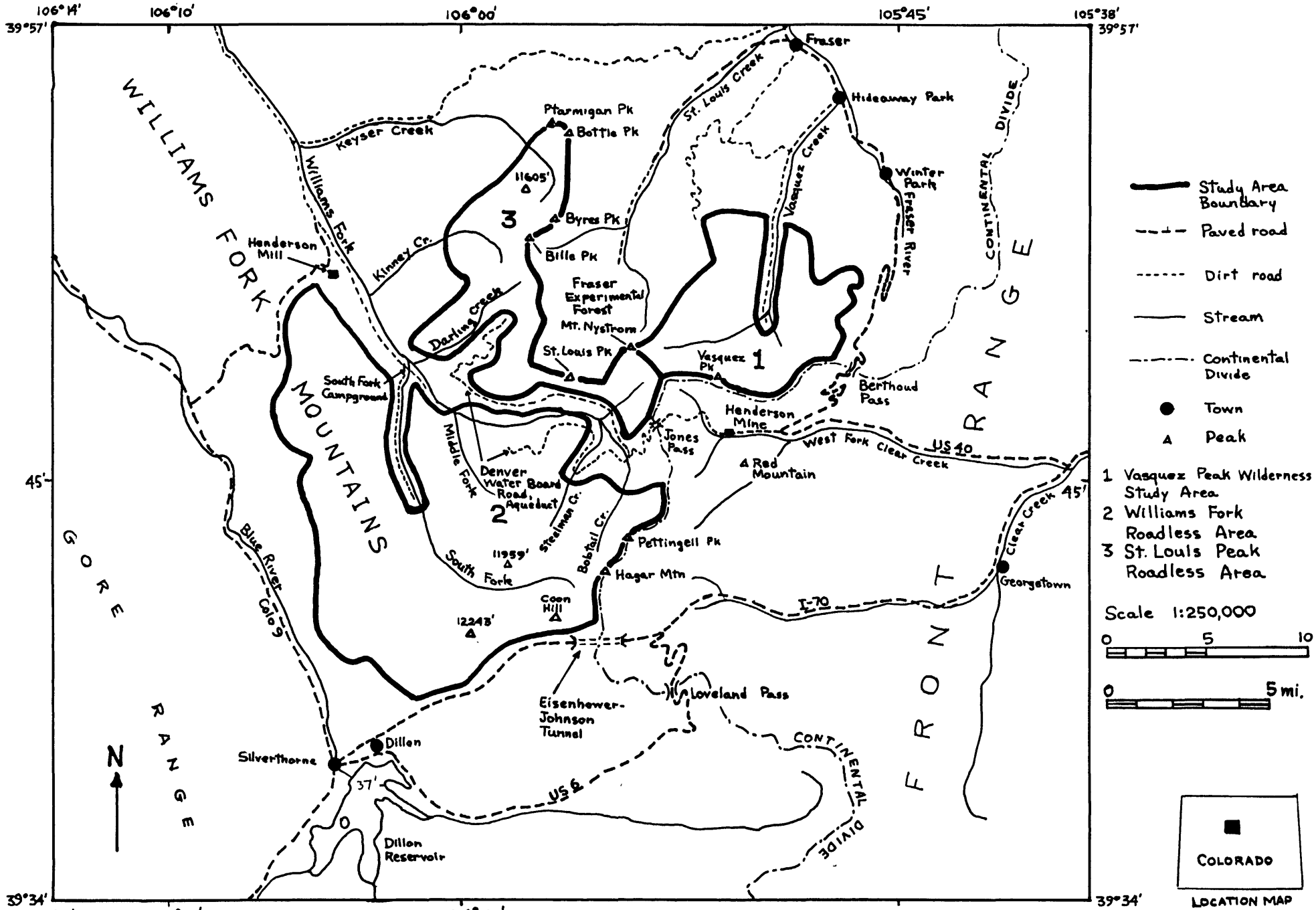

FIGURE 1. MAP OF STUDY AREA.

The southern portion of the Vasquez Peak Wilderness Study Area was sampled in the same manner during 1980. The area sampled included the Continental Divide from the Eisenhower-Johnson tunnel to Jones Pass, the ridge west from Hagar Mountain to Peak 11959, the east-west ridge through Coon Hill from Peak 12243 to the Continental Divide including minor ridges to the north and south, and the Bobtail-Steelman ridge (sites 1001-1051, 1104-1128). Results of analyses of the unprocessed soils and heavy-mineral concentrates from these sites are presented in Tables 4 and 6, respectively.

In 1981, samples were collected on both flanks of selected ridges above the glacial till. Sites 1161-1171 and 1176-1185 were sampled along the Continental Divide in the vicinity of the Eisenhower-Johnson tunnel and 1186-1198 along the Bobtail-Steelman ridge. All samples were treated as heavy-mineral concentrates. Analytical data for these samples are presented in Table 7.

Ridgeline soil samples (sites 1199-1390 and 1450-1471), all large enough to be processed for heavy-mineral concentrates, were collected in 1982. Sample intervals ranged from 500 to 650 feet. Ridges sampled at this close spacing for heavy-mineral concentrates were the same as those described above for 1980, excluding the Keyser basin, and including the north-south ridge west of Steelman Creek. Analytical data for these heavy-mineral concentrates, along with those samples collected in 1980, are presented in Table 4. Map locations for both ridgeline and ridge flank samples of heavy-mineral concentrates in the southern part of the Vasquez Peak Wilderness Study Area are shown in Plate 3.

SAMPLE PREPARATION AND ANALYSIS

All samples collected from streambeds and ridge flanks and some samples collected on ridges were prepared as heavy-mineral concentrates. Those samples collected from streams were passed through a 2-mm sieve and panned at the sampling site. Two 1-quart cloth sample bags (5 1/2 in x 10 1/2 in) containing approximately 7 lbs of soil were filled at each ridge sample site. A heavy-mineral concentrate was obtained by drying, sieving at 2 mm, and panning.

Panned concentrates were sieved to minus 30 mesh. Bromoform (specific gravity 2.80 to 2.89) was used to separate quartz, feldspar, clay, and other low-density minerals from the heavy minerals. The heavy-mineral concentrates were split into three fractions on the basis of magnetic susceptibility, using a Frantz Isodynamic Separator. The nonmagnetic fraction obtained at 0.6 ampere contained primarily low-iron magnesium silicates, barite, apatite, sphene, zircon, tourmaline, brookite, rutile, and most of the sulfide minerals and secondary minerals (alteration products) of base metals. This fraction was split; one part was used for mineral identification, and the other part was hand ground to provide a 5-mg sample for emission spectrographic analysis for 31 elements by a six-step semiquantitative D.C. arc emission spectrographic method (Grimes and Marranzino, 1968). Heavy-mineral concentrates from ridge flanks were analyzed with different spectrographic parameters and have detection limits of one-half of those given in Table 1.

Ridgeline soils were sampled by collecting approximately 200 g of soil in a 0.15-quart cloth bag (4 1/2 in x 6 1/2 in) at each site. Following drying and sieving to pass 30 mesh, samples were analyzed by the spectrographic method described above for panned concentrates. A 10-mg sample was used rather than 5 mg and detection limits are one-half of those given in Table 1.

Analytical results, along with the latitude and longitude, are presented in Tables 2-7.

ROCK ANALYSIS STORAGE SYSTEM

Upon completion of all analytical work, the analytical results were entered into a computer-based file called Rock Analysis Storage System (RASS). This data base contains both descriptive geological information and analytical data. Any or all of this information may be retrieved and converted to a binary form (STATPAC) for computerized statistical analysis publication (VanTrump and Miesch, 1977).

REFERENCES

Eppinger, R. G., Theobald, P. K., and Carlson, R. R., 1983, Generalized geologic map of the Vasquez Peak Wilderness Study Area and the Williams Fork and St. Louis Peak Roadless Areas, Clear Creek, Grand, and Summit Counties, Colorado: U.S. Geological Survey Miscellaneous Field Studies Report 83 MF-1588B.

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

Theobald, P. K., Bielski, A. M., Eppinger, R. G., Moss, C. K., Kreidler, T. J., and Barton, H. N., 1983, Mineral resource potential map of the Vasquez Peak Wilderness Study Area and the Williams Fork and St. Louis Peak Roadless Areas, Clear Creek, Grand, and Summit Counties, Colorado: U.S. Geological Survey Miscellaneous Field Studies Report 83 MF-1588A.

VanTrump, George, Jr., and Miesch, A. T., 1977, The U.S. Geological Survey RASS-STATPAC system for management and statistical reduction of geochemical data: Computer and Geosciences, v. 3, p. 475-488.

Table 1.--Lower limits of detection for streambed and ridgeline, heavy-mineral concentrates determined by emission spectrographic method

[Detection limits for ridge flank heavy-mineral concentrate and ridgeline soil samples are one-half the values shown here.]

Element	Detection
Ag	1
As	500
Au	20
B	20
Ba	50
Be	2
Bi	20
Cd	50
Co	10
Cr	20
Cu	10
La	50
Mn	20
Mo	10
Sc	10
Sn	20
Sr	200
Th	200
V	20
Nb	50
Ni	10
Pb	20
Sb	200
W	100
Y	20
Zn	500
Zr	20

TABLE 2.--Spectrographic analysis of Stream Heavy-Mineral Concentrates from entire Study Area

Sample	Latitude	Longitude	Fe-pct. s	Mg-pct. s	Ca-pct. s	Ti-pct. s	Mn-ppm s	Ag-ppm s	As-ppm s	Au-ppm s	B-ppm s
WF0001H	39 47 48	106 2 24	3.0	2.00	10.0	1.50	1,000	N	N	N	20
WF0002H	39 47 8	106 2 42	3.0	1.50	10.0	1.50	700	N	N	N	N
WF0003H	39 47 6	106 2 40	3.0	2.00	15.0	1.00	700	N	N	N	N
WF0004H	39 46 17	106 2 16	3.0	1.00	7.0	1.50	700	N	N	N	N
WF0005H	39 45 46	106 2 14	3.0	.70	7.0	1.50	700	N	N	N	N
WF0006H	39 45 12	106 2 6	3.0	2.00	7.0	1.00	1,500	N	N	N	N
WF0007H	39 45 6	106 1 57	5.0	1.00	7.0	1.00	1,500	N	N	N	N
WF0008H	39 44 46	106 1 44	3.0	2.00	7.0	1.00	2,000	N	N	N	N
WF0009H	39 48 44	106 3 3	2.0	1.50	5.0	1.50	2,000	N	N	N	20
WF0010H	39 48 51	106 3 8	3.0	2.00	7.0	1.50	3,000	N	N	N	700
WF0011H	39 50 6	106 2 46	2.0	2.00	7.0	1.50	2,000	N	N	N	300
WF0012H	39 50 27	106 2 16	3.0	3.00	7.0	1.00	3,000	N	N	N	150
WF0013H	39 51 4	106 1 7	3.0	5.00	7.0	1.50	3,000	N	N	N	N
WF0014H	39 48 21	106 6 28	3.0	1.50	5.0	1.50	1,500	N	N	N	150
WF0015H	39 43 55	105 51 57	1.5	.70	.7	2.00	150	N	N	N	N
WF0016H	39 43 51	105 51 57	2.0	.50	1.5	>2.00	200	20.0	N	N	N
WF0017H	39 45 50	105 51 32	1.5	.30	3.0	>2.00	700	3.0	N	N	N
WF0018H	39 45 45	105 51 32	3.0	.30	3.0	>2.00	1,500	N	N	N	N
WF0019H	39 46 31	105 51 49	9.0	.30	3.0	>2.00	5,000	N	N	N	N
WF0020H	39 46 35	105 51 49	10.0	.20	3.0	>2.00	7,000	20.0	N	N	N
WF0021H	39 52 38	105 54 8	3.0	1.50	7.0	2.00	3,000	N	N	N	200
WF0022H	39 53 28	105 55 16	1.5	.70	7.0	2.00	1,000	N	N	N	300
WF0023H	39 53 26	105 55 16	2.0	2.00	10.0	1.50	2,000	N	N	N	300
WF0024H	39 51 37	105 54 33	3.0	1.50	15.0	1.50	1,000	N	N	N	150
WF0025H	39 50 51	105 54 44	3.0	1.50	15.0	.70	1,000	N	N	N	N
WF0026H	39 49 56	105 55 21	3.0	2.00	15.0	1.00	1,000	N	N	N	100
WF0027H	39 54 26	105 58 23	3.0	.50	15.0	2.00	1,000	N	N	N	300
WF0028H	39 54 10	105 58 15	1.5	.20	10.0	1.50	1,000	N	N	N	100
WF0029H	39 54 7	105 58 2	3.0	.50	10.0	2.00	1,500	N	N	N	700
WF0030H	39 53 46	105 57 52	5.0	.50	10.0	2.00	700	N	N	N	700
WF0032H	39 53 28	105 57 4	3.0	.70	10.0	2.00	700	N	N	N	700
WF0033H	39 53 25	105 57 8	5.0	.50	10.0	2.00	300	N	N	N	200
WF0034H	39 42 59	105 52 5	7.0	.20	5.0	1.50	500	N	N	N	N
WF0035H	39 46 30	105 54 50	2.0	.30	10.0	2.00	700	N	N	N	N
WF0036H	39 47 11	105 55 54	1.5	.10	10.0	2.00	1,000	N	N	N	N
WF0037H	39 47 13	105 56 21	2.0	.15	10.0	2.00	700	N	N	N	N
WF0038H	39 47 16	105 57 3	3.0	.20	10.0	1.50	700	N	N	N	N
WF0039H	39 47 8	105 57 44	2.0	.50	10.0	2.00	700	N	N	N	N
WF0040H	39 47 9	105 58 17	3.0	.30	10.0	1.00	1,500	N	N	N	N
WF0041H	39 47 18	105 59 11	3.0	.30	5.0	1.50	1,000	N	N	N	N
WF0042H	39 45 8	105 54 12	2.0	.10	10.0	2.00	1,000	N	N	N	N
WF0043H	39 44 58	105 54 19	2.0	.15	7.0	2.00	700	N	N	N	N
WF0044H	39 44 44	105 54 23	2.0	.15	7.0	2.00	500	N	N	N	N
WF0045H	39 44 7	105 55 0	2.0	.10	10.0	>2.00	300	5.0	N	N	N
WF0046H	39 44 13	105 54 57	2.0	.15	10.0	2.00	500	N	N	N	N

TABLE 2.--Spectrographic analysis of Stream Heavy-Mineral Concentrates from entire Study Area

Sample	Ba-ppm s	Be-ppm s	Bi-ppm s	Cd-ppm s	Co-ppm s	Cr-ppm s	Cu-ppm s	La-ppm s	Mo-ppm s	Nb-ppm s	Ni-ppm s	Pb-ppm s	Sb-ppm s
WF0001H	200	10	N	N	10	20	30	700	70	150	50	50	N
WF0002H	300	10	N	N	20	30	15	1,500	15	100	50	70	N
WF0003H	500	7	N	N	70	30	30	>2,000	30	200	50	300	N
WF0004H	300	10	N	N	10	50	100	>2,000	20	100	30	200	N
WF0005H	300	20	N	N	<10	30	<10	2,000	15	100	50	150	N
WF0006H	300	5	N	N	10	30	10	1,000	15	50	30	70	N
WF0007H	500	70	N	N	150	50	20	2,000	15	N	30	150	N
WF0008H	700	7	N	N	20	30	15	700	50	N	30	150	N
WF0009H	300	7	1,000	N	15	50	<10	1,500	30	<50	20	150	N
WF0010H	700	7	N	N	15	70	<10	500	15	50	20	50	N
WF0011H	300	5	N	N	15	50	<10	1,500	20	N	20	100	N
WF0012H	700	N	N	N	30	70	10	2,000	50	N	20	150	N
WF0013H	200	N	N	N	50	200	<10	2,000	15	N	30	150	N
WF0014H	>10,000	7	N	N	15	50	<10	700	15	70	50	150	N
WF0015H	1,000	N	N	N	15	70	<10	2,000	<10	100	20	500	N
WF0016H	10,000	N	N	N	30	50	20	2,000	30	100	20	500	N
WF0017H	700	N	N	N	15	50	30	2,000	30	150	<10	300	N
WF0018H	10,000	N	N	N	15	70	15	1,000	N	200	<10	500	N
WF0019H	2,000	N	N	N	20	30	10	2,000	15	150	20	700	N
WF0020H	1,500	5	N	N	20	30	1,000	1,000	300	150	15	1,500	N
WF0021H	300	N	N	N	20	30	30	1,000	30	70	20	150	N
WF0022H	300	N	N	N	15	20	<10	300	30	<50	20	500	N
WF0023H	300	N	N	N	15	20	<10	1,000	30	N	20	70	N
WF0024H	300	N	N	N	20	20	10	700	20	<50	30	70	N
WF0025H	300	15	N	N	20	20	10	>2,000	70	N	20	300	N
WF0026H	200	10	N	N	15	<20	10	700	30	N	20	100	N
WF0027H	200	N	N	N	30	<20	10	300	100	N	20	70	N
WF0028H	500	N	N	N	N	<20	<10	500	20	N	20	50	N
WF0029H	200	N	N	N	10	50	<10	200	30	100	50	50	N
WF0030H	150	N	N	N	150	<20	50	1,000	30	<50	20	70	N
WF0032H	200	30	N	N	20	<20	15	500	30	150	20	50	N
WF0033H	300	N	N	N	70	20	50	200	30	N	20	50	N
WF0034H	>10,000	N	N	N	150	20	300	2,000	30	100	50	150	N
WF0035H	1,000	N	N	N	20	20	15	2,000	15	100	50	150	N
WF0036H	700	5	N	N	20	<20	<10	2,000	15	150	10	150	N
WF0037H	700	5	N	N	50	20	10	2,000	15	150	20	100	N
WF0038H	300	10	N	N	10	50	<10	1,000	15	70	20	70	N
WF0039H	700	5	N	N	10	50	<10	2,000	15	150	20	70	N
WF0040H	700	7	N	N	10	50	<10	1,000	15	<50	20	70	N
WF0041H	700	15	N	N	10	50	15	2,000	15	70	20	100	N
WF0042H	700	N	N	N	20	<20	15	>2,000	10	100	10	200	N
WF0043H	700	N	N	N	20	50	15	2,000	20	100	20	150	N
WF0044H	7,000	N	N	N	50	50	30	2,000	20	100	20	150	N
WF0045H	700	N	N	N	50	<20	70	>2,000	10	150	20	300	N
WF0046H	700	300	N	N	50	<20	<10	>2,000	10	150	20	150	N

TABLE 2.--Spectrographic analysis of Stream Heavy-Mineral Concentrates from entire Study Area

Sample	Sc-ppm s	Sn-ppm s	Sr-ppm s	V-ppm s	W-ppm s	Y-ppm s	Zn-ppm s	Zr-ppm s	Th-ppm s
WF0001H	70	20	N	200	1,000	300	N	>2,000	N
WF0002H	150	<20	N	200	N	500	N	>2,000	<200
WF0003H	70	20	N	100	1,000	1,000	N	>2,000	1,500
WF0004H	70	<20	N	150	N	300	N	>2,000	1,000
WF0005H	100	<20	N	150	150	300	N	>2,000	700
WF0006H	20	<20	N	150	N	200	N	2,000	<200
WF0007H	50	N	N	150	N	500	N	>2,000	1,000
WF0008H	50	N	N	150	1,500	300	N	>2,000	N
WF0009H	50	30	N	150	500	300	N	>2,000	N
WF0010H	30	<20	N	200	<100	200	N	>2,000	N
WF0011H	50	<20	N	150	700	500	N	>2,000	<200
WF0012H	50	N	N	150	500	700	N	>2,000	5,000
WF0013H	50	N	N	200	100	500	N	>2,000	2,000
WF0014H	70	30	>10,000	150	100	300	N	>2,000	N
WF0015H	70	20	N	150	N	300	N	>2,000	2,000
WF0016H	50	30	5,000	150	N	300	N	>2,000	1,500
WF0017H	20	30	N	150	<100	300	N	>2,000	1,000
WF0018H	15	30	3,000	150	N	200	N	>2,000	<200
WF0019H	15	20	1,000	150	N	500	1,000	>2,000	3,000
WF0020H	15	700	N	100	N	300	10,000	2,000	1,500
WF0021H	15	<20	N	150	500	300	N	2,000	<200
WF0022H	30	20	N	150	<100	300	N	>2,000	N
WF0023H	20	N	N	150	300	300	N	>2,000	N
WF0024H	30	N	300	150	N	300	N	>2,000	N
WF0025H	20	N	300	100	N	700	N	2,000	5,000
WF0026H	20	N	200	150	N	300	N	2,000	N
WF0027H	20	30	<200	150	1,500	300	N	2,000	N
WF0028H	50	N	<200	200	300	300	N	>2,000	N
WF0029H	20	20	<200	200	700	300	N	2,000	N
WF0030H	20	<20	<200	200	300	300	N	2,000	200
WF0032H	10	30	<200	200	500	200	3,000	1,500	N
WF0033H	10	20	200	200	700	300	N	2,000	N
WF0034H	15	20	200	50	N	700	N	2,000	1,000
WF0035H	15	N	300	100	N	700	N	2,000	700
WF0036H	15	N	<200	70	N	700	N	2,000	1,000
WF0037H	15	N	<200	70	N	700	N	2,000	700
WF0038H	10	N	<200	150	N	500	N	2,000	N
WF0039H	10	N	300	100	N	700	N	>2,000	N
WF0040H	10	N	N	150	N	700	N	>2,000	N
WF0041H	15	N	300	150	N	500	N	>2,000	N
WF0042H	15	30	N	100	N	700	N	>2,000	3,000
WF0043H	10	<20	N	100	100	700	N	2,000	200
WF0044H	10	<20	<200	100	100	700	N	2,000	200
WF0045H	10	30	<200	100	N	700	N	>2,000	3,000
WF0046H	15	<20	<200	100	N	700	N	>2,000	1,000

