Analytical results and sample locality map of stream-sediment and heavy-mineral-concentrate samples from the Clan Alpine Mountains Wilderness Study Area (NV-030-102), Churchill County, Nevada

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Open-File Report 88-378

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1988

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Bureau of Land Management Wilderness Study Areas

The Federal Land Policy and Management Act (Public Law 94-579, October 21, 1976) requires the U.S. Geological Survey and the U.S. Bureau of Mines to conduct mineral surveys on certain areas to determine their mineral values, if any. 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 Clan Alpine Mountains Wilderness Study Area (NV-030-102), Churchill County, Nevada.

INTRODUCTION

In August, 1985, the U.S. Geological Survey conducted a reconnaissance geochemical survey of the Clan Alpine Mountain Wilderness Study Area (NV-030-102) in Churchill County, Nevada.

The Clan Alpine Mountains Wilderness Study Area comprises about 68,458 acres (107 mi^2) in eastern Churchill County and lies about 50 mi east of Fallon (fig. 1). Unimproved dirt roads provide access from Highway 50 on both sides of the range.

The wilderness study area occupies the central portion of the north northeast-trending Clan Alpine Mountains. The configuration of the mountain range is the result of Holocene block faulting. The oldest rocks exposed in the study area in the mountain range consist of a belt of upper Triassic sedimentary rocks extending across the northern part of the study area. Next younger are Jurassic gabbroic intrusive rocks and small granitic stocks of Cretaceous age. Tertiary volcanic rocks underlie most of the study area. Both sides of the range are bordered by Quaternary alluvial valley fill. The geology of the area is described by Wilden and Speed (1974).

The topography of the study area is typical of the basin and range provence, with drainage off both sides of the north northeast-trending range. Elevations range from 8,847 ft on Mt. Grant to 3,500 ft along the northwest border. The area has a desert type of climate and the tributary streams are mostly ephemeral.

METHODS OF STUDY

Sample Media

Analyses of the stream-sediment samples represent the chemistry of the rock material eroded from the drainage basin upstream from each sample site. Such information is useful in identifying those basins which contain concentrations of elements that may be related to mineral deposits. Heavy-mineral-concentrate samples provide information about the chemistry of a limited number of minerals in rock material eroded from the drainage basin upstream from each sample site. The selective concentration of minerals, many of which may be ore related, permits determination of some elements that are not easily detected in stream-sediment samples.

Sample Collection

Samples were collected at 124 sites within or on drainages originating within the Clan Alpine Wilderness Study Area (plate 1). At all sites, both a stream-sediment sample and a heavy-mineral-concentrate sample were

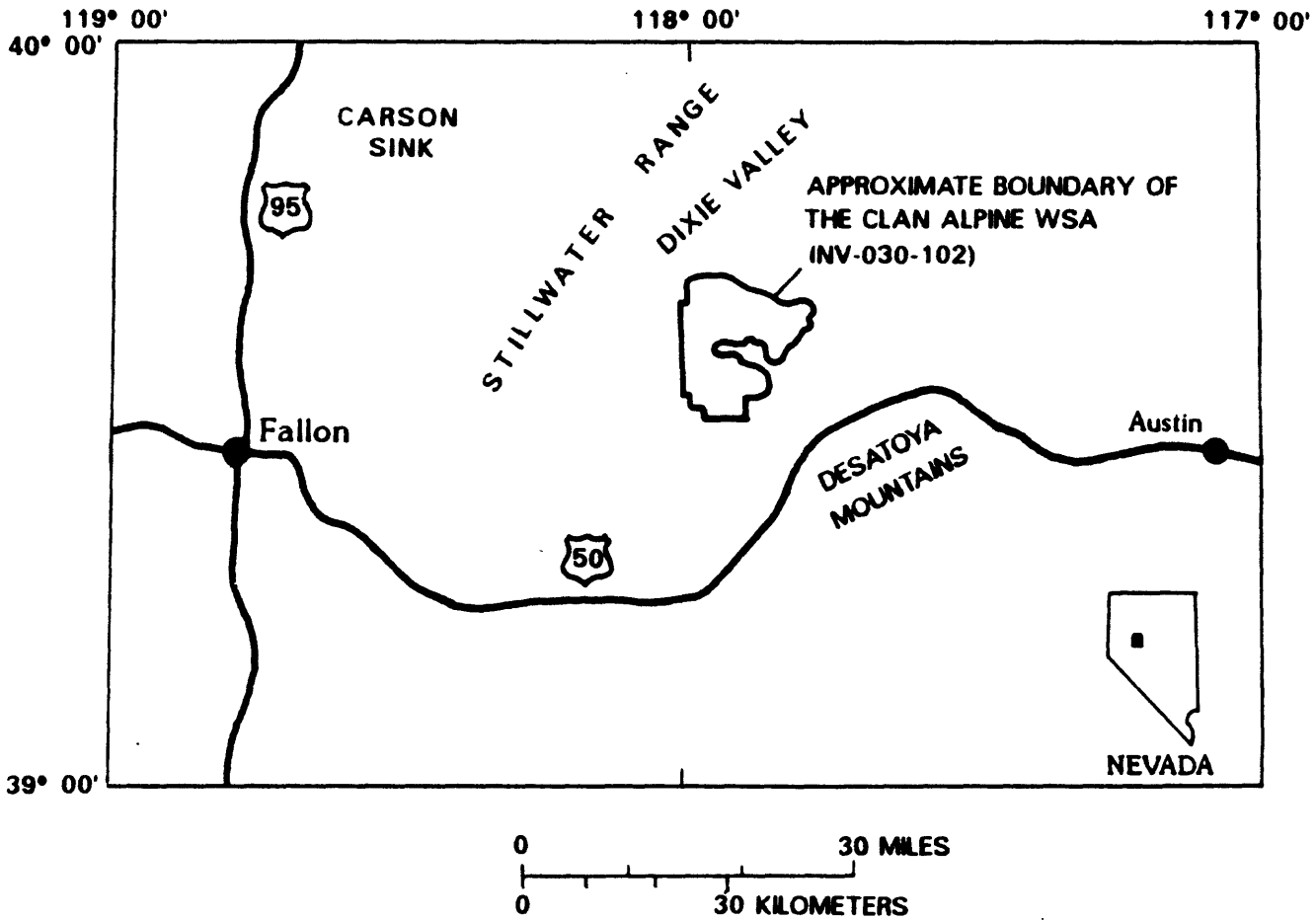

Figure 1.--Location map of the Clan Alpine Mountains Wilderness Study Area (NV-030-102), Churchill County, Nevada.

collected. Sampling density was about one sample site per 0.8 mi^2. The area of the drainage basins sampled ranged from 0.2 to 2.0 mi^2. Sufficient heavy-mineral-concentrate for spectrographic analysis (5 mg) was recovered from 91 sample sites.

Stream-sediment samples

The stream-sediment samples consisted of active alluvium collected primarily from first-order (unbranched) and second-order (below the junction of two first-order) streams as shown on USGS topographic maps (scale = 1:62,500). Each sample was composited from several localities within an area that may extend as much as 50 ft from the site plotted on the map.

Heavy-mineral-concentrate samples

Heavy-mineral-concentrate samples were collected from the same active alluvium as the stream-sediment samples. Each bulk sample was screened with a 2.0-mm (10-mesh) screen to remove the coarse material. The less than 2.0-mm fraction was panned until most of the quartz, feldspar, organic material, and clay-sized material were removed.

Sample Preparation

The stream-sediment samples were air dried, then sieved using an 80-mesh (0.17-mm) stainless-steel sieve. The portion of the sediment passing through the sieve was saved for analysis.