Table 2.--Spectrographic Analysis of Stream Heavy-Mineral Concentrates from entire Study Area (continued)

Sample	Latitude	Longitude	Fe-pct. s	Mg-pct. s	Ca-pct. s	Ti-pct. s	Mn-ppm s	Ag-ppm s	As-ppm s	Au-ppm s	B-ppm s
WF0047H	39 45 51	105 57 27	1.5	.20	2.0	.70	300	N	N	N	N
WF0048H	39 46 0	105 58 2	3.0	.50	2.0	.70	1,000	7.0	N	N	N
WF0049H	39 46 28	105 55 56	1.5	.20	10.0	>2.00	500	N	N	N	N
WF0050H	39 44 42	105 56 32	1.5	.15	10.0	>2.00	700	N	N	N	N
WF0051H	39 44 12	105 56 46	1.5	.20	10.0	2.00	700	N	N	N	N
WF0052H	39 44 11	105 56 44	3.0	.15	10.0	>2.00	500	N	N	N	N
WF0053H	39 47 33	105 53 50	1.5	.20	10.0	2.00	1,500	N	N	N	N
WF0054H	39 45 55	105 54 21	1.5	.15	10.0	>2.00	1,000	N	N	N	N
WF0055H	39 45 38	105 54 16	3.0	.15	7.0	>2.00	1,500	N	N	N	N
WF0056H	39 41 50	105 52 28	3.0	.15	7.0	2.00	500	N	N	N	N
WF0057H	39 40 58	105 53 50	2.0	.15	7.0	>2.00	500	N	N	N	N
WF0058H	39 40 59	105 55 58	3.0	.15	10.0	2.00	500	N	N	N	N
WF0059H	39 40 37	105 57 26	2.0	.70	10.0	2.00	500	7.0	N	N	70
WF0060H	39 40 29	105 58 12	2.0	.20	7.0	1.50	500	N	N	N	N
WF0061H	39 40 11	105 58 42	2.0	.10	3.0	1.50	700	N	N	N	N
WF0062H	39 39 37	105 59 28	2.0	.15	2.0	.70	700	N	N	N	N
WF0063H	39 39 26	105 59 49	2.0	.30	1.5	1.50	500	N	N	N	N
WF0064H	39 39 2	106 1 19	1.5	.30	10.0	1.00	700	N	N	N	N
WF0065H	39 39 59	106 4 31	2.0	.50	10.0	1.50	1,000	N	N	N	N
WF0066H	39 39 31	106 4 26	2.0	1.00	10.0	1.50	1,000	N	N	N	N
WF0067H	39 41 28	106 4 0	2.0	1.00	10.0	1.00	1,500	N	N	N	N
WF0068H	39 41 32	106 3 58	2.0	1.50	10.0	1.50	1,500	N	N	N	N
WF0069H	39 41 31	106 4 24	3.0	2.00	10.0	1.50	1,500	N	N	N	N
WF0070H	39 44 11	106 6 58	3.0	1.00	7.0	2.00	1,000	N	N	N	N
WF0071H	39 43 27	106 6 0	2.0	.70	1.0	>2.00	300	N	N	N	200
WF0072H	39 43 30	106 6 0	3.0	.70	7.0	2.00	1,500	N	N	N	50
WF0073H	39 42 57	106 6 42	3.0	.50	1.5	>2.00	1,000	N	N	N	100
WF0074H	39 42 29	106 6 22	2.0	.50	1.0	2.00	700	N	N	N	N
WF0075H	39 46 10	106 7 36	1.0	.70	5.0	2.00	1,000	N	N	N	150
WF0076H	39 45 56	106 7 34	1.5	.50	7.0	2.00	700	N	N	N	100
WF0077H	39 49 18	105 59 12	3.0	1.50	15.0	1.50	1,500	N	N	N	N
WF0078H	39 49 16	105 59 9	3.0	3.00	15.0	2.00	1,500	N	N	N	N
WF0079H	39 48 51	105 59 44	3.0	1.50	15.0	.70	5,000	N	N	N	N
WF0080H	39 48 51	105 59 53	3.0	.70	10.0	.70	700	N	N	N	20
WF0081H	39 48 34	106 0 9	2.0	.50	10.0	1.00	700	N	N	N	N
WF0082H	39 48 31	106 0 40	3.0	1.00	7.0	.70	700	N	N	N	150
WF0083H	39 50 40	106 4 53	2.0	.70	7.0	1.50	700	N	N	N	100
WF0085H	39 54 19	106 0 53	1.0	.50	10.0	.70	700	N	N	N	N
WF0086H	39 56 11	105 56 40	1.5	1.00	15.0	1.50	3,000	N	N	N	500
WF0087H	39 56 7	105 56 16	2.0	1.50	10.0	1.50	2,000	N	N	N	1,000
WF0088H	39 56 5	105 53 58	3.0	1.00	7.0	2.00	1,500	N	N	N	1,500
WF0089H	39 49 22	105 55 51	3.0	1.50	15.0	1.00	2,000	N	N	N	N
WF0090H	39 48 56	105 55 57	.7	.30	15.0	.30	10,000	N	N	N	N
WF0091H	39 46 35	105 55 56	.7	.30	15.0	.50	3,000	N	N	N	N
WF0092H	39 48 33	105 55 52	1.0	.70	15.0	.30	3,000	N	N	N	N

Table 2.--Spectrographic Analysis of Stream Heavy-Mineral Concentrates from entire Study Area (continued)

Sample	Ba-ppm s	Be-ppm s	Bi-ppm s	Cd-ppm s	Co-ppm s	Cr-ppm s	Cu-ppm s	La-ppm s	Mo-ppm s	Nb-ppm s	Ni-ppm s	Pb-ppm s	Sb-ppm s
WF0047H	300	20	N	N	10	70	<10	1,000	15	<50	20	70	N
WF0048H	200	20	N	N	20	150	20	1,000	15	N	20	70	N
WF0049H	200	5	N	N	10	100	<10	1,500	30	150	20	100	N
WF0050H	150	7	N	N	10	70	10	2,000	20	150	N	150	N
WF0051H	150	7	N	N	20	100	<10	1,500	20	100	N	70	N
WF0052H	300	N	N	N	300	50	70	2,000	15	100	30	70	N
WF0053H	100	5	N	N	20	70	<10	700	15	150	20	70	N
WF0054H	150	N	N	N	10	70	<10	1,000	15	150	N	70	N
WF0055H	200	N	N	N	30	70	30	2,000	10	150	10	150	N
WF0056H	700	N	N	N	150	70	150	>2,000	50	<50	20	1,500	N
WF0057H	500	N	N	N	50	70	20	1,500	N	100	20	150	N
WF0058H	500	N	N	N	100	70	150	>2,000	N	<50	20	700	N
WF0059H	3,000	10	N	N	70	100	150	2,000	50	50	20	1,500	N
WF0060H	300	20	N	N	70	70	20	>2,000	30	<50	20	300	N
WF0061H	300	7	N	N	20	70	70	>2,000	N	<50	20	700	N
WF0062H	300	7	N	N	20	150	<10	>2,000	<10	<50	20	300	N
WF0063H	300	30	N	N	10	150	<10	2,000	10	<50	20	150	N
WF0064H	300	50	N	N	10	150	<10	2,000	10	<50	20	150	N
WF0065H	10,000	30	N	N	30	100	150	>2,000	10	<50	20	200	N
WF0066H	>10,000	10	N	N	10	150	<10	2,000	10	<50	20	150	N
WF0067H	1,500	7	N	N	10	150	<10	1,000	15	<50	20	70	N
WF0068H	700	5	N	N	10	150	<10	1,500	10	<50	30	100	N
WF0069H	10,000	70	N	N	20	150	10	2,000	10	<50	20	200	N
WF0070H	>10,000	10	N	N	20	100	<10	700	10	50	20	70	N
WF0071H	1,500	15	N	N	15	100	<10	>2,000	N	150	20	700	N
WF0072H	1,500	7	N	N	20	70	<10	>2,000	<10	<50	20	700	N
WF0073H	1,000	200	N	N	15	70	<10	2,000	<10	50	20	300	N
WF0074H	>10,000	30	N	N	20	70	<10	2,000	<10	50	30	300	N
WF0075H	>10,000	20	N	N	15	20	<10	1,500	10	50	20	300	N
WF0076H	>10,000	5	N	N	10	<20	<10	2,000	10	<50	20	200	N
WF0077H	3,000	N	N	N	15	20	10	2,000	50	N	20	100	N
WF0078H	1,500	N	N	N	30	30	15	2,000	15	N	30	300	N
WF0079H	700	7	N	N	15	70	<10	1,500	15	N	30	100	N
WF0080H	300	5	N	N	15	20	10	1,500	50	N	20	100	N
WF0081H	700	2	N	N	10	70	<10	1,000	20	<50	30	70	N
WF0082H	300	2	N	N	15	70	<10	1,500	20	N	30	50	N
WF0083H	300	N	N	N	15	70	<10	500	70	50	30	30	N
WF0085H	300	N	N	N	15	50	<10	300	20	N	20	30	N
WF0086H	1,500	N	N	N	10	70	<10	1,000	20	50	20	30	N
WF0087H	200	2	N	N	10	50	<10	300	15	70	20	150	N
WF0088H	5,000	N	N	N	15	50	<10	300	15	<50	20	50	N
WF0089H	300	10	N	N	30	70	<10	1,000	15	N	30	150	N
WF0090H	300	N	N	N	N	<20	<10	500	15	<50	<10	70	N
WF0091H	7,000	2	N	N	10	50	<10	300	15	<50	20	50	N
WF0092H	700	2	N	N	N	50	<10	300	15	N	20	50	N

Table 2.--Spectrographic Analysis of Stream Heavy-Mineral Concentrates from entire Study Area (continued)

Sample	Sc-ppm s	Sn-ppm s	Sr-ppm s	V-ppm s	W-ppm s	Y-ppm s	Zn-ppm s	Zr-ppm s	Th-ppm s
WF0047H	10	N	<200	150	N	200	N	2,000	N
WF0048H	10	N	<200	300	N	500	N	>2,000	N
WF0049H	10	N	<200	100	<100	700	N	>2,000	700
WF0050H	10	N	<200	150	N	700	N	>2,000	1,500
WF0051H	10	N	<200	150	N	700	N	>2,000	300
WF0052H	10	N	<200	70	N	700	N	>2,000	500
WF0053H	10	N	N	100	N	1,000	N	2,000	<200
WF0054H	10	<20	N	100	N	1,000	N	>2,000	700
WF0055H	10	30	N	100	<100	500	N	>2,000	1,000
WF0056H	10	<20	200	100	<100	700	N	>2,000	3,000
WF0057H	10	20	<200	100	N	500	N	>2,000	500
WF0058H	10	30	300	100	N	700	N	>2,000	3,000
WF0059H	20	20	300	150	300	700	N	>2,000	1,000
WF0060H	20	N	<200	100	200	1,500	N	>2,000	3,000
WF0061H	20	N	N	100	N	1,500	N	>2,000	3,000
WF0062H	20	N	N	100	N	700	N	>2,000	2,000
WF0063H	20	N	N	150	N	700	N	>2,000	1,500
WF0064H	20	N	300	100	N	700	N	>2,000	1,500
WF0065H	20	N	500	150	150	1,000	N	>2,000	1,500
WF0066H	20	N	500	150	N	700	N	>2,000	1,000
WF0067H	20	N	300	150	N	500	N	>2,000	N
WF0068H	20	N	700	150	N	500	N	>2,000	N
WF0069H	20	N	700	150	N	700	N	>2,000	1,000
WF0070H	20	N	500	150	N	300	N	>2,000	N
WF0071H	50	30	300	150	N	700	N	>2,000	300
WF0072H	50	20	300	150	N	700	N	>2,000	300
WF0073H	50	30	200	150	N	300	N	>2,000	200
WF0074H	50	20	300	100	N	300	N	>2,000	200
WF0075H	50	70	300	100	150	300	N	>2,000	N
WF0076H	50	30	500	150	100	300	N	>2,000	N
WF0077H	30	N	300	150	300	300	N	>2,000	N
WF0078H	50	N	300	150	N	300	N	>2,000	700
WF0079H	N	N	<200	150	N	300	N	2,000	300
WF0080H	N	N	300	150	1,500	200	N	>2,000	300
WF0081H	N	N	500	150	<100	200	N	2,000	N
WF0082H	N	N	200	150	N	150	N	>2,000	N
WF0083H	20	<20	200	150	N	150	N	>2,000	N
WF0085H	20	N	<200	150	N	200	N	>2,000	N
WF0086H	20	N	200	150	100	200	N	>2,000	N
WF0087H	10	N	<200	150	100	200	1,500	1,500	N
WF0088H	10	30	200	300	N	150	N	1,500	N
WF0089H	30	N	200	150	N	300	N	2,000	500
WF0090H	10	N	N	30	N	1,500	N	2,000	N
WF0091H	10	N	<200	70	150	500	2,000	2,000	N
WF0092H	10	N	<200	150	N	300	N	1,500	N

Table 2.--Spectrographic Analysis of Stream Heavy-Mineral Concentrates from entire Study Area (continued)

Sample	Latitude	Longitude	Fe-pct. s	Mg-pct. s	Ca-pct. s	Ti-pct. s	Mn-ppm s	Ag-ppm s	As-ppm s	Au-ppm s	B-ppm s
WF0093H	39 50 38	105 54 36	1.5	1.00	7.0	.30	3,000	N	N	N	N
WF0094H	39 42 15	105 56 8	3.0	.70	7.0	>2.00	2,000	N	N	N	N
WF0095H	39 42 32	105 56 28	2.0	.20	10.0	>2.00	2,000	N	N	N	N
WF0096H	39 42 35	105 56 19	2.0	.70	10.0	>2.00	2,000	N	N	N	N
WF0097H	39 42 39	105 56 25	7.0	.50	10.0	>2.00	1,500	N	N	N	N
WF0098H	39 42 43	105 56 46	5.0	.70	10.0	>2.00	1,500	N	N	N	N
WF0099H	39 42 30	105 57 6	7.0	.50	10.0	>2.00	1,500	N	N	N	N
WF0100H	39 42 18	105 57 37	7.0	1.50	10.0	>2.00	1,500	N	N	N	N
WF0101H	39 42 19	105 58 3	5.0	1.50	10.0	.70	3,000	N	N	N	N
WF0102H	39 42 25	105 58 9	3.0	1.50	5.0	.30	2,000	N	N	N	N
WF0103H	39 42 17	105 59 6	2.0	1.50	7.0	1.50	2,000	N	N	N	N
WF0104H	39 42 19	105 59 28	2.0	3.00	3.0	.50	2,000	N	N	N	N
WF0105H	39 42 33	105 59 31	1.5	1.50	7.0	1.50	3,000	N	N	N	N
WF0106H	39 43 35	105 59 8	2.0	1.50	2.0	.30	2,000	N	N	N	50
WF0107H	39 43 33	105 59 4	2.0	1.50	3.0	.50	1,500	N	N	N	50
WF0108H	39 43 6	106 0 33	.5	.50	15.0	2.00	2,000	N	N	N	N
WF0109H	39 43 7	106 0 49	1.0	.70	15.0	2.00	1,500	N	N	N	N
WF0110H	39 43 29	106 1 0	1.5	1.00	15.0	2.00	7,000	N	N	N	N
WF0111H	39 43 39	106 1 17	2.0	1.00	7.0	.50	700	N	N	N	N
WF0112H	39 44 8	106 1 18	1.5	1.50	10.0	>2.00	1,000	N	N	N	N
WF0113H	39 44 37	106 1 27	1.5	.50	1.0	.30	300	N	N	N	50
WF0114H	39 51 36	105 59 30	3.0	2.00	10.0	.70	500	N	N	N	150
WF0115H	39 51 41	105 59 30	5.0	7.00	10.0	1.50	2,000	N	N	N	300
WF0116H	39 40 51	105 54 14	2.0	.20	10.0	1.50	500	N	N	N	N
WF0117H	39 39 42	106 1 22	3.0	1.00	7.0	1.50	700	N	N	N	20
WF0118H	39 39 42	106 1 30	1.5	.70	20.0	1.50	1,000	N	N	N	N
WF0119H	39 46 3	106 0 10	3.0	1.50	2.0	.50	2,000	N	N	N	N
WF0120H	39 45 28	105 59 51	3.0	2.00	7.0	1.50	1,500	N	N	N	N
WF0121H	39 45 0	105 59 4	3.0	1.50	5.0	1.50	1,000	N	N	N	70
WF0122H	39 44 56	105 59 8	10.0	5.00	7.0	1.50	7,000	N	N	N	100
WF0123H	39 47 10	106 0 48	7.0	5.00	7.0	1.50	1,500	N	N	N	N
WF0124H	39 54 4	105 53 40	7.0	1.50	7.0	1.50	1,500	N	N	N	1,500
WF0125H	39 48 13	105 52 53	1.5	.20	15.0	>2.00	1,500	N	N	N	N
WF0127HN	39 49 32	106 6 14	7.0	1.50	15.0	1.50	1,500	N	N	N	300
WF0128HN	39 49 0	106 6 10	3.0	.50	1.5	>2.00	300	N	N	N	2,000
WF0129HN	39 47 42	106 7 35	7.0	1.50	3.0	>2.00	1,500	N	N	N	700
WF1070HN	39 54 30	105 59 32	7.0	3.00	30.0	2.00	3,000	N	N	N	1,000
WF1071HN	39 54 28	105 58 51	7.0	3.00	30.0	2.00	5,000	N	N	N	700
WF1082HN	39 52 57	105 57 5	15.0	7.00	20.0	2.00	5,000	N	N	N	>5,000
WF1083HN	39 52 34	105 57 12	20.0	7.00	30.0	>2.00	5,000	N	N	N	>5,000
WF1084HN	39 52 21	105 57 20	7.0	7.00	30.0	>2.00	5,000	N	N	N	700
WF1085HN	39 52 19	105 57 15	7.0	3.00	30.0	1.00	1,500	N	N	N	300
WF1086HN	39 52 3	105 57 37	7.0	7.00	20.0	2.00	1,500	N	N	N	1,000
WF1087HN	39 51 59	105 57 35	7.0	7.00	20.0	>2.00	7,000	N	N	N	3,000
WF1088HN	39 51 54	105 57 34	10.0	7.00	30.0	>2.00	7,000	N	N	N	1,500

Table 2.--Spectrographic Analysis of Stream Heavy-Mineral Concentrates from entire Study Area (continued)

Sample	Ba-ppm s	Be-ppm s	Bi-ppm s	Cd-ppm s	Co-ppm s	Cr-ppm s	Cu-ppm s	La-ppm s	Mo-ppm s	Nb-ppm s	Ni-ppm s	Pb-ppm s	Sb-ppm s
WF0093H	700	7	N	N	15	100	<10	300	15	N	30	20	N
WF0094H	1,000	N	N	N	50	20	10	1,500	10	150	20	200	N
WF0095H	200	N	N	N	50	<20	<10	2,000	10	150	20	500	N
WF0096H	700	N	N	N	20	<20	10	2,000	10	70	20	500	N
WF0097H	500	N	N	N	70	<20	30	2,000	<10	100	20	500	N
WF0098H	5,000	N	N	N	50	<20	30	700	10	150	20	70	N
WF0099H	200	N	N	N	50	<20	15	1,500	10	70	20	200	N
WF0100H	500	N	N	N	20	20	<10	1,500	10	100	20	200	N
WF0101H	500	20	N	N	20	20	<10	>2,000	20	N	100	700	N
WF0102H	500	5	N	N	15	150	<10	500	20	N	20	70	N
WF0103H	700	150	N	N	15	100	<10	>2,000	10	70	50	200	N
WF0104H	700	7	N	N	15	150	<10	500	10	N	50	70	N
WF0105H	700	7	N	N	15	150	<10	700	10	N	50	100	N
WF0106H	300	2	N	N	10	150	<10	500	10	N	20	70	N
WF0107H	700	7	N	N	15	150	<10	700	30	N	20	70	N
WF0108H	5,000	15	N	N	N	20	<10	>2,000	50	N	50	300	N
WF0109H	300	5	N	N	N	200	<10	700	20	50	50	50	N
WF0110H	700	30	N	N	30	150	<10	>2,000	10	N	50	150	N
WF0111H	700	10	N	N	15	200	<10	700	10	N	50	70	N
WF0112H	150	20	N	N	10	200	<10	1,500	10	N	50	100	N
WF0113H	300	70	N	N	N	300	<10	700	20	N	20	50	N
WF0114H	150	200	N	N	10	200	<10	500	20	N	50	30	N
WF0115H	150	15	N	N	15	150	100	2,000	20	N	50	100	N
WF0116H	150	N	N	N	50	150	<10	>2,000	<10	N	50	150	N
WF0117H	300	20	N	N	15	200	30	2,000	15	N	50	100	N
WF0118H	300	10	N	N	10	70	<10	700	10	N	50	150	N
WF0119H	700	15	N	N	20	500	10	>2,000	50	70	30	500	N
WF0120H	700	7	N	N	50	200	10	2,000	10	N	50	500	N
WF0121H	500	10	N	N	50	300	30	2,000	15	N	50	300	N
WF0122H	1,000	7	N	N	50	300	30	2,000	<10	N	50	500	N
WF0123H	700	5	N	N	30	300	10	2,000	15	N	50	500	N
WF0124H	300	N	N	N	20	100	10	1,500	20	N	30	300	N
WF0125H	70	N	N	N	10	30	<10	>2,000	N	100	10	1,000	N
WF0127HN	>10,000	N	N	N	30	300	10	2,000	N	300	70	300	N
WF0128HN	>10,000	N	N	N	10	150	<10	2,000	<10	100	50	200	N
WF0129HN	>10,000	N	N	N	20	200	50	1,000	<10	70	50	700	N
WF1070HN	1,000	N	N	N	20	300	<10	2,000	30	N	50	500	N
WF1071HN	700	N	N	N	15	100	10	1,500	70	N	50	700	N
WF1082HN	300	N	N	N	50	700	50	1,500	N	50	50	300	N
WF1083HN	200	N	N	N	150	150	70	700	15	150	50	150	N
WF1084HN	700	N	N	N	30	200	30	700	30	N	50	70	N
WF1085HN	500	N	N	N	15	200	15	700	N	N	50	100	N
WF1086HN	500	N	N	N	30	200	15	300	N	N	30	70	N
WF1087HN	700	N	N	N	20	200	20	300	20	N	50	50	N
WF1088HN	1,500	N	N	N	30	150	50	150	10	N	30	<20	N

Table 2.--Spectrographic Analysis of Stream Heavy-Mineral Concentrates from entire Study Area (continued)

Sample	Sc-ppm s	Sn-ppm s	Sr-ppm s	V-ppm s	W-ppm s	Y-ppm s	Zn-ppm s	Zr-ppm s	Th-ppm s
WF0093H	15	N	<200	150	N	200	N	1,000	N
WF0094H	10	30	200	150	N	150	N	>2,000	300
WF0095H	20	20	<200	70	N	500	N	>2,000	700
WF0096H	20	20	<200	100	N	500	N	>2,000	700
WF0097H	20	20	<200	150	N	300	N	>2,000	700
WF0098H	N	20	<200	70	N	300	N	2,000	N
WF0099H	10	20	300	100	N	500	N	>2,000	700
WF0100H	10	30	200	200	N	300	N	>2,000	N
WF0101H	20	N	200	100	700	1,000	N	>2,000	1,500
WF0102H	10	N	N	200	N	200	N	1,500	N
WF0103H	30	N	N	150	N	1,000	N	>2,000	1,000
WF0104H	70	N	300	150	200	300	N	>2,000	N
WF0105H	70	N	N	150	N	300	N	>2,000	300
WF0106H	10	N	N	150	N	300	N	2,000	N
WF0107H	10	N	N	150	N	300	N	1,500	N
WF0108H	70	N	<200	70	N	1,500	N	>2,000	700
WF0109H	50	N	<200	100	N	300	N	>2,000	N
WF0110H	50	N	<200	70	N	700	N	>2,000	300
WF0111H	10	150	300	100	N	300	N	>2,000	N
WF0112H	10	<20	1,500	100	N	300	N	>2,000	200
WF0113H	10	N	N	150	N	150	N	1,500	<200
WF0114H	10	N	300	150	N	500	N	>2,000	N
WF0115H	50	N	<200	200	150	500	N	>2,000	N
WF0116H	50	N	200	100	N	700	N	>2,000	700
WF0117H	70	N	200	150	N	500	N	>2,000	<200
WF0118H	20	N	500	150	N	500	N	>2,000	N
WF0119H	20	N	N	200	N	700	N	2,000	700
WF0120H	20	N	<200	200	<100	300	N	>2,000	700
WF0121H	15	N	<200	200	1,500	300	N	1,000	700
WF0122H	20	N	<200	200	N	500	N	2,000	1,500
WF0123H	20	N	200	200	150	500	N	2,000	700
WF0124H	30	N	300	200	150	300	N	2,000	700
WF0125H	20	<20	N	100	N	500	N	>2,000	1,000
WF0127HN	20	<20	700	150	N	300	N	>2,000	2,000
WF0128HN	30	20	1,000	150	N	300	N	>2,000	N
WF0129HN	20	20	1,000	150	N	300	N	>2,000	N
WF1070HN	20	N	200	150	150	500	N	>2,000	1,500
WF1071HN	20	N	200	150	N	300	N	>2,000	1,500
WF1082HN	20	N	200	300	150	500	N	>2,000	3,000
WF1083HN	30	50	N	300	150	200	2,000	700	700
WF1084HN	20	20	200	200	700	200	500	1,000	700
WF1085HN	20	N	300	150	100	300	500	>2,000	700
WF1086HN	20	<20	N	300	100	200	<500	700	300
WF1087HN	20	20	N	300	150	200	<500	1,000	N
WF1088HN	30	<20	N	200	N	150	500	300	N

Table 2.--Spectrographic Analysis of Stream Heavy-Mineral Concentrates from entire Study Area (continued)

Sample	Latitude	Longitude	Fe-pct. s	Mg-pct. s	Ca-pct. s	Ti-pct. s	Mn-ppm s	Ag-ppm s	As-ppm s	Au-ppm s	B-ppm s
WF1089HN	39 51 42	105 57 29	5.0	5.00	30.0	1.50	5,000	N	N	N	150
WF1090HN	39 53 15	105 57 55	7.0	5.00	15.0	2.00	10,000	N	N	N	300
WF1091HN	39 53 5	105 58 10	7.0	5.00	20.0	2.00	10,000	N	N	N	500
WF1092HN	39 52 56	105 58 6	15.0	10.00	30.0	.70	>10,000	N	N	N	N
WF1093HN	39 52 55	105 58 3	15.0	7.00	20.0	.70	>10,000	N	N	N	N
WF1137H	39 46 20	105 50 32	7.0	.07	5.0	.70	1,500	150.0	N	N	N
WF1138H	39 46 22	105 50 6	.7	.05	10.0	2.00	2,000	2.0	N	N	N
WF1139H	39 46 18	105 48 25	.7	.10	5.0	1.50	1,000	5.0	N	N	N
WF1140H	39 47 18	105 47 42	2.0	.07	10.0	1.50	1,000	7.0	N	N	N
WF1141H	39 47 45	105 47 9	2.0	.10	7.0	>2.00	1,000	N	N	N	N
WF1142H	39 48 35	105 46 46	.7	.05	10.0	1.50	1,500	7.0	N	N	N
WF1143H	39 49 22	105 46 14	.7	.07	15.0	.70	1,000	N	N	N	N
WF1144H	39 49 47	105 46 19	.7	.07	15.0	.70	3,000	70.0	N	N	N
WF1145H	39 49 51	105 46 16	.5	.05	20.0	.30	2,000	N	N	N	N
WF1146H	39 50 42	105 45 29	.5	.07	15.0	.30	2,000	N	N	N	N
WF1147H	39 51 20	105 45 11	.5	.05	15.0	.30	3,000	N	N	N	N
WF1148H	39 52 55	105 47 35	.3	.03	15.0	.30	5,000	N	N	N	N
WF1149H	39 48 44	105 51 32	.5	.15	20.0	.30	3,000	N	N	N	N
WF1150H	39 48 37	105 51 29	.7	.15	15.0	1.00	2,000	N	N	N	N
WF1151H	39 48 3	105 49 42	.7	.07	10.0	1.00	1,500	N	N	N	N
WF1152H	39 47 59	105 49 39	.7	.07	10.0	2.00	2,000	N	N	N	N
WF1153H	39 48 5	105 49 32	.5	.07	7.0	2.00	1,500	N	N	N	N
WF1154H	39 48 42	105 49 26	.5	.07	15.0	1.00	5,000	N	N	N	N
WF1155H	39 53 13	105 52 35	1.0	.20	5.0	.20	1,500	N	N	N	N
WF1156H	39 53 28	105 51 59	.7	.15	10.0	.50	500	N	N	N	N
WF1157H	39 53 17	105 49 54	.7	.10	15.0	.70	700	N	N	N	N
WF1158H	39 51 29	105 49 20	.5	.07	20.0	.15	2,000	N	N	N	N
WF1159H	39 50 23	105 49 31	.7	.07	15.0	.20	2,000	5.0	N	N	N
WF1160H	39 49 48	105 49 38	.5	.05	15.0	.30	2,000	N	N	N	N
WF1136HN	39 46 56	105 51 50	10.0	1.50	15.0	>2.00	1,500	N	N	N	N

Table 2.--Spectrographic Analysis of Stream Heavy-Mineral Concentrates from entire Study Area (continued)

Sample	Ba-ppm s	Be-ppm s	Bi-ppm s	Cd-ppm s	Co-ppm s	Cr-ppm s	Cu-ppm s	La-ppm s	Mo-ppm s	Nb-ppm s	Ni-ppm s	Pb-ppm s	Sb-ppm s
WF1089HN	700	N	N	N	15	200	15	300	N	N	50	50	N
WF1090HN	700	N	N	N	20	150	<10	2,000	N	70	30	3,000	N
WF1091HN	700	N	N	N	30	100	10	700	15	N	30	1,000	N
WF1092HN	700	N	N	N	30	200	15	>2,000	N	N	50	3,000	N
WF1093HN	700	N	N	N	20	200	<10	1,000	N	70	50	150	N
WF1137H	>20,000	N	150	700	15	<20	700	200	700	70	20	30,000	N
WF1138H	1,500	N	N	N	N	50	15	500	70	70	50	700	N
WF1139H	1,000	N	N	N	N	150	10	200	70	70	70	500	N
WF1140H	7,000	N	N	N	30	150	<10	200	70	<50	200	1,500	N
WF1141H	700	N	N	N	N	150	10	300	70	150	200	200	N
WF1142H	1,000	N	70	N	N	N	30	200	<10	70	70	150	N
WF1143H	7,000	N	N	N	10	100	<10	300	<10	N	50	700	N
WF1144H	500	N	N	N	N	<20	10	500	700	50	50	500	N
WF1145H	200	N	N	N	N	<20	<10	200	10	N	200	150	N
WF1146H	1,500	N	N	N	N	100	<10	150	15	N	200	700	N
WF1147H	700	N	N	N	N	30	<10	300	20	N	200	200	N
WF1148H	100	N	N	N	N	50	<10	200	N	N	150	70	N
WF1149H	100	N	N	N	N	150	<10	700	<10	50	150	100	N
WF1150H	150	N	N	N	N	150	<5	500	10	50	100	70	N
WF1151H	>20,000	N	N	N	N	100	<10	300	150	70	50	300	N
WF1152H	5,000	N	N	N	N	70	<10	500	30	150	50	200	N
WF1153H	300	N	N	N	N	50	<10	500	<10	150	100	150	N
WF1154H	500	N	N	N	N	N	<10	500	N	100	50	500	N
WF1155H	500	N	200	N	N	200	<10	200	N	N	70	70	N
WF1156H	300	N	N	N	N	200	10	100	N	N	200	70	N
WF1157H	200	N	N	N	N	100	<10	100	N	N	300	1,000	N
WF1158H	100	N	N	N	N	100	<10	200	N	N	<10	70	N
WF1159H	300	N	N	N	N	150	<10	300	N	N	150	70	N
WF1160H	100	N	N	N	N	150	<10	500	N	N	N	50	N
WF1136HN	3,000	N	N	N	30	300	15	2,000	30	150	50	500	N

Table 2.--Spectrographic Analysis of Stream Heavy-Mineral Concentrates from entire Study Area (continued)

Sample	Sc-ppm s	Sn-ppm s	Sr-ppm s	V-ppm s	W-ppm s	Y-ppm s	Zn-ppm s	Zr-ppm s	Th-ppm s
WF1089HN	30	N	200	150	N	150	N	>2,000	N
WF1090HN	30	20	300	100	150	700	N	>2,000	>5,000
WF1091HN	20	<20	200	150	100	300	700	>2,000	1,500
WF1092HN	30	<20	300	150	N	700	N	>2,000	>5,000
WF1093HN	50	<20	500	150	N	500	N	>2,000	1,500
WF1137H	N	150	N	20	<100	300	>20,000	1,000	N
WF1138H	15	N	N	30	<100	500	1,000	>2,000	N
WF1139H	15	70	N	70	200	200	<500	>2,000	N
WF1140H	70	N	N	70	300	300	700	>2,000	N
WF1141H	100	200	N	100	500	500	N	>2,000	N
WF1142H	<5	N	N	20	200	700	700	>2,000	N
WF1143H	<5	N	1,000	20	<100	700	N	2,000	N
WF1144H	<5	N	N	20	N	700	N	2,000	N
WF1145H	70	N	N	20	N	1,000	N	>2,000	N
WF1146H	70	N	N	30	200	700	<500	>2,000	N
WF1147H	100	N	N	30	200	700	N	>2,000	N
WF1148H	30	N	N	30	N	700	N	>2,000	N
WF1149H	30	N	N	50	N	1,000	N	>2,000	N
WF1150H	<5	N	N	70	700	700	N	2,000	N
WF1151H	N	N	N	50	700	500	500	2,000	N
WF1152H	N	N	N	50	300	500	N	2,000	N
WF1153H	<10	N	N	50	500	500	N	>2,000	N
WF1154H	N	N	N	20	N	1,000	N	2,000	N
WF1155H	N	N	N	150	300	300	N	>2,000	N
WF1156H	100	N	N	150	N	300	N	>2,000	N
WF1157H	100	N	1,000	100	N	300	N	>2,000	N
WF1158H	N	N	N	30	N	1,000	N	700	N
WF1159H	70	N	N	50	N	500	N	>2,000	N
WF1160H	N	N	N	50	<100	1,500	N	1,500	N
WF1136HN	20	30	N	150	N	500	N	>2,000	2,000

TABLE 3.--Spectrographic analysis of ridgeline heavy-mineral concentrates from Keyser Basin

Sample	Latitude	Longitude	Fe-pct. s	Mg-pct. s	Ca-pct. s	Ti-pct. s	Mn-ppm s	Ag-ppm s	As-ppm s	Au-ppm s	B-ppm s	Ba-ppm s
WF1054HN	39 52 24	105 56 31	10	5	20.0	1.5	3,000	N	N	N	700	300
WF1057HN	39 51 58	105 56 46	10	7	20.0	1.5	3,000	N	N	N	300	700
WF1061HN	39 51 25	105 57 19	10	7	20.0	1.0	3,000	N	N	N	300	200
WF1065HN	39 51 49	105 57 59	15	7	20.0	1.5	5,000	N	N	N	2,000	500
WF1069HN	39 52 22	105 58 0	15	15	30.0	.5	3,000	N	N	N	20	200
WF1074HN	39 53 17	105 56 31	10	5	20.0	.7	2,000	N	N	N	150	300
WF1078HN	39 54 7	105 56 9	20	5	20.0	1.5	3,000	N	N	N	100	200
WF1081HN	39 54 22	105 56 51	7	7	30.0	1.5	5,000	N	N	N	300	150
WF1094HN	39 52 58	105 57 40	2	2	1.5	.7	1,000	N	N	N	N	100
WF1098HN	39 52 30	105 58 29	5	3	15.0	.7	3,000	N	N	N	N	300
WF1101HN	39 53 8	105 58 33	7	5	20.0	>2.0	1,000	N	N	N	200	300

TABLE 3.--Spectrographic analysis of ridgeline heavy-mineral concentrates from Kevser Basin--continued

Sample	Be-ppm s	Bi-ppm s	Cd-ppm s	Co-ppm s	Cr-ppm s	Cu-ppm s	La-ppm s	Mo-ppm s	Nb-ppm s	Ni-ppm s	Pb-ppm s	Sb-ppm s	Sc-ppm s
WF1054HN	N	N	N	20	700	50	2,000	N	N	50	150	N	50
WF1057HN	N	N	N	20	300	70	1,500	N	N	50	300	N	30
WF1061HN	N	N	N	20	500	20	2,000	15	N	70	200	N	30
WF1065HN	N	N	N	30	300	70	700	10	N	50	70	N	70
WF1069HN	N	N	N	30	700	10	300	N	N	70	20	N	70
WF1074HN	N	N	N	30	300	100	500	15	N	70	200	N	20
WF1078HN	N	N	N	30	300	30	500	15	N	70	100	N	50
WF1081HN	N	N	N	N	100	10	300	N	150	30	150	N	10
WF1094HN	N	N	N	10	100	<10	2,000	N	100	20	700	N	20
WF1098HN	N	N	N	20	100	15	>2,000	N	N	70	1,000	N	20
WF1101HN	N	N	N	15	150	15	1,000	15	N	30	100	N	20

TABLE 3.--Spectrographic analysis of ridgeline heavy-mineral concentrates from Keyser Basin--continued

Sample	Sn-ppm s	Sr-ppm s	V-ppm s	W-ppm s	Y-ppm s	Zn-ppm s	Zr-ppm s	Th-ppm s
WF1054HN	N	200	300	N	300	N	>2,000	1,000
WF1057HN	N	300	200	N	700	N	>2,000	1,500
WF1061HN	N	300	200	N	300	N	>2,000	1,500
WF1065HN	30	N	500	N	200	N	>2,000	300
WF1069HN	N	N	300	N	150	N	300	1,000
WF1074HN	N	N	200	N	300	N	>2,000	300
WF1078HN	N	500	500	150	200	N	>2,000	300
WF1081HN	50	N	100	N	300	700	>2,000	N
WF1094HN	30	N	70	N	700	N	>2,000	2,000
WF1098HN	20	N	70	N	1,000	N	>2,000	5,000
WF1101HN	N	200	300	N	700	N	>2,000	700

TABLE 4.--Spectrographic analysis of ridgeline heavy-mineral concentrates from southern portion of study area

Sample	Latitude	Longitude	Fe-pct. s	Mg-pct. s	Ca-pct. s	Ti-pct. s	Mn-ppm s	Ag-ppm s	As-ppm s	Au-ppm s	B-ppm s	Ba-ppm s
WF1001HN	39 40 52	**** 55 23	10.0	.50	.7	>2.00	700	N	N	N	N	1,000
WF1005HN	39 41 47	105 55 14	5.0	.30	10.0	>2.00	500	N	N	N	N	500
WF1009HN	39 42 41	105 55 9	10.0	1.50	20.0	>2.00	1,500	N	N	N	N	300
WF1014HN	39 41 24	105 56 48	2.0	2.00	50.0	1.00	1,500	N	N	N	N	200
WF1018HN	39 41 54	105 57 9	10.0	2.00	7.0	>2.00	1,500	N	N	N	N	700
WF1021HN	39 40 49	105 57 52	7.0	.20	7.0	>2.00	1,000	N	N	N	N	1,500
WF1027HN	39 41 26	105 58 9	15.0	3.00	7.0	2.00	2,000	N	N	N	N	300
WF1034HN	39 41 14	105 59 22	7.0	1.50	2.0	>2.00	3,000	N	N	N	N	700
WF1038HN	39 40 32	105 59 2	10.0	.50	15.0	2.00	5,000	N	N	N	N	500
WF1039HN	39 44 8	105 53 1	7.0	7.00	3.0	>2.00	1,500	N	N	N	N	500
WF1043HN	39 44 51	105 52 57	7.0	1.50	7.0	>2.00	1,500	N	N	N	N	700
WF1047HN	39 45 49	105 52 55	7.0	.70	10.0	>2.00	1,500	N	N	N	N	300
WF1051HN	39 46 32	105 53 20	7.0	.30	20.0	>2.00	3,000	N	N	N	N	70
WF1102HN	39 42 59	105 54 40	15.0	7.00	15.0	>2.00	1,500	N	N	N	N	700
WF1108HN	39 44 36	105 55 32	15.0	7.00	7.0	>2.00	1,500	N	N	N	N	500
WF1112HN	39 45 24	105 54 55	20.0	.50	10.0	>2.00	700	N	N	N	N	200
WF1115HN	39 43 12	105 55 40	20.0	1.00	7.0	>2.00	500	N	N	N	N	150
WF1118HN	39 43 47	105 56 0	7.0	.20	1.5	>2.00	500	N	N	N	N	200
WF1123HN	39 43 18	105 57 6	15.0	.70	20.0	2.00	7,000	N	N	N	N	3,000
WF1127HN	39 42 57	105 58 13	20.0	1.50	1.0	1.50	700	N	N	N	30	300
WF1132HN	39 43 43	105 54 15	15.0	.30	7.0	>2.00	1,000	N	N	N	N	200
WF1199H	39 40 32	105 59 4	3.0	.20	15.0	>2.00	700	N	N	N	20	200
WF1200H	39 40 33	105 59 9	2.0	.15	5.0	>2.00	300	N	N	N	50	100
WF1201H	39 40 36	105 59 16	2.0	.20	10.0	2.00	500	N	N	N	50	150
WF1202H	39 40 40	105 59 23	2.0	.15	1.0	1.50	300	N	N	N	70	200
WF1203H	39 40 44	105 59 30	2.0	.20	1.5	.70	300	N	N	N	70	200
WF1204H	39 40 49	105 59 37	2.0	.20	2.0	>2.00	500	N	N	N	100	200
WF1205H	39 40 54	105 59 46	3.0	.15	3.0	1.50	500	N	N	N	70	200
WF1206H	39 41 2	105 59 45	2.0	.15	3.0	1.50	500	N	N	N	50	200
WF1207H	39 41 7	105 59 38	2.0	.20	5.0	>2.00	500	N	N	N	50	500
WF1208H	39 41 13	105 59 31	5.0	.20	7.0	>2.00	700	N	N	N	50	200
WF1209H	39 41 13	105 59 13	3.0	.30	15.0	>2.00	1,500	N	N	N	20	700
WF1210H	39 41 15	105 59 5	5.0	.10	15.0	>2.00	1,500	N	N	N	50	200
WF1211H	39 41 19	105 58 56	5.0	.10	15.0	>2.00	1,000	N	N	N	50	500
WF1212H	39 41 21	105 58 51	5.0	.10	15.0	2.00	500	N	N	N	50	500
WF1213H	39 41 23	105 58 45	5.0	.20	5.0	>2.00	1,000	N	N	N	20	300
WF1214H	39 41 24	105 58 37	5.0	.15	7.0	>2.00	1,500	N	N	N	50	300
WF1215H	39 41 27	105 58 30	5.0	.20	20.0	>2.00	2,000	N	N	N	20	100
WF1216H	39 41 29	105 58 23	5.0	.20	30.0	2.00	1,000	N	N	N	N	50
WF1217H	39 41 29	105 58 17	5.0	.15	30.0	2.00	2,000	N	N	N	N	50
WF1218H	39 41 20	105 58 4	2.0	.15	20.0	>2.00	1,000	N	N	N	N	70
WF1219H	39 41 15	105 57 58	2.0	.15	15.0	>2.00	1,000	N	N	150	50	150
WF1220H	39 41 8	105 57 55	1.5	.07	10.0	>2.00	700	N	N	N	<20	100
WF1221H	39 40 59	105 57 53	5.0	.20	.5	>2.00	1,500	N	N	N	50	200
WF1222H	39 40 54	105 57 55	5.0	.10	50.0	>2.00	1,000	N	N	N	N	3,000