After air drying, bromoform (specific gravity 2.85) was used to remove the remaining quartz and feldspar from the heavy-mineral-concentrate samples that had been panned in the field. The resultant heavy-mineral sample was separated into three fractions using a large electromagnet (in this case a modified Frantz Isodynamic Separator). The most magnetic material, primarily magnetite, was not analyzed. The second fraction, largely ferromagnesian silicates and iron oxides, was saved for archival storage. The third fraction (the least magnetic material which may include the nonmagnetic ore minerals and zircon, sphene, etc.) was split using a Jones splitter. One split was hand ground for spectrographic analysis; the other split was saved for mineralogical analysis. These magnetic separates are the same separates that would be produced by using a Frantz Isodynamic Separator set at a slope of 15 degrees and a tilt of 10 degrees with a current of 0.1 ampere to remove the magnetite and ilmenite, and a current of 1.0 ampere to split the remainder of the sample into paramagnetic and nonmagnetic fractions.

Sample Analysis

Spectrographic method

The stream-sediment and heavy-mineral-concentrate samples were analyzed for 31 elements using a semiquantitative, direct-current arc emission spectrographic method. The analyses for heavy-mineral-concentrate samples were performed by analysts in the Branch of Exploration Geochemistry using the method of Grimes and Marranzino (1968); analyses for stream-sediment samples were performed by analysts in the Branch of Analytical Chemistry using the method of Myers and others (1961). The elements analyzed and their lower limits of determination are listed in table 1. Spectrographic results were

obtained by visual comparison of spectra derived from the sample against spectra obtained from standards made from pure oxides and carbonates. Standard concentrations are geometrically spaced over any given order of magnitude of concentration as follows: 100, 50, 20, 10, and so forth. Samples whose concentrations are estimated to fall between those values are assigned values of 70, 30, 15, and so forth. The precision of the analytical method is approximately plus or minus one reporting interval at the 83 percent confidence level and plus or minus two reporting intervals at the 96 percent confidence level (Motooka and Grimes, 1976). Values determined for the major elements (iron, magnesium, calcium, and titanium) are given in weight percent; all others are given in parts per million (micrograms/gram). Analytical data is listed in table 3 for heavy-mineral-concentrate samples and in table 4 for stream-sediment samples.

Chemical methods

In addition to emission spectroscopy, all stream-sediment samples were analyzed by inductively coupled plasma atomic emission spectroscopy (ICP) using the method described in Crock and others (1987). Limits of determination for elements determined by ICP are listed in table 2. Analytical results for stream-sediment samples by ICP are listed in table 4 along with the spectrographic data.

Gold determination by atomic absorption

Gold in all stream-sediment samples was determined by a modification of the method of Thompson and others (1968) and the lower limit of determination is listed in table 2. Analytical results for gold in stream-sediment samples are included in table 4. All samples were found to contain less than the 0.1 ppm lower limit determination.

ROCK ANALYSIS STORAGE SYSTEM

Upon completion of all analytical work, the analytical results were entered ino 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 or publication (Van Trump and Miesch, 1977).

DESCRIPTION OF DATA TABLES

Tables 3 and 4 list the analyses for heavy-mineral-concentrate and stream-sediment samples, respectively. The data are arranged so that column 1 contains the USGS-assigned sample numbers. These numbers correspond to the numbers shown on the site location map (plate 1). Columns in which the element headings show the letter "s" below the element symbol are emission spectrographic analyses, "aa" indicates atomic absorption analyses, and "icp" indicate inductively couple plasma anlyses. A letter "N" in the tables indicates that a given element was looked for but not detected at the lower limit of determination shown for that element in table 1. If an element was observed but was below the lowest reporting value, a "less than" symbol (<) was entered in the tables in front of the lower limit of determination. If an element was observed but was above the highest reporting value, a "greater

than" symbol (>) was entered in the tables in front of the upper limit of determination. If an element was not looked for in a sample, two dashes (--) are entered in the tables in place of the analytical value. Because of the formatting used in the computer program that produced the data tables, some of the elements listed in these tables (Fe, Mg, Ca, Ti, Ag, and Be) carry one or more nonsignificant digits to the right of the significant digits. The analysts did not determine these elements to the accuracy suggested by the extra zeros.

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TABLE 1.--Limits of determination for the spectrographic analysis of stream-sediment and heavy-mineral-concentrate samples

Elements	Stream sediment		Heavy-mineral concentrate	
	Lower determination limit	Upper determination limit	Lower determination limit	Upper determination limit
	Percent			
Iron (Fe)	0.05	20	0.1	50
Magnesium (Mg)	.02	10	.05	20
Calcium (Ca)	.05	20	.1	50
Titanium (Ti)	.002	1	.005	2
	Parts per million			
Manganese (Mn)	10	5,000	20	10,000
Silver (Ag)	0.5	5,000	1	10,000
Arsenic (As)	700	10,000	500	20,000
Gold (Au)	15	500	20	1,000
Boron (B)	10	2,000	20	5,000
Barium (Ba)	20	5,000	50	10,000
Beryllium (Be)	1	1,000	2	2,000
Bismuth (Bi)	10	1,000	20	2,000
Cadmium (Cd)	30	500	50	1,000
Cobalt (Co)	5	2,000	10	5,000
Chromium (Cr)	10	5,000	20	10,000
Copper (Cu)	5	20,000	10	50,000
Lanthanum (La)	30	1,000	50	2,000
Molybdenum (Mo)	5	2,000	10	5,000
Niobium (Nb)	20	2,000	50	5,000
Nickel (Ni)	5	5,000	10	10,000
Lead (Pb)	10	20,000	20	50,000
Antimony (Sb)	100	10,000	200	20,000
Scandium (Sc)	5	100	10	200
Tin (Sn)	10	1,000	20	2,000
Strontium (Sr)	100	5,000	200	10,000
Vanadium (V)	10	10,000	20	20,000
Tungsten (W)	50	10,000	100	20,000
Yttrium (Y)	10	2,000	20	5,000
Zinc (Zn)	200	10,000	500	20,000
Zirconium (Zr)	10	1,000	20	2,000
Thorium (Th)	200	2,000	200	5,000

TABLE 2.--Commonly used chemical methods

[AA = atomic absorption; ICP = inductively coupled plasma spectroscopy]

Element or constituent determined	Sample type	Method	Determination limit (micrograms/gram or ppm)	Analyst	Reference
Gold (Au)	SS	AA	0.1*		Modification of Thompson and others, 1968.
Arsenic (As)	SS	ICP	5		Crock and others, 1987.
Antimony (Sb)	SS	ICP	2		
Zinc (Zn)	SS	ICP	2		
Bismuth (Bi)	SS	ICP	2		
Cadmium (Cd)	SS	ICP	0.1		

*Determination limit is 0.2 ppm when only 5.0 g sample is used.

Table 3.--Spectrographic analysis of heavy-mineral-concentrate samples from the Clan Alpine Mountains Wilderness Study Area, Churchill County, Nevada

[N, not detected; <, detected but below the limit of determination shown; >, determined to be greater than the value shown.]