TABLE 4.--Spectrographic analysis of ridgeline heavy-mineral concentrates from southern portion of study area--continued

Sample	Be-ppm s	Bi-ppm s	Cd-ppm s	Co-ppm s	Cr-ppm s	Cu-ppm s	La-ppm s	Mo-ppm s	Nb-ppm s	Ni-ppm s	Pb-ppm s	Sb-ppm s	Sc-ppm s
WF1001HN	N	N	N	30	1,000	70	>2,000	N	N	50	3,000	N	20
WF1005HN	N	N	N	20	150	20	>2,000	N	150	50	1,500	N	20
WF1009HN	N	N	N	50	150	50	>2,000	<10	100	50	700	N	20
WF1014HN	N	N	N	15	150	20	2,000	N	N	50	150	N	20
WF1018HN	N	N	N	50	200	70	700	15	70	70	150	N	30
WF1021HN	N	N	N	10	50	15	>2,000	<10	150	30	700	N	20
WF1027HN	N	N	N	20	200	20	2,000	20	50	70	300	N	20
WF1034HN	N	N	N	20	150	50	>2,000	100	50	70	700	N	20
WF1038HN	N	N	N	10	100	70	2,000	20	70	70	200	N	20
WF1039HN	N	N	N	20	300	20	2,000	20	70	70	300	N	20
WF1043HN	N	N	N	20	150	30	2,000	10	150	30	700	N	20
WF1047HN	N	N	N	20	100	30	>2,000	N	150	30	700	N	20
WF1051HN	N	N	N	15	50	30	>2,000	N	150	20	1,500	N	20
WF1102HN	N	N	N	300	200	150	>2,000	15	300	50	700	N	30
WF1108HN	N	N	N	70	200	150	>2,000	N	700	50	1,000	N	20
WF1112HN	N	N	N	100	50	100	1,500	N	200	50	300	N	N
WF1115HN	N	N	N	70	100	20	>2,000	N	150	50	500	N	N
WF1118HN	N	N	N	20	100	30	>2,000	N	150	30	1,500	N	20
WF1123HN	N	N	N	70	70	50	1,500	20	70	50	300	N	N
WF1127HN	N	N	N	50	200	100	2,000	N	200	50	500	N	20
WF1132HN	N	N	N	30	100	50	>2,000	N	300	50	700	N	20
WF1199H	150	N	N	N	70	10	300	N	70	N	70	N	N
WF1200H	200	N	N	N	100	15	500	N	100	N	50	N	N
WF1201H	N	N	N	N	50	<10	100	N	<50	N	50	N	N
WF1202H	<2	50	N	N	150	20	100	N	<50	N	70	N	N
WF1203H	N	N	N	N	100	15	700	N	N	N	30	N	N
WF1204H	<2	N	N	N	100	20	150	N	50	N	70	N	N
WF1205H	N	N	N	N	100	10	500	N	<50	N	50	N	N
WF1206H	N	N	N	N	70	10	1,000	N	<50	N	70	N	N
WF1207H	N	N	N	N	70	30	1,000	N	70	N	100	N	N
WF1208H	N	N	N	N	50	10	700	N	100	N	70	N	N
WF1209H	70	N	N	N	100	50	1,500	N	100	N	150	N	N
WF1210H	70	N	N	N	70	10	2,000	N	70	N	100	N	N
WF1211H	70	20	N	N	50	15	2,000	150	70	N	100	N	N
WF1212H	70	20	N	N	70	10	1,500	30	70	N	100	<200	N
WF1213H	<2	100	N	N	50	10	>2,000	N	50	N	150	N	N
WF1214H	20	20	N	N	50	10	2,000	70	70	N	100	<200	N
WF1215H	150	N	N	N	100	10	150	100	50	N	100	N	N
WF1216H	N	N	N	N	100	<10	700	<10	50	N	70	N	N
WF1217H	N	N	N	N	70	<10	1,000	N	<50	N	100	N	N
WF1218H	N	N	N	N	50	<10	200	N	<50	N	70	N	N
WF1219H	70	100	N	N	50	<10	100	50	100	N	100	N	N
WF1220H	<2	50	N	N	30	<10	100	30	100	N	50	N	N
WF1221H	100	N	N	N	70	10	2,000	20	100	N	150	N	N
WF1222H	30	N	N	N	50	10	150	<10	50	N	70	N	N

TABLE 4.--Spectrographic analysis of ridgeline heavy-mineral concentrates from southern portion of study area--continued

Sample	Sn-ppm s	Sr-ppm s	V-ppm s	W-ppm s	Y-ppm s	Zn-ppm s	Zr-ppm s	Th-ppm s
WF1001HN	30	500	150	N	700	N	>2,000	5,000
WF1005HN	30	N	150	N	500	N	>2,000	5,000
WF1009HN	30	700	150	N	500	N	>2,000	3,000
WF1014HN	N	1,000	100	N	700	N	>2,000	1,500
WF1018HN	20	500	200	N	300	N	>2,000	500
WF1021HN	30	200	200	N	500	N	>2,000	1,000
WF1027HN	20	200	150	N	500	N	>2,000	1,500
WF1034HN	N	200	200	N	700	N	>2,000	1,500
WF1038HN	N	N	150	N	700	N	>2,000	1,000
WF1039HN	30	300	200	N	300	N	>2,000	1,500
WF1043HN	70	N	200	N	300	N	>2,000	2,000
WF1047HN	50	N	200	N	300	N	>2,000	3,000
WF1051HN	30	N	150	N	700	N	>2,000	5,000
WF1102HN	30	500	300	150	700	N	>2,000	3,000
WF1108HN	N	1,500	100	N	1,000	N	>2,000	5,000
WF1112HN	N	N	100	N	700	N	>2,000	1,500
WF1115HN	30	N	150	N	300	N	>2,000	3,000
WF1118HN	50	N	100	N	500	N	>2,000	5,000
WF1123HN	20	N	200	N	700	N	>2,000	700
WF1127HN	N	N	200	N	700	N	>2,000	1,500
WF1132HN	70	N	150	N	300	N	>2,000	3,000
WF1199H	<20	N	150	N	500	N	>2,000	N
WF1200H	N	N	150	N	300	N	>2,000	N
WF1201H	N	N	50	N	500	N	>2,000	N
WF1202H	N	N	200	N	200	N	>2,000	N
WF1203H	N	N	200	N	150	N	>2,000	N
WF1204H	N	N	200	N	500	N	>2,000	<200
WF1205H	N	N	200	N	200	N	>2,000	N
WF1206H	N	N	150	N	200	N	>2,000	N
WF1207H	N	N	150	N	500	N	>2,000	<200
WF1208H	N	N	100	100	500	N	>2,000	<200
WF1209H	<20	700	200	N	700	N	>2,000	300
WF1210H	N	N	150	N	1,000	N	>2,000	200
WF1211H	N	300	100	N	1,500	N	>2,000	200
WF1212H	N	N	150	N	1,500	N	>2,000	200
WF1213H	N	N	100	N	2,000	N	>2,000	1,000
WF1214H	N	N	150	<100	2,000	N	>2,000	300
WF1215H	70	N	700	500	1,500	N	>2,000	200
WF1216H	<20	N	150	150	1,000	N	>2,000	<200
WF1217H	N	N	100	100	1,500	N	>2,000	N
WF1218H	<20	N	100	200	1,000	N	>2,000	N
WF1219H	N	N	150	100	1,000	N	>2,000	<200
WF1220H	N	N	150	100	700	N	>2,000	N
WF1221H	<20	N	150	300	1,000	N	>2,000	500
WF1222H	20	<200	150	N	1,000	N	>2,000	<200

TABLE 4.--Spectrographic analysis of ridgeline heavy-mineral concentrates from southern portion of study area--continued

Sample	Latitude	Longitude	Fe-pct. s	Mg-pct. s	Ca-pct. s	Ti-pct. s	Mn-ppm s	Ag-ppm s	As-ppm s	Au-ppm s	B-ppm s	Ba-ppm s
WF1223H	39 41 0	105 55 18	2.0	.15	10.0	>2.00	500	N	N	N	N	100
WF1224H	39 41 7	105 55 13	.3	<.05	7.0	1.00	150	N	N	N	N	500
WF1225H	39 41 15	105 55 11	1.0	.07	50.0	2.00	500	N	N	N	N	50
WF1226H	39 41 22	105 55 9	1.5	.10	15.0	>2.00	300	N	N	N	N	<50
WF1227H	39 41 28	105 55 9	1.5	.10	50.0	>2.00	500	N	N	N	N	70
WF1228H	39 41 33	105 55 12	1.0	.07	30.0	>2.00	500	N	N	N	N	100
WF1229H	39 41 38	105 55 10	1.0	.10	30.0	1.00	500	N	N	N	N	<50
WF1230H	39 41 48	105 55 18	1.5	.10	20.0	>2.00	700	N	N	N	N	100
WF1231H	39 41 53	105 55 22	1.5	.05	5.0	>2.00	500	N	N	N	N	100
WF1232H	39 41 58	105 55 26	2.0	.10	10.0	>2.00	1,000	N	N	N	N	200
WF1233H	39 42 5	105 55 24	3.0	.20	30.0	>2.00	1,500	N	N	N	N	100
WF1234H	39 42 10	105 55 26	2.0	.30	10.0	>2.00	200	N	N	N	N	100
WF1235H	39 42 17	105 55 25	1.5	.10	30.0	2.00	700	N	N	N	N	50
WF1236H	39 42 22	105 55 22	2.0	.10	30.0	1.50	1,500	N	N	N	N	50
WF1237H	39 42 28	105 55 18	1.5	.30	50.0	>2.00	1,000	N	N	N	N	50
WF1238H	39 42 32	105 55 16	1.5	.30	10.0	>2.00	700	N	N	N	N	100
WF1239H	39 42 37	105 55 14	1.0	.30	30.0	1.50	1,500	N	N	N	N	100
WF1240H	39 42 39	105 55 20	.7	.20	30.0	.50	1,500	N	N	N	N	<50
WF1241H	39 42 42	105 55 26	2.0	.30	30.0	>2.00	1,500	N	N	N	N	70
WF1242H	39 42 46	105 55 30	7.0	.70	30.0	>2.00	1,500	N	N	N	N	50
WF1243H	39 42 51	105 55 33	5.0	.20	30.0	.50	1,500	N	N	N	N	<50
WF1244H	39 42 57	105 55 34	.7	.07	30.0	2.00	1,000	N	N	N	N	3,000
WF1245H	39 43 2	105 55 37	2.0	.10	5.0	>2.00	200	N	N	N	N	500
WF1246H	39 43 14	105 55 41	2.0	.10	30.0	>2.00	1,000	N	N	N	N	100
WF1247H	39 43 18	105 55 43	1.5	.07	20.0	2.00	1,500	N	N	N	N	50
WF1248H	39 43 24	105 55 43	3.0	.10	50.0	>2.00	1,000	N	N	N	N	150
WF1249H	39 43 28	105 55 49	3.0	.15	30.0	>2.00	1,500	N	N	N	N	200
WF1250H	39 43 31	105 55 54	3.0	.05	15.0	2.00	700	N	N	N	N	150
WF1251H	39 43 35	105 55 58	1.5	.10	20.0	>2.00	500	N	N	N	N	70
WF1252H	39 43 44	105 56 1	1.0	.07	20.0	1.50	500	N	N	N	N	300
WF1253H	39 43 50	105 55 59	1.0	.07	30.0	2.00	500	N	N	N	N	50
WF1254H	39 43 54	105 55 56	2.0	.10	50.0	>2.00	1,500	N	N	N	N	50
WF1255H	39 43 59	105 55 53	1.0	.05	20.0	2.00	700	N	N	N	N	<50
WF1256H	39 44 4	105 55 50	1.0	.07	20.0	1.50	700	N	N	N	N	<50
WF1257H	39 44 9	105 55 49	1.0	.07	>50.0	.30	1,000	N	N	N	N	50
WF1258H	39 44 15	105 55 47	1.0	.05	50.0	1.50	1,000	N	N	N	N	<50
WF1259H	39 44 20	105 55 43	2.0	.10	20.0	>2.00	500	N	N	N	N	100
WF1260H	39 44 25	105 55 43	.7	<.05	10.0	1.00	200	N	N	N	N	100
WF1261H	39 44 34	105 55 35	1.5	.15	15.0	>2.00	500	N	N	N	N	200
WF1262H	39 44 39	105 55 30	3.0	.10	>50.0	1.50	500	N	N	N	N	70
WF1263H	39 44 43	105 55 26	5.0	.10	30.0	>2.00	700	N	N	N	N	200
WF1264H	39 44 48	105 55 24	1.5	.07	30.0	1.50	500	N	N	N	N	50
WF1265H	39 44 52	105 55 23	.2	.05	30.0	1.50	1,500	N	N	N	N	<50
WF1266H	39 46 21	105 53 17	.3	.07	30.0	1.50	2,000	N	N	N	N	50
WF1267H	39 46 16	105 53 14	2.0	.10	30.0	>2.00	1,000	N	N	N	N	200

TABLE 4.--Spectrographic analysis of ridgeline heavy-mineral concentrates from southern portion of study area--continued

Sample	Be-ppm s	Bi-ppm s	Cd-ppm s	Co-ppm s	Cr-ppm s	Cu-ppm s	La-ppm s	Mo-ppm s	Nb-ppm s	Ni-ppm s	Pb-ppm s	Sb-ppm s	Sc-ppm s
WF1223H	N	N	N	N	50	10	>2,000	N	150	N	200	N	N
WF1224H	N	N	N	N	50	<10	500	N	N	N	300	N	N
WF1225H	N	N	N	N	50	10	2,000	N	N	N	200	N	N
WF1226H	N	N	N	<10	50	15	N	N	200	N	100	N	N
WF1227H	N	N	N	N	30	10	>2,000	N	100	N	150	N	N
WF1228H	N	N	N	N	20	10	2,000	N	50	N	100	N	N
WF1229H	N	N	N	N	<20	<10	100	N	N	N	150	N	N
WF1230H	N	N	N	N	30	10	>1,000	N	N	N	200	N	N
WF1231H	N	N	N	N	20	<10	700	N	N	N	100	N	N
WF1232H	N	N	N	20	20	<10	100	N	100	N	100	N	N
WF1233H	N	N	N	N	50	20	>1,000	N	100	N	300	N	N
WF1234H	N	N	N	N	50	20	>1,000	N	700	N	100	N	N
WF1235H	N	N	N	N	<20	<10	700	N	<50	N	70	N	N
WF1236H	N	N	N	N	20	<10	500	N	50	N	50	N	N
WF1237H	N	N	N	N	50	<10	500	50	<50	N	50	N	N
WF1238H	N	N	N	N	30	10	500	N	N	N	100	N	N
WF1239H	N	N	N	N	20	15	500	N	N	N	70	N	N
WF1240H	N	N	N	N	<20	<10	100	N	N	N	50	N	N
WF1241H	N	N	N	20	50	10	700	N	N	N	200	N	N
WF1242H	N	N	N	30	50	15	500	10	N	N	150	N	N
WF1243H	N	N	N	N	N	<10	1,000	N	N	N	200	N	N
WF1244H	N	N	N	N	<20	10	1,500	N	<50	N	200	N	N
WF1245H	N	N	N	<10	50	50	>2,000	N	150	N	200	N	N
WF1246H	N	N	N	N	50	20	2,000	N	150	N	200	N	N
WF1247H	N	N	N	N	<20	15	>2,000	N	70	N	100	N	N
WF1248H	N	N	N	N	50	30	2,000	N	200	N	200	N	N
WF1249H	N	N	N	<10	50	15	2,000	N	300	N	200	N	N
WF1250H	N	N	N	N	20	10	2,000	N	500	N	150	N	N
WF1251H	N	N	N	N	50	50	2,000	70	200	N	200	N	N
WF1252H	N	N	N	N	20	30	1,000	N	50	N	100	N	N
WF1253H	N	N	N	N	20	10	1,500	50	50	N	100	N	N
WF1254H	N	N	N	N	30	10	2,000	N	100	N	200	N	N
WF1255H	N	N	N	N	20	15	2,000	N	200	N	70	N	N
WF1256H	N	N	N	N	20	10	1,500	N	50	N	100	N	N
WF1257H	N	N	N	N	20	10	>2,000	N	<50	N	200	N	N
WF1258H	N	N	N	N	30	10	>2,000	N	50	N	200	N	N
WF1259H	N	N	N	15	30	15	2,000	N	150	N	N	N	N
WF1260H	N	N	N	N	20	<10	1,500	N	N	N	150	N	N
WF1261H	N	N	N	N	30	30	>2,000	N	50	N	70	N	N
WF1262H	N	N	N	N	50	150	>2,000	N	<50	N	200	N	N
WF1263H	N	N	N	N	50	30	>2,000	N	70	N	200	N	N
WF1264H	N	N	N	<10	<20	20	2,000	N	50	N	70	N	N
WF1265H	N	N	N	N	<20	<10	2,000	N	50	N	50	N	N
WF1266H	N	N	N	N	<20	15	>2,000	N	70	N	2,000	N	N
WF1267H	N	N	N	N	50	15	>2,000	N	100	N	500	N	N

TABLE 4.--Spectrographic analysis of ridgeline heavy-mineral concentrates from southern portion of study area--continued

Sample	Sn-ppm s	Sr-ppm s	V-ppm s	W-ppm s	Y-ppm s	Zn-ppm s	Zr-ppm s	Th-ppm s
WF1223H	50	N	200	N	700	N	>2,000	300
WF1224H	N	N	<20	N	150	N	>2,000	N
WF1225H	30	N	100	N	1,000	N	>2,000	<200
WF1226H	100	N	300	N	700	N	>2,000	N
WF1227H	<20	N	150	N	1,000	N	>2,000	<200
WF1228H	N	N	100	N	1,000	N	>2,000	<200
WF1229H	N	N	70	N	500	N	>2,000	200
WF1230H	N	N	100	N	700	N	>2,000	2,000
WF1231H	N	N	100	N	300	N	>2,000	1,500
WF1232H	50	N	100	N	300	N	>2,000	<200
WF1233H	N	N	150	N	700	N	>2,000	2,000
WF1234H	N	N	200	N	200	N	>2,000	3,000
WF1235H	N	N	70	N	500	N	>2,000	<200
WF1236H	N	N	70	N	500	N	>2,000	N
WF1237H	<20	N	150	300	500	N	>2,000	N
WF1238H	<20	N	150	N	500	N	>2,000	N
WF1239H	N	N	100	N	500	N	>2,000	N
WF1240H	N	300	70	N	500	N	>2,000	N
WF1241H	<20	<200	100	N	500	N	>2,000	200
WF1242H	<20	200	300	N	500	N	>2,000	<200
WF1243H	N	N	50	N	500	N	>2,000	1,500
WF1244H	N	N	50	N	1,000	N	>2,000	200
WF1245H	70	N	200	N	500	N	>2,000	300
WF1246H	50	N	200	N	1,500	N	>2,000	500
WF1247H	N	N	50	N	1,500	N	>2,000	N
WF1248H	70	N	200	N	1,500	N	>2,000	200
WF1249H	100	N	200	N	1,000	N	>2,000	200
WF1250H	N	N	50	<100	700	N	>2,000	<200
WF1251H	N	N	150	N	700	N	>2,000	200
WF1252H	N	N	50	N	700	N	>2,000	<200
WF1253H	N	N	50	200	1,000	N	>2,000	<200
WF1254H	N	N	100	N	1,500	N	>2,000	200
WF1255H	N	N	50	N	700	N	>2,000	<200
WF1256H	N	<200	100	N	700	N	>2,000	<200
WF1257H	N	<200	20	N	1,000	N	>2,000	300
WF1258H	N	N	70	N	1,000	N	>2,000	200
WF1259H	N	N	100	N	700	N	>2,000	200
WF1260H	N	N	<20	N	500	N	>2,000	N
WF1261H	N	N	70	N	700	N	>2,000	N
WF1262H	100	N	70	N	1,000	N	>2,000	N
WF1263H	N	N	100	N	1,000	N	>2,000	N
WF1264H	N	N	50	N	1,000	N	>2,000	N
WF1265H	N	N	20	N	1,000	N	>2,000	N
WF1266H	N	N	50	N	2,000	N	>2,000	N
WF1267H	N	N	100	N	1,500	N	>2,000	N

TABLE 4.--Spectrographic analysis of ridgeline heavy-mineral concentrates from southern portion of study area--continued

Sample	Latitude	Longitude	Fe-pct. s	Mg-pct. s	Ca-pct. s	Ti-pct. s	Mn-ppm s	Ag-ppm s	As-ppm s	Au-ppm s	B-ppm s	Ba-ppm s
WF1268H	39 46 10	105 53 12	1.0	.10	30.0	>2.00	1,000	N	N	N	N	50
WF1269H	39 46 6	105 53 11	2.0	.10	10.0	>2.00	500	N	N	N	<20	200
WF1270H	39 46 0	105 53 10	1.5	.10	5.0	>2.00	200	N	N	N	N	100
WF1271H	39 45 55	105 53 8	.7	.07	20.0	>2.00	1,000	N	N	N	N	100
WF1272H	39 45 51	105 53 4	.7	.07	20.0	2.00	700	N	N	N	N	<50
WF1273H	39 45 45	105 52 54	1.0	.07	30.0	>2.00	1,500	N	N	N	N	<50
WF1274H	39 45 40	105 52 52	1.0	.05	20.0	>2.00	2,000	N	N	N	N	50
WF1275H	39 45 35	105 52 48	1.0	.10	20.0	>2.00	1,000	N	N	N	N	500
WF1276H	39 45 30	105 52 49	1.0	.10	30.0	2.00	1,500	N	N	N	N	50
WF1277H	39 45 25	105 52 52	1.0	.10	20.0	>2.00	1,000	N	N	N	N	500
WF1278H	39 45 21	105 52 54	.7	.07	20.0	1.50	700	N	N	N	N	50
WF1279H	39 45 16	105 52 58	3.0	.20	10.0	>2.00	700	N	N	N	<20	100
WF1280H	39 45 11	105 53 2	2.0	.20	20.0	>2.00	3,000	N	N	N	N	100
WF1281H	39 45 6	105 53 3	2.0	.20	20.0	>2.00	1,000	N	N	N	N	200
WF1282H	39 45 1	105 53 3	1.5	.10	30.0	>2.00	2,000	N	N	N	N	50
WF1283H	39 44 55	105 53 2	1.0	.10	20.0	>2.00	1,500	N	N	N	N	<50
WF1284H	39 44 46	105 52 54	.5	.07	20.0	1.50	700	N	N	N	N	<50
WF1285H	39 44 41	105 52 56	.7	.07	20.0	>2.00	1,000	N	N	N	N	100
WF1286H	39 44 36	105 52 57	.5	.07	50.0	2.00	1,000	N	N	N	N	70
WF1287H	39 44 30	105 52 54	.3	.07	30.0	>2.00	1,500	N	N	N	<20	50
WF1288H	39 44 25	105 52 55	.7	.10	30.0	>2.00	700	N	N	N	N	70
WF1289H	39 43 40	105 54 21	.5	.07	20.0	2.00	1,500	N	N	N	N	<50
WF1290H	39 43 37	105 54 26	.7	.10	30.0	>2.00	1,000	N	N	N	N	50
WF1291H	39 43 32	105 54 26	1.0	.20	10.0	>2.00	700	N	N	N	20	100
WF1292H	39 43 27	105 54 24	1.5	.15	30.0	>2.00	1,000	200	N	300	N	150
WF1293H	39 43 22	105 54 30	1.5	.20	10.0	>2.00	500	50	N	N	N	150
WF1294H	39 43 18	105 54 33	.7	.10	15.0	>2.00	700	N	N	N	N	100
WF1295H	39 43 13	105 54 36	1.0	.10	10.0	>2.00	500	N	N	N	N	150
WF1296H	39 43 7	105 54 38	.7	.15	50.0	1.50	700	N	N	N	N	<50
WF1297H	39 43 2	105 54 41	.7	.10	50.0	1.50	1,000	N	N	N	N	70
WF1298H	39 45 22	105 54 57	.7	.10	20.0	>2.00	1,500	N	N	N	50	100
WF1299H	39 45 20	105 55 4	.5	.07	30.0	1.50	300	N	N	N	N	200
WF1300H	39 41 57	105 55 28	.7	.07	30.0	.70	2,000	N	N	N	50	150
WF1301H	39 41 54	105 55 36	.5	.10	20.0	>2.00	1,000	N	N	N	N	50
WF1302H	39 41 53	105 55 41	.5	.07	30.0	2.00	1,500	N	N	N	N	50
WF1303H	39 41 49	105 55 48	.7	.15	>50.0	2.00	1,000	N	N	N	N	50
WF1304H	39 41 43	105 55 53	1.5	.15	3.0	>2.00	300	N	N	N	N	1,000
WF1305H	39 41 39	105 56 1	.7	.10	30.0	>2.00	700	N	N	N	N	70
WF1306H	39 41 35	105 56 7	3.0	.20	20.0	>2.00	500	N	N	N	N	70
WF1307H	39 41 32	105 56 12	.7	.15	20.0	>2.00	500	N	N	N	N	50
WF1308H	39 41 29	105 56 20	1.0	.15	20.0	>2.00	500	N	N	N	N	200
WF1309H	39 41 25	105 56 28	1.0	.20	50.0	>2.00	500	N	N	N	N	100
WF1310H	39 41 22	105 56 33	.5	.15	30.0	1.00	1,000	N	N	N	N	<50
WF1311H	39 41 21	105 56 37	.5	.15	20.0	1.50	700	N	N	N	N	70
WF1312H	39 41 22	105 56 46	2.0	.30	20.0	1.00	500	N	N	N	N	500

TABLE 4.--Spectrographic analysis of ridgeline heavy-mineral concentrates from southern portion of study area--continued

Sample	Be-ppm s	Bi-ppm s	Cd-ppm s	Co-ppm s	Cr-ppm s	Cu-ppm s	La-ppm s	Mo-ppm s	Nb-ppm s	Ni-ppm s	Pb-ppm s	Sb-ppm s	Sc-ppm s
WF1268H	N	N	N	N	30	20	>2,000	N	100	N	150	N	N
WF1269H	N	N	N	10	70	500	>2,000	N	100	N	300	N	N
WF1270H	N	N	N	N	50	10	>2,000	N	200	N	100	N	N
WF1271H	N	N	N	N	20	15	1,000	N	100	N	70	N	N
WF1272H	N	N	N	N	20	10	2,000	N	50	N	70	N	N
WF1273H	N	N	N	N	30	10	2,000	N	150	N	100	N	N
WF1274H	N	N	N	N	20	<10	700	10	70	N	200	N	N
WF1275H	N	N	N	N	50	10	1,000	N	100	N	100	N	N
WF1276H	N	N	N	N	30	10	1,500	N	100	N	100	N	N
WF1277H	N	N	N	N	70	10	1,000	20	100	N	100	N	N
WF1278H	N	N	N	N	30	20	1,500	N	50	N	100	N	N
WF1279H	N	N	N	<10	70	30	700	N	1,000	N	70	N	N
WF1280H	N	N	N	N	50	20	1,500	500	1,000	N	100	N	N
WF1281H	N	N	N	N	70	20	1,500	20	500	N	150	N	N
WF1282H	N	N	N	N	50	15	1,000	N	100	N	100	N	N
WF1283H	N	N	N	N	30	15	>2,000	N	100	N	200	N	N
WF1284H	N	N	N	N	<20	10	1,500	N	50	N	200	N	N
WF1285H	N	N	N	N	30	10	1,500	N	50	N	200	N	N
WF1286H	N	N	N	N	30	10	>2,000	N	<50	N	200	N	N
WF1287H	N	N	N	N	30	<10	1,000	N	50	N	200	N	N
WF1288H	N	N	N	N	50	15	1,000	N	<50	N	150	N	N
WF1289H	N	N	N	N	N	<10	1,000	N	50	N	200	N	N
WF1290H	N	N	N	N	50	30	1,500	N	100	N	300	N	N
WF1291H	N	N	N	N	70	30	>2,000	N	500	N	500	N	N
WF1292H	N	N	N	N	70	30	>2,000	N	300	N	300	N	N
WF1293H	N	N	N	N	70	20	>2,000	20	500	N	150	N	N
WF1294H	N	N	N	N	30	15	1,500	20	200	N	100	N	N
WF1295H	N	N	N	N	30	20	2,000	70	100	N	150	N	N
WF1296H	N	N	N	N	20	30	700	N	N	N	70	N	N
WF1297H	N	N	N	30	50	10	700	10	N	N	200	N	N
WF1298H	N	N	N	N	30	10	700	15	100	N	100	N	N
WF1299H	N	N	N	N	<20	10	200	10	70	N	50	N	N
WF1300H	N	N	N	N	<20	10	2,000	10	50	N	700	N	N
WF1301H	N	N	N	N	50	15	>2,000	10	70	N	300	N	N
WF1302H	N	N	N	N	20	<10	2,000	10	50	N	200	N	N
WF1303H	N	N	N	N	30	15	1,000	10	50	N	200	N	N
WF1304H	N	N	N	20	70	<10	>2,000	<10	150	N	300	N	N
WF1305H	N	N	N	N	50	<10	2,000	<10	100	N	300	N	N
WF1306H	N	N	N	<10	100	20	>2,000	50	100	N	500	N	N
WF1307H	N	N	N	N	N	10	>2,000	N	<50	N	300	N	N
WF1308H	N	N	N	N	<20	<10	>2,000	20	50	N	500	N	N
WF1309H	N	N	N	N	70	10	2,000	20	50	N	300	N	N
WF1310H	N	N	N	N	N	10	>2,000	30	N	N	200	N	N
WF1311H	N	N	N	N	N	10	>2,000	70	N	N	200	N	N
WF1312H	N	N	N	N	N	15	500	20	N	N	100	N	N

TABLE 4.--Spectrographic analysis of ridgeline heavy-mineral concentrates from southern portion of study area--continued

Sample	Sn-ppm s	Sr-ppm s	V-ppm s	W-ppm s	Y-ppm s	Zn-ppm s	Zr-ppm s	Th-ppm s
WF1268H	20	N	100	N	1,000	N	>2,000	N
WF1269H	30	N	300	N	700	N	>2,000	N
WF1270H	30	N	200	N	500	N	>2,000	N
WF1271H	N	N	70	N	700	N	>2,000	N
WF1272H	N	N	50	N	1,000	N	>2,000	N
WF1273H	N	N	70	N	1,000	N	>2,000	N
WF1274H	N	N	70	N	500	N	>2,000	N
WF1275H	<20	N	70	N	700	N	>2,000	N
WF1276H	N	N	70	N	1,000	N	>2,000	N
WF1277H	N	N	100	N	700	N	>2,000	N
WF1278H	N	N	50	N	700	N	>2,000	N
WF1279H	70	N	300	N	500	N	>2,000	N
WF1280H	70	N	200	N	1,500	N	>2,000	N
WF1281H	30	N	200	N	700	N	>2,000	N
WF1282H	N	N	100	N	1,000	N	>2,000	N
WF1283H	<20	N	100	N	1,000	N	>2,000	N
WF1284H	<20	N	50	N	1,000	N	>2,000	N
WF1285H	30	N	100	N	700	N	>2,000	N
WF1286H	N	N	50	N	1,000	N	>2,000	N
WF1287H	30	N	100	N	1,000	N	>2,000	N
WF1288H	N	N	100	100	700	N	>2,000	N
WF1289H	50	N	50	N	1,000	N	>2,000	N
WF1290H	30	N	150	N	700	N	>2,000	N
WF1291H	30	N	300	N	700	N	>2,000	N
WF1292H	200	N	300	N	1,500	N	>2,000	N
WF1293H	150	N	500	N	500	N	>2,000	N
WF1294H	50	N	150	N	700	N	>2,000	N
WF1295H	70	N	150	N	500	N	>2,000	N
WF1296H	N	500	70	100	700	N	>2,000	N
WF1297H	N	300	70	N	1,500	N	2,000	N
WF1298H	30	N	100	N	1,000	N	2,000	N
WF1299H	N	N	50	N	700	N	>2,000	N
WF1300H	700	N	50	N	1,500	N	>2,000	N
WF1301H	N	N	100	N	700	N	>2,000	N
WF1302H	N	200	100	N	1,000	N	>2,000	N
WF1303H	N	300	100	N	700	N	>2,000	N
WF1304H	70	N	150	N	500	N	>2,000	N
WF1305H	30	N	150	N	700	N	>2,000	N
WF1306H	50	500	200	N	700	N	>2,000	700
WF1307H	N	300	100	N	700	N	>2,000	500
WF1308H	30	300	150	N	700	N	>2,000	500
WF1309H	50	700	200	N	1,000	N	>2,000	500
WF1310H	N	500	70	N	1,000	N	>2,000	200
WF1311H	N	700	150	N	700	N	>2,000	N
WF1312H	N	500	150	N	700	N	>2,000	200

TABLE 4.--Spectrographic analysis of ridgeline heavy-mineral concentrates from southern portion of study area--continued

Sample	Latitude	Longitude	Fe-pct. s	Mg-pct. s	Ca-pct. s	Ti-pct. s	Mn-ppm s	Ag-ppm s	As-ppm s	Au-ppm s	B-ppm s	Ba-ppm s
WF1313H	39 41 26	105 56 50	.5	.07	50.0	1.00	700	N	N	N	N	50
WF1314H	39 41 31	105 56 54	2.0	.15	50.0	>2.00	500	N	N	N	N	150
WF1315H	39 41 37	105 57 0	1.0	.20	20.0	2.00	200	N	N	N	N	70
WF1316H	39 41 40	105 57 6	1.0	.20	30.0	1.00	1,000	N	N	N	N	50
WF1317H	39 42 54	105 58 33	10.0	.30	5.0	>2.00	500	N	N	N	N	500
WF1318H	39 42 56	105 58 26	.7	.10	30.0	1.00	1,500	N	N	N	N	50
WF1319H	39 42 57	105 58 17	1.5	.10	7.0	>2.00	500	N	N	N	N	200
WF1320H	39 42 54	105 58 6	1.0	.50	30.0	1.50	700	N	N	N	N	100
WF1321H	39 42 53	105 58 0	1.0	.10	5.0	1.00	500	N	N	N	<20	200
WF1322H	39 42 52	105 57 55	1.5	.15	3.0	.70	300	N	N	N	<20	150
WF1323H	39 42 53	105 57 49	2.0	.15	3.0	1.50	300	N	N	N	<20	100
WF1324H	39 42 57	105 57 45	2.0	.10	3.0	1.00	300	N	N	N	<20	300
WF1325H	39 43 0	105 57 36	1.5	.20	10.0	.20	500	N	N	N	N	300
WF1326H	39 43 1	105 57 31	1.0	.15	20.0	2.00	700	N	N	N	N	150
WF1327H	39 43 1	105 57 25	1.5	.10	5.0	1.50	300	N	N	N	N	150
WF1328H	39 43 1	105 57 18	.5	.07	.5	1.50	1,000	N	N	N	N	50
WF1329H	39 43 8	105 57 15	1.0	.07	20.0	>2.00	1,000	N	N	N	N	70
WF1330H	39 43 13	105 57 10	1.0	.07	30.0	>2.00	1,000	N	N	N	N	50
WF1331H	39 43 17	105 57 6	2.0	.10	20.0	2.00	500	N	N	N	N	200
WF1332H	39 43 19	105 56 59	.3	.05	30.0	1.50	100	N	N	N	N	N
WF1333H	39 43 21	105 56 51	1.5	.10	2.0	>2.00	200	N	N	N	N	200
WF1334H	39 43 23	105 56 45	1.0	.07	20.0	1.50	500	N	N	N	N	70
WF1335H	39 43 26	105 56 40	1.0	.20	30.0	1.50	1,000	N	N	N	N	100
WF1336H	39 43 27	105 56 30	.7	.10	20.0	1.50	700	N	N	N	N	150
WF1337H	39 43 26	105 56 25	.7	.10	30.0	1.00	300	N	N	N	N	70
WF1338H	39 43 28	105 56 19	1.0	.10	30.0	>2.00	1,500	N	N	N	N	50
WF1339H	39 43 36	105 56 10	1.5	.10	15.0	>2.00	500	N	N	N	N	300
WF1340H	39 41 27	105 58 2	1.5	.20	3.0	1.50	700	N	N	N	150	500
WF1341H	39 41 26	105 57 58	2.0	.20	.5	>2.00	500	N	N	N	N	100
WF1342H	39 41 27	105 57 49	5.0	.70	10.0	>2.00	500	N	N	N	N	200
WF1343H	39 41 27	105 57 42	2.0	.70	15.0	2.00	700	N	N	N	N	200
WF1344H	39 41 30	105 57 35	1.0	.10	15.0	.70	2,000	N	N	N	N	200
WF1345H	39 41 33	105 57 27	5.0	.30	7.0	>2.00	500	N	N	N	N	500
WF1346H	39 41 35	105 57 21	3.0	.20	15.0	>2.00	700	N	N	N	N	300
WF1347H	39 41 37	105 57 15	2.0	.15	30.0	.70	700	N	N	N	N	50
WF1348H	39 41 39	105 57 11	1.5	.15	10.0	>2.00	300	N	N	N	N	200
WF1349H	39 43 44	105 54 8	1.5	.10	15.0	>2.00	500	N	N	N	N	100
WF1350H	39 43 43	105 54 4	5.0	.20	30.0	>2.00	500	100	N	N	N	100
WF1351H	39 43 43	105 54 0	5.0	.10	20.0	>2.00	500	N	N	N	N	200
WF1352H	39 43 44	105 53 55	2.0	.07	20.0	>2.00	1,500	20	N	N	N	50
WF1353H	39 43 45	105 53 50	.5	<.05	30.0	>2.00	1,000	N	N	N	N	50
WF1354H	39 43 46	105 53 47	5.0	.10	20.0	>2.00	2,000	N	N	N	N	100
WF1355H	39 43 48	105 53 39	1.5	.10	15.0	>2.00	1,500	N	N	N	N	150
WF1356H	39 43 49	105 53 35	2.0	.10	20.0	>2.00	1,000	N	N	N	N	70
WF1357H	39 43 50	105 53 26	2.0	.10	15.0	>2.00	700	N	N	N	N	150

TABLE 4.--Spectrographic analysis of ridgeline heavy-mineral concentrates from southern portion of study area--continued