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
CB019S	39 33 19	117 50 6	5.0	.70	1.5	.30	500	<.5	<700	<15	10	700
CB020S	39 34 7	117 49 21	1.5	.15	.5	.10	300	<.5	<700	<15	15	300
CB021S	39 34 31	117 49 4	.7	.30	1.5	.07	200	<.5	<700	<15	20	300
CB022S	39 35 44	117 47 44	2.0	.70	1.5	.20	500	<.5	<700	<15	10	1,500
CB023S	39 36 13	117 46 48	3.0	.70	2.0	.20	700	<.5	<700	<15	10	2,000
CB024S	39 36 21	117 46 32	3.0	.70	2.0	.15	700	<.5	<700	<15	15	1,000
CB025S	39 36 53	117 47 12	3.0	.70	1.5	.20	700	<.5	<700	<15	20	1,500
CB026S	39 36 46	117 45 43	2.0	.70	2.0	.20	500	<.5	<700	<15	15	1,000
CB027S	39 37 32	117 46 34	7.0	2.00	3.0	.50	700	<.5	<700	<15	10	1,500
CB028S	39 37 26	117 45 28	3.0	.70	3.0	.20	700	<.5	<700	<15	10	1,000
CB029S	39 38 49	117 47 23	3.0	.70	2.0	.20	300	<.5	<700	<15	20	700
CB030S	39 33 32	117 57 47	2.0	.70	2.0	.20	300	<.5	<700	<15	15	1,000
CB031S	39 34 0	117 57 16	2.0	.50	2.0	.20	500	<.5	<700	<15	10	1,000
CB032S	39 33 3	118 0 12	3.0	.70	3.0	.30	700	<.5	<700	<15	15	1,500
CB033S	39 32 3	117 58 18	2.0	.70	2.0	.20	500	<.5	<700	<15	20	700
CB034S	39 31 9	117 59 34	1.5	.50	1.5	.15	300	<.5	<700	<15	10	1,500
CB035S	39 31 23	117 58 4	1.5	.30	1.5	.15	300	<.5	<700	<15	10	1,500
CB036S	39 31 9	117 58 20	1.5	.50	2.0	.20	300	<.5	<700	<15	10	1,000
CB037S	39 29 34	117 55 36	3.0	.50	1.5	.30	1,000	<.5	<700	<15	<10	1,500
CB038S	39 30 4	117 51 52	3.0	.50	2.0	.30	500	<.5	<700	<15	10	2,000
CB039S	39 22 9	117 51 11	3.0	.70	3.0	.30	500	<.5	<700	<15	10	700
CB040S	39 32 58	117 50 17	3.0	.70	1.5	.30	300	<.5	<700	<15	15	1,000
CB041S	39 32 9	117 53 4	1.5	.30	.7	.15	300	<.5	<700	<15	15	1,000
CB042S	39 32 4	117 53 2	3.0	.70	2.0	.30	700	<.5	<700	<15	10	2,000
CB043S	39 34 58	117 51 49	2.0	.70	1.5	.20	500	<.5	<700	<15	10	1,500
CB044S	39 35 21	117 52 26	3.0	.70	2.0	.30	300	<.5	<700	<15	10	1,000
CB045S	39 35 28	117 52 18	3.0	.70	2.0	.20	500	<.5	<700	<15	20	700
CB046S	39 37 9	117 50 35	3.0	.70	3.0	.20	500	<.5	<700	<15	10	700
CB047S	39 37 5	117 50 24	3.0	.70	3.0	.30	500	<.5	<700	<15	<10	1,000
CB048S	39 37 9	117 50 23	3.0	.70	3.0	.30	700	<.5	<700	<15	15	1,500
CH036S	39 34 28	117 54 23	2.0	.70	2.0	.20	300	<.5	<700	<15	15	1,000
CH037S	39 34 26	117 54 29	3.0	.70	1.5	.30	300	<.5	<700	<15	10	1,000
CH038S	39 34 12	117 54 10	1.5	.70	1.0	.15	300	<.5	<700	<15	15	700
CH039S	39 34 1	117 53 44	2.0	.70	1.5	.20	300	<.5	<700	<15	15	700
CH040S	39 34 12	117 53 32	3.0	.70	3.0	.30	700	<.5	<700	<15	20	1,500
CH041S	39 33 47	117 52 42	1.5	.50	1.5	.20	300	<.5	<700	<15	10	1,000
CH042S	39 33 45	117 52 25	2.0	.70	2.0	.20	500	<.5	<700	<15	20	700
CH043S	39 39 41	117 53 28	3.0	.70	3.0	.30	700	<.5	<700	<15	10	2,000
CH044S	39 39 12	117 53 28	2.0	.70	1.5	.15	300	<.5	<700	<15	20	700
CH045S	39 38 47	117 54 17	2.0	.30	1.5	.20	300	<.5	<700	<15	10	1,000
CH046S	39 37 59	117 54 26	2.0	.70	2.0	.15	300	<.5	<700	<15	15	1,000
CH047S	39 37 11	117 53 6	3.0	.50	3.0	.30	300	<.5	<700	<15	10	1,500
CH048S	39 37 7	117 55 34	3.0	.70	2.0	.30	500	<.5	<700	<15	10	700
CH049S	39 37 2	117 55 32	1.5	.70	1.5	.15	300	<.5	<700	<15	20	700
CH050S	39 37 42	117 57 42	1.5	.70	2.0	.20	300	<.5	<700	<15	20	700

Table 3.--Spectrographic analysis of heavy-mineral-concentrate samples from the Clan Alpine Mountains Wilderness Study Area, Churchill County, Nevada

[N, not detected; <, detected but below the limit of determination shown; >, determined to be greater than the value shown.]

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
CB019S	39 33 19	117 50 6	5.0	.70	1.5	.30	500	<.5	<700	<15	10	700
CB020S	39 34 7	117 49 21	1.5	.15	.5	.10	300	<.5	<700	<15	15	300
CB021S	39 34 31	117 49 4	.7	.30	1.5	.07	200	<.5	<700	<15	20	300
CB022S	39 35 44	117 47 44	2.0	.70	1.5	.20	500	<.5	<700	<15	10	1,500
CB023S	39 36 13	117 46 48	3.0	.70	2.0	.20	700	<.5	<700	<15	10	2,000
CB024S	39 36 21	117 46 32	3.0	.70	2.0	.15	700	<.5	<700	<15	15	1,000
CB025S	39 36 53	117 47 12	3.0	.70	1.5	.20	700	<.5	<700	<15	20	1,500
CB026S	39 36 46	117 45 43	2.0	.70	2.0	.20	500	<.5	<700	<15	15	1,000
CB027S	39 37 32	117 46 34	7.0	2.00	3.0	.50	700	<.5	<700	<15	10	1,500
CB028S	39 37 26	117 45 28	3.0	.70	3.0	.20	700	<.5	<700	<15	10	1,000
CB029S	39 38 49	117 47 23	3.0	.70	2.0	.20	300	<.5	<700	<15	20	700
CB030S	39 33 32	117 57 47	2.0	.70	2.0	.20	300	<.5	<700	<15	15	1,000
CB031S	39 34 0	117 57 16	2.0	.50	2.0	.20	500	<.5	<700	<15	10	1,000
CB032S	39 33 3	118 0 12	3.0	.70	3.0	.30	700	<.5	<700	<15	15	1,500
CB033S	39 32 3	117 58 18	2.0	.70	2.0	.20	500	<.5	<700	<15	20	700
CB034S	39 31 9	117 59 34	1.5	.50	1.5	.15	300	<.5	<700	<15	10	1,500
CB035S	39 31 23	117 58 4	1.5	.30	1.5	.15	300	<.5	<700	<15	10	1,500
CB036S	39 31 9	117 58 20	1.5	.50	2.0	.20	300	<.5	<700	<15	10	1,000
CB037S	39 29 34	117 55 36	3.0	.50	1.5	.30	1,000	<.5	<700	<15	<10	1,500
CB038S	39 30 4	117 51 52	3.0	.50	2.0	.30	500	<.5	<700	<15	10	2,000
CB039S	39 22 9	117 51 11	3.0	.70	3.0	.30	500	<.5	<700	<15	10	700
CB040S	39 32 58	117 50 17	3.0	.70	1.5	.30	300	<.5	<700	<15	15	1,000
CB041S	39 32 9	117 53 4	1.5	.30	.7	.15	300	<.5	<700	<15	15	1,000
CB042S	39 32 4	117 53 2	3.0	.70	2.0	.30	700	<.5	<700	<15	10	2,000
CB043S	39 34 58	117 51 49	2.0	.70	1.5	.20	500	<.5	<700	<15	10	1,500
CB044S	39 35 21	117 52 26	3.0	.70	2.0	.30	300	<.5	<700	<15	10	1,000
CB045S	39 35 28	117 52 18	3.0	.70	2.0	.20	500	<.5	<700	<15	20	700
CB046S	39 37 9	117 50 35	3.0	.70	3.0	.20	500	<.5	<700	<15	10	700
CB047S	39 37 5	117 50 24	3.0	.70	3.0	.30	500	<.5	<700	<15	<10	1,000
CB048S	39 37 9	117 50 23	3.0	.70	3.0	.30	700	<.5	<700	<15	15	1,500
CH036S	39 34 28	117 54 23	2.0	.70	2.0	.20	300	<.5	<700	<15	15	1,000
CH037S	39 34 26	117 54 29	3.0	.70	1.5	.30	300	<.5	<700	<15	10	1,000
CH038S	39 34 12	117 54 10	1.5	.70	1.0	.15	300	<.5	<700	<15	15	700
CH039S	39 34 1	117 53 44	2.0	.70	1.5	.20	300	<.5	<700	<15	15	700
CH040S	39 34 12	117 53 32	3.0	.70	3.0	.30	700	<.5	<700	<15	20	1,500
CH041S	39 33 47	117 52 42	1.5	.50	1.5	.20	300	<.5	<700	<15	10	1,000
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CH044S	39 39 12	117 53 28	2.0	.70	1.5	.15	300	<.5	<700	<15	20	700
CH045S	39 38 47	117 54 17	2.0	.30	1.5	.20	300	<.5	<700	<15	10	1,000
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CH047S	39 37 11	117 53 6	3.0	.50	3.0	.30	300	<.5	<700	<15	10	1,500
CH048S	39 37 7	117 55 34	3.0	.70	2.0	.30	500	<.5	<700	<15	10	700
CH049S	39 37 2	117 55 32	1.5	.70	1.5	.15	300	<.5	<700	<15	20	700
CH050S	39 37 42	117 57 42	1.5	.70	2.0	.20	300	<.5	<700	<15	20	700

TABLE 3. SPECTROGRAPHIC ANALYSIS OF HEAVY-MINERAL-CONCENTRATE SAMPLES --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
CB019S	1.5	<10	<30	15	70	20	30	<5	<20	10	15	<100	15
CB020S	3.0	<10	<30	<5	<10	5	70	<5	30	<5	15	<100	<5
CB021S	1.0	<10	<30	<5	7	7	<30	<5	<20	<5	15	<100	<5
CB022S	1.5	<10	<30	5	15	7	30	<5	<20	<5	15	<100	7
CB023S	1.5	<10	<30	<5	15	10	50	5	<20	<5	30	<100	7
CB024S	1.5	<10	<30	5	15	7	30	<5	<20	<5	15	<100	7
CB025S	1.5	<10	<30	7	20	15	<30	<5	<20	7	20	<100	7
CB026S	1.5	<10	<30	7	15	7	30	<5	<20	<5	15	<100	7
CB027S	1.0	<10	<30	15	30	15	<30	<5	<20	<5	15	<100	20
CB028S	1.5	<10	<30	10	15	7	<30	<5	<20	5	15	<100	10
CB029S	1.0	<10	<30	10	30	20	30	<5	<20	15	15	<100	15
CB030S	1.5	<10	<30	5	30	7	<30	<5	<20	<5	15	<100	7
CB031S	1.5	<10	<30	5	20	7	<30	<5	<20	<5	15	<100	7
CB032S	1.5	<10	<30	5	20	15	30	<5	<20	5	15	<100	10
CB033S	1.5	<10	<30	7	20	7	<30	<5	<20	5	15	<100	7
CB034S	1.5	<10	<30	<5	<10	<5	70	<5	<20	<5	15	<100	7
CB035S	1.5	<10	<30	<5	<10	<5	150	<5	<20	<5	30	<100	7
CB036S	1.5	<10	<30	<5	15	7	50	<5	<20	<5	15	<100	7
CB037S	1.5	<10	<30	5	15	7	70	<5	<20	<5	15	<100	7
CB038S	1.5	<10	<30	7	20	10	100	<5	<20	5	15	<100	15
CB039S	1.5	<10	<30	10	30	10	<30	<5	<20	7	15	<100	10
CB040S	1.5	<10	<30	7	70	7	70	<5	<20	<5	15	<100	7
CB041S	1.5	<10	<30	<5	<10	<5	70	<5	<20	<5	20	<100	7
CB042S	1.5	<10	<30	5	15	7	70	<5	<20	<5	20	<100	7
CB043S	1.5	<10	<30	<5	30	7	200	<5	<20	5	20	<100	10
CB044S	1.5	<10	<30	10	30	15	30	<5	<20	10	15	<100	10
CB045S	1.5	<10	<30	10	30	15	30	5	<20	10	15	<100	10
CB046S	1.5	<10	<30	7	20	7	<30	<5	<20	<5	15	<100	10
CB047S	1.5	<10	<30	7	30	7	50	<5	<20	5	15	<100	10
CB048S	1.0	<10	<30	10	30	15	30	<5	<20	5	15	<100	15
CH036S	1.5	<10	<30	7	15	7	30	<5	<20	<5	15	<100	7
CH037S	1.5	<10	<30	5	15	7	50	<5	<20	<5	15	<100	7
CH038S	1.5	<10	<30	<5	15	7	50	<5	<20	<5	20	<100	7
CH039S	1.5	<10	<30	<5	20	7	30	<5	<20	<5	15	<100	7
CH040S	1.5	<10	<30	7	30	15	70	<5	<20	5	15	<100	15
CH041S	1.5	<10	<30	<5	15	7	50	<5	<20	5	15	<100	7
CH042S	1.5	<10	<30	7	30	10	30	<5	<20	5	15	<100	7
CH043S	1.5	<10	<30	7	30	7	100	<5	<20	5	20	<100	7
CH044S	1.5	<10	<30	<5	30	7	30	<5	<20	5	20	<100	7
CH045S	1.5	<10	<30	<5	10	5	70	<5	20	<5	20	<100	5
CH046S	1.5	<10	<30	5	20	7	<30	<5	<20	5	15	<100	7
CH047S	1.5	<10	<30	5	30	7	100	<5	<20	<5	15	<100	10
CH048S	1.5	<10	<30	5	30	7	70	<5	<20	5	15	<100	7
CH049S	1.5	<10	<30	5	15	7	30	<5	<20	<5	15	<100	7
CH050S	1.5	<10	<30	<5	20	7	30	<5	<20	<5	15	<100	7