Sample	Be-ppm s	Bi-ppm s	Cd-ppm s	Co-ppm s	Cr-ppm s	Cu-ppm s	La-ppm s	Mo-ppm s	Nb-ppm s	Ni-ppm s	Pb-ppm s	Sb-ppm s	Sc-ppm s
WF1313H	N	N	N	N	N	15	>2,000	20	<50	N	200	N	N
WF1314H	N	N	N	30	<20	15	>2,000	20	200	N	300	N	N
WF1315H	N	N	N	N	N	10	500	20	N	N	50	N	N
WF1316H	N	N	N	N	N	10	>2,000	20	<50	N	200	N	N
WF1317H	N	N	N	30	150	20	1,500	20	150	N	200	N	N
WF1318H	N	N	N	N	N	<10	1,500	20	50	N	150	N	N
WF1319H	N	N	N	N	100	30	>2,000	N	<50	N	300	N	N
WF1320H	N	N	N	N	150	10	300	20	<50	N	100	N	N
WF1321H	N	N	N	N	200	10	1,500	10	N	N	150	N	N
WF1322H	N	N	N	N	200	10	1,000	100	N	N	100	N	N
WF1323H	N	N	N	<10	200	20	>2,000	<10	<50	N	500	N	N
WF1324H	N	N	N	N	150	20	>2,000	<10	<50	N	300	N	N
WF1325H	N	N	N	N	100	<10	>2,000	<10	N	N	200	N	N
WF1326H	N	N	N	N	150	<10	500	<10	100	N	150	N	N
WF1327H	N	N	N	N	150	10	300	10	50	N	100	N	N
WF1328H	N	N	N	N	N	<10	700	N	<50	N	70	N	N
WF1329H	N	N	N	N	30	10	2,000	20	150	N	70	N	N
WF1330H	N	N	N	N	50	<10	500	30	150	N	70	N	N
WF1331H	N	N	N	150	30	15	2,000	30	100	N	100	N	N
WF1332H	N	N	N	N	N	150	200	<10	100	N	150	N	N
WF1333H	N	N	N	N	70	100	2,000	<10	100	N	200	N	N
WF1334H	N	N	N	N	30	10	1,500	10	<50	N	70	N	N
WF1335H	N	N	N	N	50	15	1,500	10	<50	N	100	N	N
WF1336H	N	N	N	N	<20	15	1,500	10	<50	N	200	N	N
WF1337H	N	N	N	N	30	<10	>2,000	10	<50	N	500	N	N
WF1338H	N	N	N	N	30	<10	>2,000	10	70	N	300	N	N
WF1339H	N	N	N	N	50	10	>2,000	10	100	N	200	N	N
WF1340H	100	N	N	N	<20	<10	1,000	10	50	N	150	N	N
WF1341H	20	N	N	N	300	<10	300	50	50	N	100	N	N
WF1342H	50	N	N	20	100	20	500	50	50	N	100	N	N
WF1343H	50	N	N	N	50	15	500	15	50	N	100	N	N
WF1344H	N	N	N	N	<20	<10	1,000	<10	<50	N	50	N	N
WF1345H	N	N	N	N	50	50	200	70	100	N	70	N	N
WF1346H	70	N	N	N	150	20	2,000	<10	100	N	100	N	N
WF1347H	N	N	N	N	70	<10	500	20	N	N	100	N	N
WF1348H	N	N	N	N	70	<10	1,000	100	1,000	N	100	N	N
WF1349H	N	N	N	<10	30	20	2,000	15	300	N	70	N	N
WF1350H	N	N	N	N	70	50	500	70	200	N	70	N	N
WF1351H	N	N	N	N	30	50	1,500	N	150	N	70	N	N
WF1352H	N	N	N	N	<20	15	1,500	N	200	N	70	N	N
WF1353H	N	N	N	N	N	10	2,000	50	N	N	100	N	N
WF1354H	N	<20	N	70	50	100	>2,000	N	<50	N	500	N	N
WF1355H	N	N	N	N	N	<10	700	10	200	N	100	N	N
WF1356H	N	N	N	N	20	20	2,000	10	200	N	100	N	N
WF1357H	N	N	N	N	50	20	1,500	10	150	N	100	N	N

TABLE 4.--Spectrographic analysis of ridgeline heavy-mineral concentrates from southern portion of study area--continued

Sample	Sn-ppm s	Sr-ppm s	V-ppm s	W-ppm s	Y-ppm s	Zn-ppm s	Zr-ppm s	Th-ppm s
WF1313H	N	500	50	N	700	N	>2,000	500
WF1314H	50	500	300	N	700	N	>2,000	1,000
WF1315H	N	1,000	150	N	100	N	2,000	N
WF1316H	N	500	70	N	1,000	N	>2,000	500
WF1317H	70	N	150	N	500	N	>2,000	N
WF1318H	N	N	50	N	2,000	N	>2,000	300
WF1319H	20	N	100	N	1,000	N	>2,000	<200
WF1320H	50	1,000	100	N	700	N	>2,000	N
WF1321H	N	N	150	N	500	N	>2,000	<200
WF1322H	N	500	150	N	300	N	>2,000	N
WF1323H	N	N	150	N	700	N	>2,000	N
WF1324H	20	700	150	N	500	N	>2,000	300
WF1325H	N	700	100	N	500	N	>2,000	300
WF1326H	N	1,000	100	N	500	N	>2,000	N
WF1327H	N	N	150	N	300	N	>2,000	N
WF1328H	N	N	20	N	700	N	2,000	N
WF1329H	200	N	70	N	1,500	N	>2,000	<200
WF1330H	20	N	100	N	700	N	>2,000	<200
WF1331H	<20	N	70	100	500	N	>2,000	500
WF1332H	N	N	50	N	100	N	150	N
WF1333H	100	N	200	N	300	N	>2,000	300
WF1334H	N	N	50	N	700	N	>2,000	<200
WF1335H	N	500	70	N	700	N	>2,000	<200
WF1336H	N	N	50	N	700	N	>2,000	N
WF1337H	N	<200	50	N	500	N	>2,000	500
WF1338H	50	N	100	N	700	N	>2,000	700
WF1339H	50	N	100	N	500	N	>2,000	500
WF1340H	N	N	50	N	700	N	>2,000	<200
WF1341H	70	N	500	150	500	N	50	<200
WF1342H	30	N	500	300	500	N	>2,000	200
WF1343H	N	N	150	N	500	N	>2,000	<200
WF1344H	N	N	50	N	700	N	>2,000	N
WF1345H	50	N	150	200	1,000	N	>2,000	200
WF1346H	N	N	500	N	1,500	N	>2,000	300
WF1347H	N	N	50	N	1,000	N	>2,000	N
WF1348H	300	N	500	N	700	N	>2,000	N
WF1349H	50	N	200	N	700	N	>2,000	<200
WF1350H	50	N	200	N	500	N	>2,000	300
WF1351H	30	N	150	N	700	N	>2,000	300
WF1352H	30	N	100	N	1,000	N	>2,000	300
WF1353H	N	N	N	N	1,500	N	>2,000	500
WF1354H	20	N	50	N	2,000	N	>2,000	1,500
WF1355H	30	N	50	N	1,000	N	>2,000	N
WF1356H	50	N	100	N	1,000	N	>2,000	200
WF1357H	30	N	100	N	500	N	>2,000	200

TABLE 4.--Spectrographic analysis of ridgeline heavy-mineral concentrates from southern portion of study area--continued

Sample	Latitude	Longitude	Fe-pct. s	Mg-pct. s	Ca-pct. s	Ti-pct. s	Mn-ppm s	Ag-ppm s	As-ppm s	Au-ppm s	B-ppm s	Ba-ppm s
WF1358H	39 43 56	105 53 18	3.0	.15	15.0	>2.00	500	N	N	N	N	150
WF1359H	39 44 2	105 53 12	2.0	.20	5.0	>2.00	500	<1	N	N	N	150
WF1360H	39 44 6	105 53 4	5.0	.20	2.0	>2.00	300	N	N	N	N	300
WF1361H	39 44 9	105 53 1	5.0	.15	10.0	>2.00	300	N	N	N	N	200
WF1362H	39 44 13	105 52 59	3.0	.10	10.0	>2.00	200	N	N	N	N	150
WF1363H	39 44 18	105 52 57	3.0	.10	20.0	>2.00	500	N	N	N	N	200
WF1364H	39 44 22	105 52 55	1.5	.07	20.0	2.00	700	N	N	N	N	70
WF1365H	39 42 54	105 54 41	2.0	.10	20.0	1.50	500	N	N	N	N	200
WF1366H	39 42 54	105 54 45	1.5	.07	50.0	1.00	500	N	N	N	N	<50
WF1367H	39 42 52	105 54 49	5.0	.10	15.0	1.50	300	N	N	N	N	>10,000
WF1368H	39 42 45	105 55 1	10.0	.20	30.0	>2.00	500	5	N	N	N	500
WF1369H	39 42 48	105 54 58	7.0	.10	20.0	1.00	300	5	N	N	N	500
WF1370H	39 42 51	105 54 54	3.0	.10	20.0	>2.00	300	N	N	N	N	300
WF1371H	39 44 54	105 55 22	1.0	.07	30.0	2.00	700	N	N	N	N	50
WF1372H	39 45 1	105 55 17	2.0	.10	30.0	>2.00	1,500	N	N	N	N	50
WF1373H	39 45 4	105 55 12	2.0	.10	20.0	2.00	1,500	N	N	N	N	50
WF1374H	39 45 10	105 55 8	2.0	.10	30.0	2.00	1,000	N	N	N	N	50
WF1375H	39 45 15	105 55 7	1.5	.10	20.0	2.00	1,500	N	N	N	N	50
WF1376H	39 46 20	105 56 23	7.0	.30	15.0	>2.00	700	N	N	N	N	150
WF1377H	39 46 15	105 56 29	2.0	.15	20.0	>2.00	1,000	N	N	N	N	100
WF1378H	39 46 10	105 56 31	5.0	.20	30.0	>2.00	1,000	N	N	N	N	150
WF1379H	39 46 1	105 56 35	3.0	.10	20.0	>2.00	1,000	N	N	N	N	100
WF1380H	39 45 55	105 56 38	5.0	.10	20.0	>2.00	1,000	N	N	N	N	70
WF1381H	39 45 47	105 56 43	1.0	.07	20.0	2.00	1,500	N	N	N	N	70
WF1382H	39 45 38	105 56 41	.7	.07	30.0	2.00	1,500	N	N	N	N	<50
WF1383H	39 45 31	105 56 44	1.5	.10	30.0	2.00	1,500	N	N	N	N	50
WF1384H	39 45 25	105 56 50	1.0	.07	50.0	2.00	1,500	N	N	N	N	<50
WF1385H	39 45 16	105 56 57	.7	.07	50.0	2.00	1,500	N	N	N	N	<50
WF1386H	39 45 9	105 57 1	1.0	.07	30.0	>2.00	1,500	N	N	N	N	<50
WF1387H	39 45 5	105 57 7	2.0	.10	20.0	>2.00	1,000	N	N	N	N	200
WF1388H	39 45 1	105 57 14	2.0	.10	20.0	>2.00	1,000	N	N	N	N	200
WF1389H	39 44 57	105 57 22	.5	.05	50.0	1.50	1,500	N	N	N	N	<50
WF1390H	39 44 54	105 57 26	.5	.07	>50.0	2.00	2,000	N	N	N	N	<50
WF1450H	39 43 20	105 57 12	3.0	.10	15.0	>2.00	1,000	N	N	N	N	100
WF1451H	39 43 23	105 57 17	1.5	.05	20.0	>2.00	1,000	N	N	N	N	50
WF1452H	39 43 26	105 57 22	1.5	.07	30.0	>2.00	700	N	N	N	N	50
WF1453H	39 43 29	105 57 27	2.0	.05	10.0	>2.00	500	N	N	N	N	70
WF1454H	39 43 32	105 57 32	3.0	.07	7.0	>2.00	500	N	N	N	N	100
WF1455H	39 43 38	105 57 38	2.0	.10	7.0	>2.00	500	N	N	N	N	100
WF1456H	39 43 43	105 57 42	1.0	.07	15.0	>2.00	500	N	N	N	N	50
WF1457H	39 43 48	105 57 45	1.0	.05	30.0	>2.00	700	N	N	N	N	<50
WF1458H	39 43 53	105 57 45	.5	<.05	15.0	1.50	500	N	N	N	N	<50
WF1459H	39 43 58	105 57 44	1.5	.05	20.0	>2.00	500	N	N	N	N	100
WF1460H	39 44 3	105 57 44	.5	.05	30.0	1.50	1,500	N	N	N	N	N
WF1461H	39 44 8	105 57 44	10.0	1.00	15.0	>2.00	1,000	N	N	N	100	200

TABLE 4.--Spectrographic analysis of ridgeline heavy-mineral concentrates from southern portion of study area--continued

Sample	Be-ppm s	Bi-ppm s	Cd-ppm s	Co-ppm s	Cr-ppm s	Cu-ppm s	La-ppm s	Mo-ppm s	Nb-ppm s	Ni-ppm s	Pb-ppm s	Sb-ppm s	Sc-ppm s
WF1358H	N	N	N	N	70	20	>2,000	50	500	N	150	N	N
WF1359H	N	N	N	N	70	15	1,000	30	1,000	N	150	N	N
WF1360H	N	N	N	N	200	100	1,500	50	100	N	200	N	N
WF1361H	N	N	N	N	100	20	2,000	30	100	N	100	N	N
WF1362H	N	N	N	N	150	20	2,000	N	50	N	100	N	N
WF1363H	N	<20	N	N	100	50	>2,000	N	50	N	200	N	N
WF1364H	N	N	N	N	50	20	>2,000	N	<50	N	100	N	N
WF1365H	N	N	N	N	20	50	500	<10	<50	N	70	N	N
WF1366H	N	N	N	N	<20	10	1,500	<10	<50	N	70	N	N
WF1367H	N	N	N	500	N	30	300	<10	50	N	50	N	N
WF1368H	N	N	N	300	50	70	300	50	50	N	70	N	N
WF1369H	N	N	N	200	<20	70	1,500	20	50	N	70	N	N
WF1370H	N	N	N	50	20	10	2,000	20	150	N	100	N	N
WF1371H	N	N	N	N	<20	<10	1,500	30	70	N	100	N	N
WF1372H	N	N	N	N	30	50	>2,000	20	150	N	150	N	N
WF1373H	N	N	N	N	20	20	>2,000	10	100	N	300	N	N
WF1374H	N	N	N	N	30	15	>2,000	N	100	N	300	N	N
WF1375H	N	N	N	N	30	15	>2,000	N	100	N	300	N	N
WF1376H	N	N	N	20	150	30	>2,000	30	200	N	200	N	N
WF1377H	N	N	N	N	50	20	>2,000	30	200	N	150	N	N
WF1378H	N	N	N	<10	70	30	>2,000	50	300	N	200	N	N
WF1379H	N	N	N	N	30	20	1,500	20	150	N	100	N	N
WF1380H	N	N	N	N	50	20	>2,000	30	150	N	200	N	N
WF1381H	N	N	N	N	30	10	1,500	20	100	N	100	N	N
WF1382H	N	N	N	N	30	<10	2,000	<10	70	N	100	N	N
WF1383H	N	N	N	N	30	10	>2,000	20	100	N	300	N	N
WF1384H	N	N	N	N	30	15	2,000	20	100	N	100	N	N
WF1385H	N	N	N	N	20	<10	2,000	10	50	N	100	N	N
WF1386H	N	N	N	N	20	<10	2,000	20	70	N	100	N	N
WF1387H	N	N	N	N	20	10	1,500	10	100	N	100	N	N
WF1388H	N	N	N	N	30	20	1,000	10	100	N	100	N	N
WF1389H	N	N	N	N	<20	<10	1,500	10	50	N	70	N	N
WF1390H	N	N	N	N	20	<10	1,500	30	50	N	70	N	N
WF1450H	N	N	N	N	50	20	>2,000	10	200	N	200	N	N
WF1451H	N	N	N	N	<20	10	1,500	N	100	N	100	N	N
WF1452H	N	N	N	N	20	<10	1,500	20	100	N	200	N	N
WF1453H	N	N	N	N	30	<10	1,000	<10	100	N	200	N	N
WF1454H	N	N	N	N	30	15	2,000	20	200	N	500	N	N
WF1455H	N	N	N	N	30	<10	1,500	10	200	N	200	N	N
WF1456H	N	N	N	N	20	<10	700	<10	200	N	100	N	N
WF1457H	N	N	N	N	30	<10	700	20	100	N	100	N	N
WF1458H	N	N	N	N	<20	<10	700	N	50	N	150	N	N
WF1459H	N	N	N	N	30	<10	1,000	50	100	N	300	N	N
WF1460H	N	N	N	N	<20	<10	1,000	15	50	N	100	N	N
WF1461H	N	N	N	30	70	20	2,000	30	200	N	500	N	N

TABLE 4.--Spectrographic analysis of ridgeline heavy-mineral concentrates from southern portion of study area--continued

Sample	Sn-ppm s	Sr-ppm s	V-ppm s	W-ppm s	Y-ppm s	Zn-ppm s	Zr-ppm s	Th-ppm s
WF1358H	70	N	200	N	700	N	>2,000	500
WF1359H	50	N	200	N	500	N	>2,000	200
WF1360H	30	N	200	N	700	N	>2,000	200
WF1361H	N	N	150	N	500	N	>2,000	200
WF1362H	20	N	150	N	500	N	>2,000	200
WF1363H	N	300	100	100	700	N	>2,000	700
WF1364H	N	N	70	100	1,000	N	>2,000	200
WF1365H	N	300	100	N	700	N	>2,000	<200
WF1366H	N	N	50	N	1,000	N	>2,000	<200
WF1367H	<20	1,000	70	N	300	N	>2,000	200
WF1368H	N	N	200	N	500	N	>2,000	500
WF1369H	20	N	70	N	700	N	>2,000	500
WF1370H	<20	N	100	N	700	N	>2,000	500
WF1371H	N	N	50	N	1,000	N	>2,000	200
WF1372H	30	N	100	N	1,000	N	2,000	500
WF1373H	70	N	70	N	500	N	>2,000	500
WF1374H	<20	N	100	N	700	N	>2,000	700
WF1375H	N	N	100	N	700	N	>2,000	700
WF1376H	50	N	300	N	500	N	>2,000	500
WF1377H	50	N	200	N	500	N	>2,000	700
WF1378H	50	N	300	N	500	N	>2,000	500
WF1379H	100	N	150	N	500	N	>2,000	300
WF1380H	<20	N	150	N	500	N	>2,000	700
WF1381H	N	N	100	N	700	N	2,000	300
WF1382H	N	N	50	N	1,000	N	>2,000	500
WF1383H	N	N	70	N	500	N	>2,000	1,000
WF1384H	N	N	100	N	700	N	>2,000	300
WF1385H	N	N	50	N	700	N	>2,000	300
WF1386H	N	N	100	N	700	N	2,000	200
WF1387H	N	N	100	N	500	N	2,000	300
WF1388H	N	N	100	N	500	N	>2,000	300
WF1389H	N	N	20	N	2,000	N	2,000	200
WF1390H	N	N	20	N	2,000	N	2,000	200
WF1450H	30	N	150	N	500	N	>2,000	500
WF1451H	N	N	100	N	700	N	>2,000	<200
WF1452H	N	N	50	N	1,000	N	>2,000	200
WF1453H	N	N	100	N	700	N	>2,000	N
WF1454H	70	N	100	N	500	N	>2,000	700
WF1455H	N	N	100	N	500	N	>2,000	300
WF1456H	30	N	70	N	500	N	2,000	<200
WF1457H	30	N	70	N	1,000	N	1,500	N
WF1458H	N	N	50	N	700	N	>2,000	N
WF1459H	N	N	100	N	500	N	>2,000	200
WF1460H	N	N	50	N	1,000	N	2,000	N
WF1461H	N	N	150	N	500	5,000	>2,000	700

TABLE 4.--Spectrographic analysis of ridgeline heavy-mineral concentrates from southern portion of study area--continued

Sample	Latitude	Longitude	Fe-pct. s	Mg-pct. s	Ca-pct. s	Ti-pct. s	Mn-ppm s	Ag-ppm s	As-ppm s	Au-ppm s	B-ppm s	Ba-ppm s
WF1462H	39 44 13	105 57 41	.3	<.05	30.0	1.50	1,500	N	N	N	N	N
WF1463H	39 44 18	105 57 39	.3	<.05	5.0	.70	200	N	N	N	N	N
WF1464H	39 44 22	105 57 37	1.5	.10	20.0	1.00	1,000	N	N	N	N	300
WF1465H	39 44 28	105 57 36	.3	<.05	50.0	.30	2,000	N	N	N	N	<50
WF1466H	39 44 33	105 57 35	.7	.05	30.0	1.00	1,500	N	N	N	N	50
WF1467H	39 44 37	105 57 33	2.0	.10	1.0	.15	200	N	N	N	N	200
WF1468H	39 44 42	105 57 30	1.0	.10	5.0	1.00	300	N	N	N	N	100
WF1469H	39 44 46	105 57 30	.3	<.05	20.0	.70	1,000	N	N	N	N	<50
WF1470H	39 44 51	105 57 30	.3	<.05	20.0	.50	1,500	N	N	N	N	N
WF1471H	39 40 54	105 55 21	2.0	.15	10.0	1.00	500	N	N	N	N	100

TABLE 4.--Spectrographic analysis of ridgeline heavy-mineral concentrates from southern portion of study area--continued

Sample	Be-ppm s	Bi-ppm s	Cd-ppm s	Co-ppm s	Cr-ppm s	Cu-ppm s	La-ppm s	Mo-ppm s	Nb-ppm s	Ni-ppm s	Pb-ppm s	Sb-ppm s	Sc-ppm s
WF1462H	N	N	N	N	N	<10	700	20	50	N	100	N	N
WF1463H	N	N	N	N	20	<10	500	N	<50	N	30	N	N
WF1464H	N	N	N	N	<20	<10	500	10	50	N	200	N	N
WF1465H	N	N	N	N	N	<10	700	20	<50	N	70	N	N
WF1466H	N	N	N	N	70	<10	700	20	50	N	100	N	N
WF1467H	50	N	N	N	150	15	1,500	20	N	N	200	N	N
WF1468H	N	N	N	N	70	<10	500	<10	50	N	70	N	N
WF1469H	N	N	N	N	N	<10	700	N	<50	N	70	N	N
WF1470H	N	N	N	N	N	<10	500	N	<50	N	70	N	N
WF1471H	N	N	N	N	100	10	300	<10	N	N	100	N	N

TABLE 4.--Spectrographic analysis of ridgeline heavy-mineral concentrates from southern portion of study are