TABLE 3. SPECTROGRAPHIC ANALYSIS OF HEAVY-MINERAL-CONCENTRATE SAMPLES--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	Au-ppm aa	As-ppm aa	Bi-ppm aa	Cd-ppm aa	Sb-ppm aa	Zn-ppm aa
CB019S	<10	500	150	<50	15	<200	150	<200	<.1	9	<2	2.3	<2	69
CB020S	<10	<100	<10	<50	30	<200	300	<200	<.1	<5	<2	.3	<2	23
CB021S	<10	150	15	<50	10	<200	70	<200	<.1	<5	<2	.4	<2	77
CB022S	<10	700	50	<50	10	<200	150	<200	<.1	9	<2	.4	<2	56
CB023S	<10	700	50	<50	15	<200	200	<200	<.1	24	<2	.6	<2	48
CB024S	<10	300	50	<50	10	<200	150	<200	<.1	10	<2	1.4	<2	49
CB025S	<10	500	70	<50	10	<200	200	<200	<.1	19	<2	.7	4	82
CB026S	<10	500	50	<50	10	<200	200	<200	<.1	<5	<2	.5	<2	41
CB027S	<10	700	200	<50	20	<200	150	<200	<.1	12	<2	2.2	2	85
CB028S	<10	700	70	<50	10	<200	150	<200	<.1	14	<2	1.9	<2	58
CB029S	<10	700	100	<50	15	<200	70	<200	<.1	7	<2	1.2	3	70
CB030S	<10	500	50	<50	10	<200	200	<200	<.1	7	<2	.8	<2	56
CB031S	<10	500	30	<50	10	<200	150	<200	<.1	9	<2	.9	2	49
CB032S	<10	700	70	<50	20	<200	150	<200	<.1	9	<2	.6	<2	47
CB033S	<10	500	70	<50	15	<200	150	<200	<.1	<5	<2	1.1	<2	53
CB034S	<10	700	30	<50	15	<200	150	<200	<.1	<5	<2	.8	<2	56
CB035S	<10	300	30	<50	15	<200	150	<200	<.1	6	<2	.8	<2	80
CB036S	<10	500	30	<50	15	<200	100	<200	<.1	6	<2	.9	5	63
CB037S	<10	500	70	<50	15	<200	200	<200	<.1	<5	<2	1.5	<2	100
CB038S	<10	700	100	<50	20	<200	300	<200	<.1	<5	<2	.7	<2	76
CB039S	<10	700	70	<50	10	<200	150	<200	<.1	5	<2	2.0	<2	59
CB040S	<10	700	70	<50	15	<200	150	<200	<.1	7	<2	1.2	<2	73
CB041S	<10	300	30	<50	15	<200	300	<200	<.1	16	<2	.7	4	58
CB042S	<10	700	70	<50	15	<200	150	<200	<.1	11	<2	.5	<2	51
CB043S	<10	300	30	<50	15	<200	200	<200	<.1	5	<2	.4	<2	53
CB044S	<10	700	70	<50	15	<200	150	<200	<.1	<5	<2	1.1	<2	49
CB045S	<10	700	70	<50	15	<200	150	<200	<.1	<5	<2	1.3	<2	58
CB046S	<10	700	100	<50	10	<200	150	<200	<.1	8	<2	1.4	<2	80
CB047S	<10	700	70	<50	10	<200	150	<200	<.1	13	<2	1.0	3	66
CB048S	<10	700	150	<50	15	<200	150	<200	<.1	8	<2	1.2	<2	71
CH036S	<10	500	70	<50	15	<200	200	<200	<.1	7	<2	.8	<2	50
CH037S	<10	500	70	<50	15	<200	200	<200	<.1	10	<2	1.5	<2	60
CH038S	<10	300	30	<50	15	<200	150	<200	<.1	9	<2	.7	<2	49
CH039S	<10	300	30	<50	15	<200	150	<200	<.1	12	<2	.8	<2	58
CH040S	<10	700	70	<50	20	<200	150	<200	<.1	<5	<2	.6	<2	48
CH041S	<10	500	50	<50	15	<200	200	<200	<.1	14	<2	.7	2	49
CH042S	<10	500	70	<50	15	<200	150	<200	<.1	8	<2	1.1	2	67
CH043S	<10	700	100	<50	20	<200	200	<200	<.1	8	<2	1.0	<2	81
CH044S	<10	500	30	<50	15	<200	150	<200	<.1	6	<2	.7	2	49
CH045S	<10	300	30	<50	20	<200	300	<200	<.1	6	<2	.9	<2	120
CH046S	<10	700	50	<50	10	<200	100	<200	<.1	<5	<2	.4	<2	50
CH047S	<10	700	70	<50	20	<200	200	<200	<.1	<5	<2	.6	<2	69
CH048S	<10	500	70	<50	15	<200	150	<200	<.1	5	<2	1.1	<2	84
CH049S	<10	300	30	<50	15	<200	100	<200	<.1	<5	<2	.9	<2	70
CH050S	<10	500	30	<50	15	<200	150	<200	<.1	<5	<2	.5	<2	65