Sample	Sn-ppm s	Sr-ppm s	V-ppm s	W-ppm s	Y-ppm s	Zn-ppm s	Zr-ppm s	Th-ppm s
WF1462H	N	N	30	N	700	N	>2,000	N
WF1463H	N	N	50	N	300	N	1,000	N
WF1464H	N	N	30	N	700	N	>2,000	N
WF1465H	N	N	<20	N	1,500	N	1,500	N
WF1466H	N	N	70	N	1,000	N	1,500	N
WF1467H	N	N	150	N	300	N	>2,000	<200
WF1468H	50	N	100	N	200	N	1,000	N
WF1469H	N	N	N	N	700	N	2,000	N
WF1470H	N	N	N	N	700	N	1,500	N
WF1471H	N	N	100	N	300	N	>2,000	N

TABLE 5.--Spectrographic analysis of ridgeline soil samples from Keyser Basin

Sample	Sn-ppm s	Sr-ppm s	V-ppm s	W-ppm s	Y-ppm s	Zn-ppm s	Zr-ppm s	Th-ppm s
WF1052D	N	100	150	N	30	N	100	N
WF1053D	N	N	150	N	20	N	70	N
WF1054D	N	100	150	N	20	N	70	N
WF1055D	N	N	100	N	30	N	70	N
WF1056D	N	N	150	N	30	700	70	N
WF1057D	N	100	100	N	30	N	70	N
WF1058D	N	N	100	N	50	N	100	N
WF1059D	N	N	70	N	20	N	70	N
WF1060D	N	N	150	N	30	N	70	N
WF1061D	N	N	150	N	20	N	70	N
WF1062D	N	N	150	N	20	N	70	N
WF1063D	N	N	150	N	N	N	30	N
WF1064D	N	N	100	N	10	N	30	N
WF1065D	N	N	150	N	10	N	70	N
WF1066D	N	100	150	N	10	N	50	N
WF1067D	N	N	150	N	70	N	150	N
WF1068D	N	150	150	N	20	N	70	N
WF1069D	N	100	100	N	20	N	70	N
WF1072D	N	N	70	N	N	N	100	N
3 WF1073D	N	N	70	N	10	N	100	N
WF1074D	N	N	70	N	20	N	100	N
WF1075D	N	100	150	N	10	300	70	N
WF1076D	N	150	100	N	20	N	70	N
WF1077D	N	150	70	N	10	N	70	N
WF1078D	N	150	100	N	30	N	150	N
WF1079D	N	N	100	N	30	N	150	N
WF1080D	N	N	70	N	30	N	100	N
WF1081D	N	N	70	N	50	N	100	N
WF1094D	N	N	30	N	50	N	100	N
WF1095D	N	N	50	N	50	N	150	N
WF1096D	N	100	150	N	20	N	150	N
WF1097D	N	N	100	N	30	N	150	N
WF1098D	N	N	70	N	30	N	150	N
WF1099D	N	N	150	N	30	N	200	N
WF1100D	N	N	70	N	10	N	100	N
WF1101D	N	N	70	N	N	N	100	N

TABLE 5.--Spectrographic analysis of ridgeline soil samples from Keyser Basin--continued

Sample	Latitude	Longitude	Fe-pct. s	Mg-pct. s	Ca-pct. s	Ti-pct. s	Mn-ppm s	Ag-ppm s	As-ppm s	Au-ppm s	B-ppm s	Ba-ppm s
WF1052D	39 52 42	105 56 22	7	3.0	1.50	.20	1,500	N	N	N	50	500
WF1053D	39 52 31	105 56 25	7	3.0	1.50	.20	1,000	N	N	N	50	300
WF1054D	39 52 24	105 56 32	10	3.0	3.00	.20	1,500	N	N	N	20	300
WF1055D	39 52 17	105 56 38	5	2.0	3.00	.20	700	N	N	N	30	300
WF1056D	39 52 8	105 56 42	7	3.0	3.00	.20	1,500	N	N	N	10	300
WF1057D	39 51 57	105 56 48	7	3.0	2.00	.20	1,500	N	N	N	10	500
WF1058D	39 51 46	105 56 55	7	3.0	1.50	.20	1,500	N	N	N	10	300
WF1059D	39 51 39	105 56 59	3	1.5	.70	.15	700	N	N	N	20	300
WF1060D	39 51 30	105 57 9	5	3.0	1.50	.20	1,000	N	N	N	20	300
WF1061D	39 51 26	105 57 19	7	3.0	1.50	.20	700	N	N	N	20	300
WF1062D	39 51 22	105 57 35	7	3.0	2.00	.20	700	N	N	N	20	300
WF1063D	39 51 24	105 57 51	7	3.0	3.00	.15	700	N	N	N	15	300
WF1064D	39 51 36	105 58 0	3	3.0	1.50	.15	1,000	N	N	N	N	300
WF1065D	39 51 49	105 58 0	7	3.0	3.00	.15	1,000	N	N	N	15	300
WF1066D	39 51 57	105 57 59	5	3.0	3.00	.15	700	N	N	N	20	300
WF1067D	39 52 6	105 57 58	7	3.0	.70	.20	700	N	N	N	20	700
WF1068D	39 52 15	105 57 59	7	3.0	2.00	.15	1,000	N	N	N	20	300
WF1069D	39 52 22	105 58 1	7	3.0	3.00	.15	700	N	N	N	20	300
WF1072D	39 52 54	105 56 24	5	.7	.70	.15	700	N	N	N	30	300
WF1073D	39 53 4	105 56 27	3	.7	.70	.15	1,500	N	N	N	30	500
WF1074D	39 53 17	105 56 31	5	1.5	1.00	.20	500	N	N	N	50	500
WF1075D	39 53 29	105 56 29	7	5.0	1.50	.30	1,500	N	N	N	50	300
WF1076D	39 53 45	105 56 23	7	3.0	3.00	.20	1,000	N	N	N	30	300
WF1077D	39 53 53	105 56 23	3	.7	.30	.15	700	N	N	N	20	150
WF1078D	39 54 8	105 56 9	5	3.0	1.00	.20	1,500	N	N	N	70	500
WF1079D	39 54 11	105 56 26	7	2.0	.70	.30	1,000	N	N	N	70	500
WF1080D	39 54 15	105 56 39	5	2.0	.50	.20	1,500	N	N	N	70	500
WF1081D	39 54 22	105 56 51	7	3.0	3.00	.15	1,000	N	N	N	50	300
WF1094D	39 52 57	105 57 41	3	2.0	.15	.15	700	N	N	N	N	700
WF1095D	39 52 46	105 57 43	5	2.0	.30	.15	700	N	N	N	30	500
WF1096D	39 52 34	105 57 50	7	3.0	1.50	.20	1,000	N	N	N	70	500
WF1097D	39 52 24	105 58 15	5	1.5	.50	.20	1,000	N	N	N	30	500
WF1098D	39 52 31	105 58 30	5	2.0	1.50	.15	1,000	N	N	N	10	700
WF1099D	39 52 44	105 58 31	7	2.0	2.00	.20	1,000	N	N	N	30	700
WF1100D	39 52 54	105 58 32	3	1.0	2.00	.15	2,000	N	N	N	20	700
WF1101D	39 53 8	105 58 33	3	.7	1.50	.15	700	N	N	N	15	300

TABLE 5.--Spectrographic analysis of ridgeline soil samples from Keyser Basin--continued

Sample	Be-ppm s	Bi-ppm s	Cd-ppm s	Co-ppm s	Cr-ppm s	Cu-ppm s	La-ppm s	Mo-ppm s	Nb-ppm s	Ni-ppm s	Pb-ppm s	Sb-ppm s	Sc-ppm s
WF1052D	N	N	N	15	70	20	20	N	N	20	20	N	15
WF1053D	N	N	N	20	100	20	20	N	N	30	15	N	15
WF1054D	N	N	N	30	150	50	N	N	N	30	15	N	20
WF1055D	N	N	N	15	20	10	20	N	N	15	10	N	10
WF1056D	N	N	N	20	70	20	N	N	N	30	30	N	15
WF1057D	N	N	N	20	150	30	20	N	N	30	20	N	20
WF1058D	N	N	N	15	150	15	70	N	N	30	30	N	15
WF1059D	N	N	N	5	50	7	50	N	N	10	15	N	7
WF1060D	N	N	N	15	70	20	20	N	N	20	15	N	15
WF1061D	N	N	N	20	100	20	20	N	N	30	20	N	15
WF1062D	N	N	N	20	100	30	50	N	N	30	30	N	15
WF1063D	N	N	N	20	50	30	N	N	N	20	10	N	20
WF1064D	N	N	N	20	30	100	N	N	N	20	15	N	15
WF1065D	N	N	N	15	50	30	N	N	N	20	15	N	20
WF1066D	N	N	N	20	100	50	N	N	N	20	20	N	15
WF1067D	N	N	N	15	70	150	70	N	<20	15	30	N	20
WF1068D	N	N	N	15	70	20	20	N	N	20	30	N	15
WF1069D	N	N	N	15	700	15	30	N	N	70	20	N	15
WF1072D	N	N	N	7	30	7	N	N	N	7	20	N	10
WF1073D	N	N	N	7	30	7	N	N	N	7	30	N	10
WF1074D	N	N	N	7	30	10	20	N	N	7	30	N	15
WF1075D	N	N	N	20	70	150	N	N	N	15	20	N	20
WF1076D	N	N	N	20	50	20	N	N	N	30	30	N	20
WF1077D	N	N	N	10	15	5	N	N	N	30	15	N	7
WF1078D	N	N	N	15	70	15	N	N	<20	20	30	N	10
WF1079D	N	N	N	15	70	10	20	N	N	20	20	N	15
WF1080D	N	N	N	10	70	15	N	N	N	20	30	N	15
WF1081D	N	N	N	10	100	20	50	N	N	30	30	N	15
WF1094D	N	N	N	5	10	7	50	N	N	5	50	N	20
WF1095D	N	N	N	7	30	10	150	N	N	10	30	N	20
WF1096D	N	N	N	10	150	20	N	N	<20	30	20	N	20
WF1097D	N	N	N	10	70	7	50	N	N	15	30	N	15
WF1098D	N	N	N	5	30	7	150	N	<20	5	30	N	20
WF1099D	N	N	N	15	70	30	150	N	N	20	70	N	20
WF1100D	N	N	N	N	20	5	20	N	N	<5	50	N	5
WF1101D	N	N	N	N	15	5	N	N	N	<5	30	N	5

TABLE 6.--Spectrographic analysis of ridgeline soil samples from southern portion of study area

Sample	Latitude	Longitude	Fe-pct. s	Mg-pct. s	Ca-pct. s	Ti-pct. s	Mn-ppm s	Ag-ppm s	As-ppm s	Au-ppm s	B-ppm s	Ba-ppm s
WF1001D	39 40 49	105 55 25	5	1.0	.70	.50	500	2.0	N	N	10	300
WF1002D	39 41 1	105 55 18	5	.7	.20	.30	300	N	N	N	N	500
WF1003D	39 41 14	105 55 11	5	1.0	.70	.50	200	N	N	N	N	500
WF1004D	39 41 29	105 55 10	5	.7	.70	.30	500	N	N	N	N	300
WF1005D	39 41 43	105 55 14	7	1.5	.70	.50	200	N	N	N	N	300
WF1006D	39 41 57	105 55 27	5	.7	.50	.20	200	N	N	N	N	300
WF1007D	39 42 13	105 55 26	5	1.5	1.00	.30	300	N	N	N	10	700
WF1008D	39 42 29	105 55 17	7	1.0	1.50	.30	300	N	N	N	10	300
WF1009D	39 42 40	105 55 9	5	.7	.50	.20	300	N	N	N	N	200
WF1010D	39 42 48	105 54 58	7	1.5	1.50	.50	500	N	N	N	15	200
WF1011D	39 41 53	105 55 44	5	.5	.30	.20	300	N	N	N	N	300
WF1012D	39 41 39	105 56 3	5	.7	.30	.30	300	N	N	N	10	500
WF1013D	39 41 29	105 56 21	5	1.5	.50	.30	300	N	N	N	10	700
WF1014D	39 41 20	105 56 42	7	2.0	2.00	.30	700	N	N	N	10	500
WF1015D	39 41 31	105 56 53	5	.7	.30	.30	300	N	N	N	N	1,000
WF1016D	39 41 44	105 57 2	7	2.0	1.50	.30	700	N	N	N	10	300
WF1017D	39 41 57	105 56 53	5	.7	1.00	.30	700	N	N	N	20	500
WF1018D	39 41 55	105 57 8	5	1.0	.20	.20	500	N	N	N	15	300
WF1019D	39 41 6	105 56 34	7	3.0	2.00	.50	700	N	N	N	20	500
WF1020D	39 40 57	105 56 31	5	1.5	.70	.30	700	N	N	N	30	300
WF1021D	39 40 50	105 57 52	5	.7	.30	.30	300	N	N	N	15	1,500
WF1022D	39 40 59	105 58 5	5	1.0	1.50	.20	700	N	N	N	30	300
WF1023D	39 41 14	105 57 57	7	1.5	1.00	.30	700	N	N	N	20	500
WF1024D	39 41 27	105 57 46	7	3.0	5.00	.30	700	N	N	N	30	300
WF1025D	39 41 34	105 57 27	7	1.5	.30	.30	500	1.5	N	N	20	1,000
WF1026D	39 41 49	105 57 45	10	3.0	3.00	.30	1,000	N	N	N	30	300
WF1027D	39 41 27	105 58 10	3	.3	.15	.15	300	N	N	N	N	300
WF1028D	39 41 45	105 58 19	7	3.0	.70	.30	1,500	N	N	N	30	500
WF1029D	39 41 26	105 58 34	7	1.5	.70	.30	700	N	N	N	N	500
WF1030D	39 41 35	105 58 54	7	.7	.30	.20	500	N	N	N	20	300
WF1031D	39 41 24	105 58 48	7	1.0	1.00	.20	700	N	N	N	20	500
WF1032D	39 41 16	105 59 3	7	.7	.30	.30	700	N	N	N	15	700
WF1033D	39 41 30	105 58 21	7	.7	.70	.30	1,000	N	N	N	30	500
WF1034D	39 41 15	105 59 23	7	1.0	.20	.30	700	N	N	N	30	700
WF1035D	39 40 58	105 59 46	5	1.0	.70	.20	1,500	N	N	N	70	700
WF1036D	39 40 47	105 59 34	7	1.5	.30	.20	700	N	N	N	30	500
WF1037D	39 40 35	105 59 14	7	1.5	.70	.20	1,000	N	N	N	30	700
WF1038D	39 40 30	105 58 59	3	.5	.70	.15	1,500	N	N	N	50	500
WF1039D	39 44 6	105 53 6	7	2.0	.70	.20	700	N	N	N	10	700
WF1040D	39 44 17	105 52 57	7	1.0	.70	.20	500	N	N	N	10	700
WF1041D	39 44 28	105 52 54	7	1.5	1.00	.30	700	N	N	N	10	700
WF1042D	39 44 41	105 52 56	7	1.0	.30	.30	700	N	N	N	10	700
WF1043D	39 44 52	105 52 57	5	1.0	.15	.30	500	N	N	N	10	700
WF1044D	39 45 6	105 53 3	5	.7	.10	.20	500	N	N	N	10	500
WF1045D	39 45 20	105 52 54	5	1.5	.30	.20	1,000	N	N	N	10	500

TABLE 6.--Spectrographic analysis of ridgeline soil samples from southern portion of study area--continued

Sample	Be-ppm s	Bi-ppm s	Cd-ppm s	Co-ppm s	Cr-ppm s	Cu-ppm s	La-ppm s	Mo-ppm s	Nb-ppm s	Ni-ppm s	Pb-ppm s	Sb-ppm s	Sc-ppm s
WF1001D	N	N	N	15	30	50	300	N	<20	20	50	N	15
WF1002D	N	N	N	15	30	15	150	N	N	15	50	N	10
WF1003D	N	N	N	15	30	30	300	N	N	20	30	N	15
WF1004D	N	N	N	10	30	20	150	N	N	15	30	N	10
WF1005D	N	N	N	15	30	15	200	N	<20	15	50	N	15
WF1006D	N	N	N	5	20	20	100	N	<20	5	50	N	7
WF1007D	N	N	N	10	30	30	70	<5	N	15	50	N	10
WF1008D	N	N	N	15	30	15	100	N	N	10	30	N	15
WF1009D	N	N	N	7	20	7	150	N	N	10	30	N	7
WF1010D	N	N	N	15	30	30	300	N	30	15	50	N	15
WF1011D	N	N	N	5	20	7	150	N	N	7	30	N	7
WF1012D	N	N	N	7	20	10	200	N	<20	10	50	N	10
WF1013D	N	N	N	10	50	10	200	N	N	15	50	N	15
WF1014D	N	N	N	15	70	15	50	N	N	20	20	N	20
WF1015D	N	N	N	10	30	20	200	N	N	15	50	N	7
WF1016D	N	N	N	15	70	30	50	N	N	30	30	N	15
WF1017D	N	N	N	10	30	15	150	N	<20	10	50	N	10
WF1018D	N	N	N	10	30	15	20	N	N	15	20	N	10
WF1019D	N	N	N	30	300	30	50	<5	N	70	30	N	15
WF1020D	N	N	N	10	50	20	150	<5	N	15	70	N	10
WF1021D	N	N	N	5	15	7	70	N	N	5	30	N	7
WF1022D	N	N	N	10	30	10	20	N	N	15	50	N	15
WF1023D	N	N	N	10	50	10	50	N	<20	20	50	N	15
WF1024D	N	N	N	15	150	30	20	N	N	30	30	N	20
WF1025D	N	N	N	7	70	15	20	15	N	15	30	N	15
WF1026D	N	N	N	20	200	20	N	N	N	70	30	N	20
WF1027D	N	N	N	N	30	<5	20	N	N	7	15	N	7
WF1028D	N	N	N	15	150	30	N	N	N	30	30	N	15
WF1029D	N	N	N	10	50	15	50	N	N	15	30	N	15
WF1030D	N	N	N	7	30	7	30	N	N	15	30	N	7
WF1031D	N	N	N	7	30	7	30	N	20	15	30	N	10
WF1032D	N	N	N	10	50	10	30	N	N	15	30	N	10
WF1033D	N	N	N	15	150	700	20	7	N	30	300	N	15
WF1034D	N	N	N	10	70	15	50	N	N	20	30	N	10
WF1035D	N	N	N	7	30	15	20	N	N	15	70	N	7
WF1036D	N	N	N	10	30	15	30	<5	20	20	70	N	10
WF1037D	N	N	N	10	70	10	50	N	N	15	50	N	10
WF1038D	N	N	N	5	30	10	20	N	N	10	70	N	7
WF1039D	N	N	N	10	150	20	150	10	<20	30	30	N	15
WF1040D	N	N	N	10	70	10	200	N	N	15	30	N	7
WF1041D	N	N	N	15	70	15	200	N	30	15	50	N	10
WF1042D	N	N	N	15	30	20	200	N	20	15	50	N	7
WF1043D	N	N	N	7	20	10	150	N	N	15	70	N	7
WF1044D	N	N	N	5	20	10	150	N	N	5	50	N	5
WF1045D	N	N	N	7	15	10	200	20	<20	5	150	N	7

TABLE 6.--Spectrographic analysis of ridgeline soil samples from southern portion of study area--continued

Sample	Sn-ppm s	Sr-ppm s	V-ppm s	W-ppm s	Y-ppm s	Zn-ppm s	Zr-ppm s	Th-ppm s
WF1001D	N	200	100	N	70	N	300	300
WF1002D	N	200	100	N	20	N	150	<100
WF1003D	15	200	100	N	70	N	150	<100
WF1004D	N	N	100	N	15	N	150	N
WF1005D	N	200	70	N	30	N	200	200
WF1006D	N	100	70	N	20	N	150	N
WF1007D	N	500	100	N	10	N	100	N
WF1008D	N	200	100	N	20	N	100	N
WF1009D	N	N	70	N	30	N	150	N
WF1010D	N	200	150	N	50	N	700	300
WF1011D	N	N	70	N	15	N	200	N
WF1012D	N	150	70	N	20	N	100	<100
WF1013D	N	300	70	N	20	N	200	<100
WF1014D	N	200	150	N	30	N	150	N
WF1015D	N	200	70	N	15	N	150	<100
WF1016D	N	150	150	N	30	N	100	N
WF1017D	N	200	100	N	30	N	150	<100
WF1018D	N	N	100	N	15	N	100	N
WF1019D	N	200	200	N	30	N	150	N
WF1020D	N	N	150	N	20	N	150	N
WF1021D	N	150	70	N	30	N	200	N
WF1022D	N	N	100	N	15	N	100	N
WF1023D	N	300	70	N	50	N	150	N
WF1024D	N	300	150	N	20	N	100	N
WF1025D	N	100	100	N	20	N	100	N
WF1026D	N	100	150	N	20	N	70	N
WF1027D	N	N	70	N	10	N	50	N
WF1028D	N	150	150	N	20	N	100	N
WF1029D	N	300	100	N	30	N	100	N
WF1030D	N	N	70	N	30	N	100	N
WF1031D	N	150	70	N	30	N	100	N
WF1032D	N	N	70	N	30	N	100	N
WF1033D	10	N	150	N	30	N	70	N
WF1034D	N	100	70	N	20	N	70	N
WF1035D	N	N	70	N	20	N	70	N
WF1036D	N	150	70	N	30	N	70	N
WF1037D	N	150	70	N	20	N	70	N
WF1038D	N	N	70	N	15	N	70	N
WF1039D	<10	150	100	N	30	N	100	N
WF1040D	<10	100	70	N	15	N	150	N
WF1041D	10	300	100	N	30	N	200	150
WF1042D	<10	100	70	N	20	N	200	100
WF1043D	<10	100	70	N	20	N	100	N
WF1044D	<10	N	70	N	20	N	100	N
WF1045D	<10	N	70	N	30	N	100	100