TABLE 3. SPECTROGRAPHIC ANALYSIS OF HEAVY-MINERAL-CONCENTRATE SAMPLES ____ ____--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
CH051S	39 37 35	117 58 50	1.5	.70	1.5	.15	300	<.5	<700	<15	15	700
CH052S	39 37 52	117 58 24	1.5	.70	2.0	.30	300	<.5	<700	<15	10	1,000
CH053S	39 38 37	117 58 41	3.0	.70	3.0	.20	500	<.5	<700	<15	20	1,000
CH054S	39 39 51	117 55 44	3.0	1.00	3.0	.30	700	<.5	<700	<15	20	1,500
CH055S	39 36 29	118 0 26	2.0	.70	2.0	.20	500	<.5	<700	<15	20	700
CH056S	39 35 14	118 0 29	2.0	.70	2.0	.15	300	<.5	<700	<15	<10	700
CH057S	39 35 9	117 58 31	3.0	.70	3.0	.20	300	<.5	<700	<15	15	1,000
CH058S	39 35 22	117 57 41	2.0	.70	1.5	.15	500	<.5	<700	<15	15	1,000
CH059S	39 33 26	117 58 8	1.5	.70	1.5	.20	300	<.5	<700	<15	15	1,000
CH060S	39 33 28	117 58 0	1.5	.50	1.5	.20	500	<.5	<700	<15	10	1,500
CH061S	39 33 55	117 57 14	2.0	.70	1.5	.30	300	<.5	<700	<15	10	1,000
CH062S	39 32 39	117 59 37	1.5	.70	1.0	.15	300	<.5	<700	<15	15	700
CH063S	39 32 43	117 57 35	1.5	.50	1.0	.15	300	<.5	<700	<15	15	1,500
CH064S	39 31 35	117 59 37	1.5	.50	1.5	.15	300	<.5	<700	<15	10	1,000
CH065S	39 31 2	117 58 44	3.0	.30	1.5	.30	500	<.5	<700	<15	10	1,500
CH066S	39 30 8	117 56 49	3.0	.50	1.5	.30	300	<.5	<700	<15	15	1,000
CH067S	39 30 4	117 56 45	3.0	.50	1.5	.20	300	<.5	<700	<15	15	1,500
CH068S	39 29 32	117 50 44	3.0	.70	1.0	.30	300	<.5	<700	<15	15	1,000
CH069S	39 31 3	117 53 10	1.5	.30	2.0	.20	300	<.5	<700	<15	10	1,500
CH070S	39 31 8	117 53 7	1.5	.30	1.5	.20	500	<.5	<700	<15	10	1,000
CH071S	39 33 3	117 51 20	3.0	.70	2.0	.30	500	<.5	<700	<15	15	1,000
CH072S	39 33 37	117 49 44	7.0	1.00	3.0	.70	700	<.5	<700	<15	10	1,500
CH073S	39 34 4	117 50 22	3.0	.70	2.0	.30	700	<.5	<700	<15	15	3,000
CH074S	39 35 55	117 51 31	2.0	.70	2.0	.30	300	<.5	<700	<15	15	1,000
CH075S	39 35 55	117 51 20	7.0	.70	3.0	.50	700	<.5	<700	<15	10	2,000
CH076S	39 37 29	117 50 24	2.0	.70	1.0	.15	300	<.5	<700	<15	20	700
CH077S	39 37 43	117 50 54	1.5	.70	1.5	.15	300	<.5	<700	<15	15	1,000
CH078S	39 38 14	117 50 56	1.5	.70	1.5	.15	300	<.5	<700	<15	20	1,000
CH079S	39 39 10	117 51 45	1.5	.70	1.0	.15	300	<.5	<700	<15	15	1,000
CH080S	39 39 14	117 50 32	3.0	.70	2.0	.20	500	<.5	<700	<15	15	1,000
CH081S	39 38 49	117 47 38	3.0	.70	2.0	.20	300	<.5	<700	<15	20	700
CJ022S	39 40 42	117 54 40	1.5	.70	2.0	.15	500	<.5	<700	<15	15	2,000
CJ023S	39 38 41	117 53 38	1.5	.50	2.0	.15	500	<.5	<700	<15	15	2,000
CJ024S	39 38 9	117 53 43	2.0	.50	1.5	.20	300	<.5	<700	<15	<10	1,500
CJ025S	39 36 43	117 54 11	2.0	.70	2.0	.30	300	<.5	<700	<15	10	1,500
CJ026S	39 36 40	117 54 17	2.0	.70	2.0	.20	300	<.5	<700	<15	20	1,000
CJ028S	39 36 41	117 55 45	1.5	.50	2.0	.20	300	<.5	<700	<15	10	700
CJ029S	39 38 35	117 58 37	2.0	.70	1.5	.15	300	<.5	<700	<15	15	700
CJ030S	39 38 56	117 57 35	3.0	.70	3.0	.30	500	<.5	<700	<15	20	3,000
CJ031S	39 38 58	117 56 43	1.5	.50	1.5	.15	300	<.5	<700	<15	10	1,000
CJ032S	39 37 54	118 0 44	3.0	.70	3.0	.30	300	<.5	<700	<15	20	1,500
CJ033S	39 34 40	117 59 55	2.0	.70	2.0	.20	500	<.5	<700	<15	15	700
CJ034S	39 33 25	117 52 7	2.0	.50	1.5	.20	500	.5	<700	<15	10	700
CJ035S	39 34 49	117 51 19	3.0	.70	2.0	.20	700	<.5	<700	<15	20	1,000
CJ036S	39 35 9	117 51 26	1.5	.50	1.0	.15	300	<.5	<700	<15	15	700

TABLE 3. SPECTROGRAPHIC ANALYSIS OF HEAVY-MINERAL-CONCENTRATE SAMPLES --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
CH051S	1.5	<10	<30	5	20	7	70	<5	<20	<5	30	<100	7
CH052S	1.5	<10	<30	5	20	7	<30	<5	<20	5	15	<100	7
CH053S	1.0	<10	<30	7	20	7	50	<5	<20	7	15	<100	7
CH054S	1.5	<10	<30	10	30	15	50	<5	<20	10	20	<100	10
CH055S	1.5	<10	<30	5	15	7	<30	<5	<20	5	15	<100	7
CH056S	1.5	<10	<30	<5	30	7	50	<5	<20	5	15	<100	7
CH057S	1.5	<10	<30	7	30	15	50	<5	<20	7	15	<100	10
CH058S	1.5	<10	<30	5	15	7	<30	<5	<20	5	15	<100	7
CH059S	1.5	<10	<30	5	15	7	30	<5	<20	5	15	<100	7
CH060S	1.5	<10	<30	5	10	5	30	<5	<20	<5	15	<100	7
CH061S	1.5	<10	<30	7	30	7	<30	<5	<20	5	15	<100	7
CH062S	1.5	<10	<30	5	15	7	30	<5	<20	<5	15	<100	7
CH063S	1.5	<10	<30	<5	15	5	70	<5	<20	<5	15	<100	7
CH064S	1.5	<10	<30	<5	<10	<5	30	<5	<20	<5	15	<100	7
CH065S	1.5	<10	<30	<5	15	5	30	5	<20	5	15	<100	7
CH066S	1.5	<10	<30	<5	10	<5	100	<5	<20	<5	15	<100	7
CH067S	1.5	<10	<30	<5	10	<5	70	<5	<20	<5	15	<100	7
CH068S	1.5	<10	<30	7	15	7	70	<5	<20	<5	15	<100	7
CH069S	1.5	<10	<30	<5	15	5	50	<5	<20	<5	15	<100	7
CH070S	1.5	<10	<30	<5	15	5	50	<5	<20	<5	15	<100	7
CH071S	1.5	<10	<30	7	30	7	70	<5	<20	5	15	<100	10
CH072S	1.5	<10	<30	15	150	30	50	<5	<20	15	15	<100	15
CH073S	1.5	<10	<30	5	15	10	50	<5	<20	5	15	<100	10
CH074S	1.5	<10	<30	7	30	10	30	<5	<20	10	15	<100	10
CH075S	1.5	<10	<30	10	30	15	70	<5	<20	5	15	<100	15
CH076S	1.5	<10	<30	7	15	7	30	<5	<20	<5	15	<100	7
CH077S	1.5	<10	<30	<5	15	<5	30	<5	<20	<5	15	<100	7
CH078S	1.5	<10	<30	5	20	10	30	<5	<20	10	15	<100	7
CH079S	1.5	<10	<30	5	15	7	30	<5	<20	<5	15	<100	7
CH080S	1.5	<10	<30	5	15	7	<30	<5	<20	5	15	<100	7
CH081S	1.5	<10	<30	7	30	30	30	<5	<20	10	15	<100	10
CJ022S	1.5	<10	<30	5	20	7	<30	<5	<20	<5	15	<100	7
CJ023S	1.5	<10	<30	<5	7	5	<30	5	<20	<5	15	<100	5
CJ024S	1.5	<10	<30	<5	15	10	70	<5	<20	<5	15	<100	7
CJ025S	1.5	<10	<30	5	20	7	50	<5	<20	5	15	<100	7
CJ026S	1.5	<10	<30	7	30	10	<30	<5	<20	5	15	<100	7
CJ028S	1.5	<10	<30	<5	20	7	30	<5	<20	5	15	<100	7
CJ029S	2.0	<10	<30	<5	20	7	30	<5	<20	5	20	<100	7
CJ030S	1.5	<10	<30	7	30	15	70	<5	<20	10	15	<100	15
CJ031S	1.5	<10	<30	5	20	7	30	<5	<20	<5	15	<100	7
CJ032S	1.5	<10	<30	7	30	10	50	5	<20	5	20	<100	10
CJ033S	1.5	<10	<30	7	30	7	50	<5	<20	5	20	<100	7
CJ034S	1.0	<10	<30	<5	15	10	50	5	<20	5	70	<100	10
CJ035S	1.5	<10	<30	5	30	15	50	<5	<20	5	15	<100	10
CJ036S	1.5	<10	<30	<5	15	7	30	<5	<20	<5	15	<100	7

TABLE 3. SPECTROGRAPHIC ANALYSIS OF HEAVY-MINERAL-CONCENTRATE SAMPLES--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	Au-ppm aa	As-ppm aa	Bi-ppm aa	Cd-ppm aa	Sb-ppm aa	Zn-ppm aa
CH051S	<10	300	30	<50	15	<200	150	<200	<.1	<5	<2	.7	<2	50
CH052S	<10	500	50	<50	15	<200	150	<200	<.1	7	<2	.9	<2	50
CH053S	<10	700	50	<50	10	<200	100	<200	<.1	<5	<2	.7	<2	62
CH054S	<10	700	100	<50	20	<200	150	<200	<.1	12	<2	.8	<2	60
CH055S	<10	500	50	<50	15	<200	150	<200	<.1	5	<2	1.4	<2	47
CH056S	<10	500	50	<50	15	<200	150	<200	<.1	<5	<2	.6	2	57
CH057S	<10	700	70	<50	20	<200	200	<200	<.1	<5	<2	.8	<2	60
CH058S	<10	500	30	<50	15	<200	150	<200	<.1	<5	<2	.6	<2	64
CH059S	<10	500	50	<50	10	<200	100	<200	<.1	<5	<2	.9	<2	100
CH060S	<10	500	30	<50	10	<200	100	<200	<.1	<5	<2	.5	<2	50
CH061S	<10	500	70	<50	10	<200	150	<200	<.1	<5	<2	.8	3	63
CH062S	<10	300	30	<50	15	<200	100	<200	<.1	5	<2	.8	<2	55
CH063S	<10	500	30	<50	15	<200	150	<200	<.1	5	<2	1.1	<2	77
CH064S	<10	300	30	<50	15	<200	150	<200	<.1	<5	<2	.6	<2	46
CH065S	<10	500	50	<50	15	<200	200	<200	<.1	<5	<2	.5	<2	75
CH066S	<10	300	70	<50	15	<200	200	<200	<.1	<5	<2	1.1	<2	89
CH067S	<10	500	70	<50	15	<200	150	<200	<.1	<5	<2	1.1	<2	79
CH068S	<10	300	150	<50	15	<200	200	<200	<.1	10	<2	1.4	<2	98
CH069S	<10	700	30	<50	15	<200	200	<200	<.1	<5	<2	.7	<2	43
CH070S	<10	300	30	<50	15	<200	150	<200	<.1	6	<2	.8	2	59
CH071S	<10	700	70	<50	15	<200	150	<200	<.1	<5	<2	.5	<2	64
CH072S	<10	700	150	<50	20	<200	200	<200	<.1	<5	<2	1.4	<2	83
CH073S	<10	500	50	<50	20	<200	150	<200	<.1	<5	<2	.5	<2	59
CH074S	<10	700	50	<50	10	<200	150	<200	<.1	<5	<2	.5	<2	64
CH075S	<10	700	150	<50	20	<200	200	<200	<.1	8	<2	1.3	<2	96
CH076S	<10	300	70	<50	10	<200	70	<200	<.1	14	<2	1.3	<2	67
CH077S	<10	500	50	<50	10	<200	100	<200	<.1	6	3	1.0	<2	53
CH078S	<10	300	70	<50	<10	<200	100	<200	<.1	<5	<2	.9	<2	130
CH079S	<10	500	30	<50	10	<200	100	<200	<.1	6	<2	.8	<2	50
CH080S	<10	500	70	<50	15	<200	150	<200	<.1	8	<2	1.0	<2	55
CH081S	<10	700	70	<50	10	<200	100	<200	<.1	6	<2	.8	<2	92
CJ022S	<10	500	50	<50	10	<200	150	<200	<.1	6	<2	.7	<2	41
CJ023S	<10	700	30	<50	<10	<200	150	<200	<.1	7	<2	.4	<2	53
CJ024S	<10	300	30	<50	15	<200	150	<200	<.2	9	<2	.9	2	69
CJ025S	<10	700	70	<50	10	<200	150	<200	<.1	<5	<2	.4	<2	51
CJ026S	<10	500	50	<50	10	<200	100	<200	<.1	<5	<2	.5	<2	64
CJ028S	<10	500	30	<50	10	<200	100	<200	<.1	<5	<2	.6	2	50
CJ029S	<10	500	30	<50	15	<200	150	<200	<.1	11	<2	.5	<2	72
CJ030S	<10	700	70	<50	30	<200	200	<200	<.1	11	<2	.8	<2	59
CJ031S	<10	500	30	<50	15	<200	150	<200	<.1	5	<2	.7	<2	64
CJ032S	<10	700	70	<50	20	<200	150	<200	<.1	6	<2	1.0	<2	48
CJ033S	<10	700	50	<50	15	<200	150	<200	<.1	6	<2	1.5	<2	56
CJ034S	<10	300	30	<50	15	<200	150	<200	<.1	13	<2	1.2	2	200
CJ035S	<10	500	70	<50	20	<200	150	<200	<.1	<5	<2	.8	<2	64
CJ036S	<10	300	30	<50	15	<200	100	<200	<.1	7	<2	.9	<2	80

TABLE 3. SPECTROGRAPHIC ANALYSIS OF HEAVY-MINERAL-CONCENTRATE SAMPLES --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
CJ037S	39 35 47	117 49 2	3.0	.70	3.0	.20	700	<.5	<700	<15	15	1,000
CJ038S	39 35 52	117 48 59	1.5	.70	2.0	.20	300	<.5	<700	<15	20	1,000
CJ039S	39 35 52	117 48 36	1.5	.50	1.5	.15	300	<.5	<700	<15	10	1,500
CJ040S	39 38 0	117 51 7	2.0	.70	2.0	.20	300	<.5	<700	<15	20	1,000
CJ041S	39 39 29	117 52 9	3.0	.70	2.0	.30	700	<.5	<700	<15	15	2,000
CJ042S	39 38 47	117 49 40	3.0	.50	1.5	.20	700	<.5	<700	<15	10	1,500
CJ043S	39 37 55	117 45 55	3.0	1.00	3.0	.30	500	<.5	<700	<15	20	700
CK044S	39 40 26	117 54 18	3.0	1.00	2.0	.30	500	<.5	<700	<15	20	1,000
CK045S	39 40 12	117 54 10	3.0	.70	2.0	.30	700	<.5	<700	<15	15	3,000
CK046S	39 38 27	117 54 23	1.5	.70	1.5	.15	300	<.5	<700	<15	15	700
CK047S	39 37 22	117 54 22	1.5	.50	1.5	.15	300	<.5	<700	<15	10	700
CK048S	39 36 50	117 54 50	3.0	.70	3.0	.30	300	<.5	<700	<15	10	1,500
CK049S	39 36 51	117 54 33	3.0	.70	3.0	.30	500	<.5	<700	<15	10	2,000
CK050S	39 37 8	117 57 37	1.5	.70	1.0	.10	200	<.5	<700	<15	15	700
CK051S	39 38 2	117 58 18	1.5	.70	1.0	.15	300	<.5	<700	<15	15	700
CK052S	39 40 23	117 57 53	1.5	.70	1.5	.15	300	<.5	<700	<15	15	700
CK053S	39 40 19	117 58 33	2.0	1.00	1.5	.15	300	<.5	<700	<15	20	700
CK054S	39 39 42	117 56 4	2.0	.70	2.0	.15	300	<.5	<700	<15	20	1,500
CK055S	39 37 11	118 0 46	2.0	.70	1.5	.15	300	<.5	<700	<15	15	700
CK056S	39 36 5	118 0 15	2.0	.70	1.5	.20	700	<.5	<700	<15	15	1,000
CK057S	39 34 56	117 59 31	2.0	.70	2.0	.20	500	<.5	<700	<15	15	700
CK058S	39 35 27	117 57 55	1.5	.30	1.5	.20	300	<.5	<700	<15	10	1,000
CK059S	39 33 45	117 58 52	1.5	.70	1.5	.15	300	<.5	<700	<15	15	700
CK060S	39 34 16	118 0 20	3.0	.70	3.0	.30	700	<.5	<700	<15	15	1,000
CK061S	39 32 21	117 59 25	1.5	.70	1.5	.15	300	<.5	<700	<15	15	1,000
CK062S	39 32 21	117 57 29	1.5	.70	1.5	.15	300	<.5	<700	<15	15	700
CK063S	39 30 18	118 0 18	2.0	.50	2.0	.20	300	<.5	<700	<15	10	1,500
CK064S	39 30 35	117 58 53	1.5	.30	2.0	.20	300	<.5	<700	<15	<10	1,500
CK065S	39 30 37	117 58 41	2.0	.50	2.0	.20	300	<.5	<700	<15	<10	1,500
CK066S	39 29 37	117 58 27	1.5	.70	1.5	.15	300	<.5	<700	<15	15	700
CK067S	39 29 27	117 55 31	2.0	.30	2.0	.30	300	<.5	<700	<15	<10	1,500
CK068S	39 30 28	117 52 2	1.5	.70	1.5	.15	300	<.5	<700	<15	15	700
CK069S	39 31 23	117 51 2	5.0	1.00	3.0	.50	700	<.5	<700	<15	10	1,000
CK070S	39 32 50	117 51 0	5.0	.70	2.0	.30	700	<.5	<700	<15	<10	1,000