TABLE 6.--Spectrographic analysis of ridgeline soil samples from southern portion of study area--continued

Sample	Latitude	Longitude	Fe-pct. s	Mg-pct. s	Ca-pct. s	Ti-pct. s	Mn-ppm s	Ag-ppm s	As-ppm s	Au-ppm s	B-ppm s	Ba-ppm s
WF1046D	39 45 29	105 52 48	5	1.0	.50	.20	700	N	N	N	30	500
WF1047D	39 45 49	105 52 55	7	.7	.15	.20	300	N	N	N	10	300
WF1048D	39 45 58	105 53 9	5	.7	.15	.15	300	N	N	N	10	700
WF1049D	39 46 9	105 53 12	5	1.0	.50	.15	700	N	N	N	10	500
WF1050D	39 46 22	105 53 17	5	.7	.15	.15	300	N	N	N	10	300
WF1051D	39 46 32	105 53 20	5	.7	.15	.15	500	N	N	N	10	300
WF1102D	39 42 55	105 54 39	7	3.0	2.00	.20	1,500	N	N	N	20	500
WF1103D	39 42 50	105 54 27	7	1.5	.70	.30	700	N	N	N	N	500
WF1104D	39 46 53	105 53 30	5	.7	.10	.20	700	N	N	N	20	500
WF1105D	39 43 55	105 55 59	5	1.5	1.00	.50	1,000	N	N	N	20	1,000
WF1106D	39 44 8	105 55 51	7	1.5	1.00	.30	1,500	N	N	N	N	700
WF1107D	39 44 20	105 55 48	5	2.0	.70	.50	700	N	N	N	10	1,000
WF1108D	39 44 36	105 55 40	5	1.0	.50	.20	700	N	N	N	N	1,000
WF1109D	39 44 45	105 55 30	7	1.5	.30	.50	1,500	N	N	N	20	1,000
WF1110D	39 44 59	105 55 23	5	.7	.30	.15	1,000	N	N	N	N	500
WF1111D	39 45 8	105 55 10	3	1.5	.70	.20	700	N	N	N	N	700
WF1112D	39 45 24	105 54 55	5	.5	.10	.10	150	N	N	N	N	500
WF1113D	39 42 49	105 55 29	3	1.0	.30	.15	500	N	N	N	N	500
WF1114D	39 43 2	105 55 35	15	2.0	.30	.30	1,000	N	N	N	30	1,000
WF1115D	39 43 13	105 55 38	3	.5	.07	.15	150	N	N	N	N	300
WF1116D	39 43 26	105 55 43	5	1.5	.30	.30	200	N	N	N	10	1,000
WF1117D	39 43 35	105 55 51	3	1.0	.15	.15	300	N	N	N	N	700
WF1118D	39 43 45	105 56 4	5	.7	.15	.30	300	N	N	N	N	700
WF1119D	39 43 35	105 56 19	3	.5	.20	.15	300	N	N	N	N	300
WF1120D	39 43 20	105 56 21	2	.7	.15	.30	300	N	N	N	10	700
WF1121D	39 43 34	105 56 38	5	1.5	.30	.30	700	N	N	N	10	700
WF1122D	39 43 29	105 56 48	7	1.0	.15	.15	700	N	N	N	N	500
WF1123D	39 43 24	105 57 6	3	1.0	.10	.30	700	N	N	N	N	1,000
WF1124D	39 43 10	105 57 19	5	1.0	.30	.30	1,500	N	N	N	20	1,000
WF1125D	39 43 6	105 57 39	5	2.0	.20	.50	700	N	N	N	N	1,500
WF1126D	39 42 59	105 57 55	5	1.5	.50	.30	1,000	N	N	N	30	1,000
WF1127D	39 43 4	105 58 14	5	1.5	.20	.50	700	N	N	N	10	1,000
WF1128D	39 43 2	105 58 35	5	1.5	.70	.70	700	N	N	N	10	700
WF1129D	39 43 15	105 54 37	5	1.0	.50	.30	500	N	N	N	N	500
WF1130D	39 43 27	105 54 29	5	.5	.15	.20	150	N	N	N	N	300
WF1131D	39 43 40	105 54 27	3	.7	.70	.30	700	N	N	N	10	500
WF1132D	39 43 48	105 54 16	5	1.5	.50	.50	700	N	N	N	20	700
WF1133D	39 43 49	105 53 53	7	1.5	.30	.50	1,000	N	N	N	20	700
WF1134D	39 43 53	105 53 37	2	.7	.30	.30	300	N	N	N	N	700
WF1135D	39 43 59	105 53 18	3	.7	.50	.30	300	N	N	N	N	700

TABLE 6.--Spectrographic analysis of ridgeline soil samples from southern portion of study area--continued

Sample	Be-ppm s	Bi-ppm s	Cd-ppm s	Co-ppm s	Cr-ppm s	Cu-ppm s	La-ppm s	Mo-ppm s	Nb-ppm s	Ni-ppm s	Pb-ppm s	Sb-ppm s	Sc-ppm s
WF1046D	N	N	N	7	30	7	150	N	<20	10	50	N	7
WF1047D	N	N	N	15	30	30	200	N	<20	15	100	N	7
WF1048D	N	N	N	5	50	15	200	N	<20	7	70	N	7
WF1049D	N	N	N	5	30	15	200	N	<20	10	70	N	7
WF1050D	N	N	N	5	30	10	150	N	<20	10	30	N	7
WF1051D	N	N	N	5	30	10	200	N	20	7	50	N	7
WF1102D	N	N	N	20	70	70	20	N	N	20	50	N	15
WF1103D	N	N	N	15	50	15	150	5	<20	20	100	N	10
WF1104D	N	N	N	15	20	15	150	<5	<20	7	70	N	7
WF1105D	N	N	N	10	30	30	200	N	30	10	100	N	10
WF1106D	N	N	N	15	30	10	150	N	N	15	15	N	10
WF1107D	N	N	N	15	50	15	200	N	20	15	50	N	10
WF1108D	N	N	N	10	30	7	200	N	N	15	30	N	7
WF1109D	N	N	N	15	50	7	200	N	20	20	70	N	7
WF1110D	N	N	N	5	15	10	70	N	N	10	30	N	5
WF1111D	N	N	N	5	20	15	150	N	N	10	50	N	7
WF1112D	N	N	N	N	10	7	100	N	N	7	20	N	5
WF1113D	N	N	N	7	15	7	100	<5	N	10	100	N	7
WF1114D	N	N	N	20	20	30	150	N	N	15	30	N	20
WF1115D	N	N	N	N	10	<5	100	N	N	<5	30	N	5
WF1116D	N	N	N	10	15	20	200	N	<20	10	70	N	5
WF1117D	N	N	N	5	15	7	100	N	N	7	50	N	5
WF1118D	N	N	N	5	20	15	150	N	20	15	30	N	10
WF1119D	N	N	N	N	10	<5	50	N	N	<5	<10	N	N
WF1120D	N	N	N	5	30	5	150	<5	20	10	70	N	5
WF1121D	N	N	N	10	30	7	100	N	20	15	30	N	7
WF1122D	N	N	N	15	70	5	50	N	N	20	10	N	10
WF1123D	N	N	N	10	30	10	100	N	20	15	30	N	7
WF1124D	N	N	N	15	50	10	150	<5	20	20	50	N	7
WF1125D	N	N	N	15	150	7	70	N	20	30	30	N	15
WF1126D	N	N	N	15	70	7	150	N	<20	30	20	N	15
WF1127D	N	N	N	15	70	15	100	N	<20	30	30	N	15
WF1128D	N	N	N	15	70	10	50	N	<20	50	30	N	15
WF1129D	N	N	N	10	30	20	200	N	<20	10	100	N	7
WF1130D	N	N	N	5	10	10	150	N	N	<5	30	N	5
WF1131D	N	N	N	7	30	10	150	N	20	7	70	N	7
WF1132D	N	N	N	10	30	30	300	N	<20	15	50	N	7
WF1133D	N	N	N	15	30	50	300	N	20	15	70	N	7
WF1134D	N	N	N	<5	15	10	150	N	<20	<5	50	N	5
WF1135D	N	N	N	7	20	15	150	N	20	10	70	N	7

TABLE 6.--Spectrographic analysis of ridgeline soil samples from southern portion of study area--continued

Sample	Sn-ppm s	Sr-ppm s	V-ppm s	W-ppm s	Y-ppm s	Zn-ppm s	Zr-ppm s	Th-ppm s
WF1046D	N	N	70	N	30	N	100	N
WF1047D	N	N	70	N	30	500	150	N
WF1048D	N	N	70	N	20	N	150	N
WF1049D	N	100	70	N	30	N	100	N
WF1050D	N	N	70	N	20	N	100	N
WF1051D	N	N	70	N	30	N	100	N
WF1102D	N	150	150	N	10	N	100	N
WF1103D	N	150	100	N	20	N	200	<100
WF1104D	N	N	70	N	30	N	200	<100
WF1105D	10	100	150	N	30	N	150	100
WF1106D	N	N	150	N	50	N	100	N
WF1107D	10	200	100	N	30	N	150	100
WF1108D	N	N	100	N	20	N	100	<100
WF1109D	<10	100	100	N	30	N	150	100
WF1110D	N	N	50	N	10	N	100	N
WF1111D	10	100	70	N	20	N	150	100
WF1112D	N	N	50	N	10	N	150	N
WF1113D	10	100	50	N	15	N	100	N
WF1114D	<10	N	150	N	30	N	100	N
WF1115D	N	N	50	N	10	N	100	N
WF1116D	10	200	100	N	30	N	150	100
WF1117D	<10	100	70	N	20	N	100	<100
WF1118D	<10	N	100	N	20	N	150	<100
WF1119D	N	N	50	N	N	N	100	N
WF1120D	N	200	70	N	30	N	150	<100
WF1121D	N	100	100	N	15	N	150	N
WF1122D	N	N	100	N	10	N	70	N
WF1123D	10	100	100	N	20	N	150	<100
WF1124D	N	150	70	N	30	N	150	N
WF1125D	N	100	100	N	30	N	150	N
WF1126D	N	150	100	N	30	N	150	N
WF1127D	N	N	100	N	30	N	150	N
WF1128D	N	200	150	N	50	N	200	N
WF1129D	N	150	100	N	20	N	200	100
WF1130D	N	N	70	N	20	N	150	<100
WF1131D	<10	100	100	N	20	N	150	N
WF1132D	<10	200	100	N	30	N	200	150
WF1133D	10	100	150	N	30	N	300	100
WF1134D	<10	N	70	N	15	N	150	<100
WF1135D	<10	150	70	N	20	N	150	<100

TABLE 7.--Spectrographic analysis of ridge-flank heavy-mineral concentrates from southern portion of study area

Sample	Latitude	Longitude	Fe-pct. s	Mg-pct. s	Ca-pct. s	Ti-pct. s	Mn-ppm s	Ag-ppm s	As-ppm s	Au-ppm s	B-ppm s	Ba-ppm s
WF1161H	39 41 46	105 55 52	.7	.10	15	2.0	1,500	N	N	N	N	100
WF1162H	39 41 51	105 55 40	2.0	.10	5	1.5	500	N	N	N	N	1,500
WF1163H	39 41 48	105 55 33	.3	.03	15	.7	700	N	N	N	N	300
WF1164H	39 41 44	105 55 28	.2	.02	7	.2	300	N	N	N	N	1,000
WF1165H	39 41 35	105 55 26	10.0	.30	10	.7	700	N	N	N	N	200
WF1166H	39 41 29	105 55 25	.3	.03	15	1.0	700	N	N	N	N	150
WF1167H	39 41 18	105 55 35	.3	.05	20	.7	700	N	N	N	N	<20
WF1168H	39 41 5	105 55 44	.3	.05	15	.3	700	N	N	N	N	<20
WF1169H	39 40 55	105 55 52	.5	.02	15	1.0	700	N	N	N	N	100
WF1170H	39 40 36	105 56 6	1.5	.20	15	.3	700	N	N	N	N	150
WF1171H	39 40 45	105 56 1	.7	.02	15	1.0	700	N	N	N	N	200
WF1172H	39 43 40	105 55 40	.7	.05	7	1.5	700	N	N	N	N	700
WF1173H	39 43 43	105 55 42	.5	.03	15	1.0	1,000	N	N	N	N	300
WF1174H	39 43 55	105 55 29	.3	.02	10	1.0	700	N	N	N	N	100
WF1175H	39 43 59	105 55 22	.3	.02	15	.7	700	N	N	N	N	200
WF1176H	39 42 10	105 55 0	.5	.03	15	1.0	700	N	N	N	N	300
WF1177H	39 42 0	105 54 57	.3	.02	15	.7	700	N	N	N	N	<20
WF1178H	39 41 56	105 54 43	.3	.05	20	.3	700	N	N	N	N	100
WF1179H	39 41 39	105 54 46	.3	.03	20	1.5	700	N	N	N	N	<20
WF1180H	39 41 30	105 54 44	.5	.07	15	2.0	700	N	N	N	N	300
WF1181H	39 41 22	105 54 49	.7	.10	20	1.5	700	N	N	N	N	200
WF1182H	39 41 4	105 54 45	.7	.03	15	1.5	700	N	N	N	N	300
WF1183H	39 41 2	105 54 50	.5	.02	15	.3	1,000	N	N	N	N	300
WF1184H	39 40 50	105 54 59	1.5	.05	5	2.0	700	N	N	N	N	1,500
WF1185H	39 40 43	105 55 2	.7	.05	15	>2.0	1,500	N	N	N	N	150
WF1186H	39 44 6	105 55 20	.7	.05	15	2.0	700	N	N	N	N	150
WF1187H	39 44 14	105 55 16	.5	.03	15	2.0	700	N	N	N	N	200
WF1188H	39 44 23	105 55 12	.7	.05	15	1.0	1,000	N	N	N	N	300
WF1189H	39 44 34	105 54 56	2.0	.07	10	1.5	700	N	N	N	N	500
WF1190H	39 43 42	105 56 29	.7	.05	15	1.0	700	N	N	N	N	300
WF1191H	39 43 49	105 56 20	.7	.05	15	1.0	500	N	N	N	N	500
WF1192H	39 43 55	105 56 11	.5	.02	15	1.5	2,000	N	N	N	N	100
WF1193H	39 44 6	105 56 7	.5	.07	15	1.5	700	N	N	N	N	100
WF1194H	39 44 12	105 56 5	.7	.07	15	.5	700	N	N	N	N	150
WF1195H	39 44 24	105 56 5	1.0	.10	10	.5	500	N	N	N	N	1,000
WF1196H	39 44 37	105 56 0	1.5	.10	7	.3	500	N	N	N	N	1,000
WF1197H	39 44 39	105 55 57	1.5	.10	15	.7	700	N	N	N	N	700
WF1198H	39 44 46	105 55 53	1.0	.07	15	1.5	700	N	N	N	N	300

TABLE 7.--Spectrographic analysis of ridge-flank heavy-mineral concentrates from southern portion of study area--continue

Sample	Be-ppm s	Bi-ppm s	Cd-ppm s	Co-ppm s	Cr-ppm s	Cu-ppm s	La-ppm s	Mo-ppm s	Nb-ppm s	Ni-ppm s	Pb-ppm s	Sb-ppm s	Sc-ppm s
WF1161H	N	N	N	N	50	20	500	N	50	N	150	N	N
WF1162H	N	N	N	N	70	10	>2,000	N	50	N	500	N	N
WF1163H	N	N	N	N	<10	<5	700	N	<20	N	100	N	N
WF1164H	N	N	N	N	N	<5	500	N	N	N	150	N	N
WF1165H	N	N	N	N	150	10	1,000	N	<20	N	150	N	N
WF1166H	N	N	N	N	50	<5	500	N	<20	N	100	N	N
WF1167H	N	N	N	N	<10	<5	300	N	N	N	100	N	N
WF1168H	N	N	N	N	<10	<5	200	N	N	N	100	N	N
WF1169H	N	N	N	N	70	<5	300	N	<20	N	<10	N	N
WF1170H	N	N	N	N	150	<5	700	N	N	N	150	N	N
WF1171H	N	N	N	10	50	<5	500	N	<20	N	50	N	N
WF1172H	N	N	N	N	50	<5	1,000	N	50	N	150	N	N
WF1173H	N	N	N	N	<10	<5	500	N	<20	N	100	N	N
WF1174H	N	N	N	N	<10	<5	300	N	<20	N	100	N	N
WF1175H	N	N	N	N	<10	<5	500	N	N	N	150	N	N
WF1176H	N	N	N	N	<10	<5	1,000	N	<20	N	150	N	N
WF1177H	N	N	N	N	<10	<5	1,000	N	<20	N	100	N	N
WF1178H	N	N	N	N	N	<5	500	N	N	N	150	N	N
WF1179H	N	N	N	N	50	<5	300	N	<20	N	<10	N	N
WF1180H	N	N	N	N	50	<5	500	N	<20	N	100	N	N
WF1181H	N	N	N	N	50	<5	300	N	<20	N	100	N	N
WF1182H	N	N	N	N	70	<5	700	N	<20	N	150	N	N
WF1183H	N	N	N	N	100	<5	300	30	<20	N	70	N	N
WF1184H	N	N	N	N	50	15	700	N	100	N	150	N	N
WF1185H	N	N	N	N	70	<5	700	N	<20	N	100	N	N
WF1186H	N	N	N	N	50	<5	500	30	N	N	100	N	N
WF1187H	N	N	N	N	50	N	300	N	<20	N	70	N	N
WF1188H	N	N	N	N	100	<5	700	N	<20	N	70	N	N
WF1189H	N	N	N	N	70	10	1,000	N	N	N	150	N	N
WF1190H	N	N	N	N	50	<5	200	N	N	N	50	N	N
WF1191H	N	N	N	N	50	10	700	N	100	N	100	N	N
WF1192H	N	N	N	N	N	N	700	N	100	N	150	N	N
WF1193H	N	N	N	N	N	<5	300	N	N	N	70	N	N
WF1194H	N	N	N	N	<10	<5	300	N	<20	N	70	N	N
WF1195H	N	N	N	N	<10	10	300	N	N	N	100	N	N
WF1196H	N	N	N	N	70	10	500	N	<20	N	100	N	N
WF1197H	N	N	N	N	70	15	1,000	N	<20	N	150	N	N
WF1198H	N	N	N	N	50	10	700	N	100	N	100	N	N

TABLE 7.--Spectrographic analysis of ridge-flank heavy-mineral concentrates from southern portion of study area--continu

Sample	Sn-ppm s	Sr-ppm s	V-ppm s	W-ppm s	Y-ppm s	Zn-ppm s	Zr-ppm s	Th-ppm s
WF1161H	N	N	50	N	700	N	>2,000	N
WF1162H	N	N	50	N	500	N	>2,000	2,000
WF1163H	N	N	20	N	1,000	N	>2,000	N
WF1164H	N	N	N	N	300	N	700	N
WF1165H	N	N	100	N	700	N	>2,000	200
WF1166H	N	N	30	N	1,000	N	>2,000	N
WF1167H	N	1,000	20	N	1,500	N	>2,000	N
WF1168H	N	1,000	20	N	1,000	N	>2,000	N
WF1169H	N	<100	30	N	1,000	N	>2,000	N
WF1170H	N	1,500	70	N	1,000	N	>2,000	<100
WF1171H	N	N	50	N	1,000	N	>2,000	N
WF1172H	N	N	70	N	700	N	>2,000	<100
WF1173H	N	N	30	N	1,500	N	>2,000	N
WF1174H	N	N	30	N	700	N	>2,000	N
WF1175H	N	N	20	N	1,000	N	>2,000	N
WF1176H	N	N	30	N	1,000	N	>2,000	N
WF1177H	N	N	30	N	1,000	N	>2,000	N
WF1178H	N	N	20	N	1,500	N	>2,000	N
WF1179H	N	N	50	N	1,000	N	>2,000	N
WF1180H	N	N	70	N	1,000	N	>2,000	N
WF1181H	N	1,000	70	N	1,000	N	>2,000	N
WF1182H	N	N	50	N	700	N	>2,000	N
WF1183H	N	N	70	200	300	N	>2,000	N
WF1184H	<10	N	100	N	300	N	>2,000	N
WF1185H	N	N	70	N	700	N	>2,000	N
WF1186H	N	500	150	700	700	N	>2,000	N
WF1187H	N	<100	70	<50	700	N	>2,000	N
WF1188H	N	<100	100	200	700	N	>2,000	N
WF1189H	N	N	100	N	700	N	>2,000	N
WF1190H	N	1,000	70	N	700	N	>2,000	N
WF1191H	<10	N	100	N	700	N	>2,000	N
WF1192H	N	N	70	N	1,000	N	>2,000	N
WF1193H	N	N	70	N	700	N	>2,000	N
WF1194H	N	N	70	N	1,000	N	>2,000	N
WF1195H	N	200	70	N	500	N	>2,000	N
WF1196H	N	N	100	N	500	N	1,500	N
WF1197H	N	N	70	N	700	N	>2,000	N
WF1198H	N	N	100	N	500	N	2,000	N