TABLE 3. SPECTROGRAPHIC ANALYSIS OF HEAVY-MINERAL-CONCENTRATE SAMPLES _____ --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
CJ037S	1.5	<10	<30	5	15	7	<30	<5	<20	10	15	<100	7
CJ038S	1.5	<10	<30	5	15	7	<30	<5	<20	10	15	<100	7
CJ039S	1.5	<10	<30	5	15	7	30	<5	<20	<5	15	<100	7
CJ040S	1.5	<10	<30	5	20	7	<30	<5	<20	<5	15	<100	7
CJ041S	1.5	<10	<30	7	30	7	50	<5	<20	<5	20	<100	7
CJ042S	1.5	<10	<30	7	20	7	<30	<5	<20	<5	15	<100	7
CJ043S	1.0	<10	<30	15	30	10	<30	<5	<20	10	15	<100	15
CK044S	1.5	<10	<30	7	20	7	<30	<5	<20	5	15	<100	7
CK045S	1.5	<10	<30	7	20	7	30	<5	<20	<5	15	<100	7
CK046S	1.5	<10	<30	5	20	7	30	<5	<20	<5	15	<100	7
CK047S	1.5	<10	<30	<5	15	7	30	<5	<20	<5	15	<100	7
CK048S	1.5	<10	<30	10	50	7	30	<5	<20	7	15	<100	10
CK049S	1.5	<10	<30	7	30	15	50	<5	<20	5	15	<100	10
CK050S	1.5	<10	<30	<5	15	7	30	<5	<20	<5	15	<100	7
CK051S	1.5	<10	<30	5	15	7	30	<5	<20	<5	15	<100	7
CK052S	1.5	<10	<30	5	15	7	30	<5	<20	<5	15	<100	7
CK053S	1.5	<10	<30	5	30	7	30	<5	<20	<5	15	<100	7
CK054S	1.5	<10	<30	5	15	7	30	<5	<20	<5	15	<100	7
CK055S	1.5	<10	<30	5	20	7	30	<5	<20	<5	20	<100	7
CK056S	1.5	<10	<30	5	15	7	30	<5	<20	7	20	<100	7
CK057S	1.5	<10	<30	5	30	7	30	<5	<20	5	15	<100	7
CK058S	1.5	<10	<30	<5	15	7	30	<5	<20	<5	15	<100	7
CK059S	1.5	<10	<30	5	15	7	30	<5	<20	<5	20	<100	7
CK060S	2.0	<10	<30	10	30	15	70	<5	<20	10	20	<100	10
CK061S	1.5	<10	<30	7	15	7	30	<5	<20	<5	15	<100	7
CK062S	1.5	<10	<30	5	20	7	30	<5	<20	<5	15	<100	7
CK063S	1.5	<10	<30	5	20	7	30	<5	<20	<5	15	<100	7
CK064S	1.5	<10	<30	<5	15	5	30	<5	<20	<5	15	<100	7
CK065S	1.5	<10	<30	<5	<10	5	30	<5	<20	<5	15	<100	7
CK066S	1.5	<10	<30	5	15	7	30	<5	<20	<5	15	<100	7
CK067S	1.5	<10	<30	<5	15	5	100	<5	<20	5	15	<100	7
CK068S	1.5	<10	<30	7	15	7	30	<5	<20	<5	15	<100	7
CK069S	1.5	<10	<30	15	50	10	30	<5	<20	7	15	<100	15
CK070S	1.0	<10	<30	15	30	15	30	<5	<20	5	15	<100	15

TABLE 3. SPECTROGRAPHIC ANALYSIS OF HEAVY-MINERAL-CONCENTRATE SAMPLES --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	Au-ppm aa	As-ppm aa	Bi-ppm aa	Cd-ppm aa	Sb-ppm aa	Zn-ppm aa
CJ037S	<10	500	70	<50	15	<200	150	<200	<.1	<5	<2	1.3	<2	69
CJ038S	<10	300	70	<50	10	<200	100	<200	<.1	<5	<2	.6	<2	66
CJ039S	<10	700	30	<50	<10	<200	150	<200	<.1	6	<2	.4	<2	74
CJ040S	<10	500	50	<50	15	<200	150	<200	<.1	9	<2	1.2	<2	49
CJ041S	<10	700	70	<50	15	<200	200	<200	<.1	8	<2	.9	<2	82
CJ042S	<10	500	70	<50	10	<200	150	<200	<.1	35	<2	1.0	<2	62
CJ043S	<10	700	100	<50	<10	<200	100	<200	<.1	9	<2	1.0	3	85
CK044S	<10	500	70	<50	10	<200	150	<200	<.1	<5	<2	.5	<2	57
CK045S	<10	500	70	<50	15	<200	200	<200	<.1	7	<2	1.2	<2	70
CK046S	<10	500	30	<50	15	<200	150	<200	<.1	5	<2	.6	<2	45
CK047S	<10	300	30	<50	15	<200	100	<200	<.1	<5	<2	.7	2	55
CK048S	<10	700	70	<50	10	<200	150	<200	<.1	<5	<2	.5	<2	65
CK049S	<10	700	100	<50	15	<200	150	<200	<.1	<5	<2	.6	<2	61
CK050S	<10	300	30	<50	15	<200	150	<200	<.1	<5	<2	.7	<2	46
CK051S	<10	300	30	<50	15	<200	100	<200	<.1	6	<2	.9	<2	63
CK052S	<10	300	30	<50	15	<200	70	<200	<.1	8	<2	.9	<2	53
CK053S	<10	500	50	<50	15	<200	150	<200	<.1	7	<2	.9	<2	52
CK054S	<10	500	30	<50	15	<200	100	<200	<.1	<5	<2	.5	<2	61
CK055S	<10	500	30	<50	15	<200	150	<200	<.1	<5	<2	.7	<2	48
CK056S	<10	500	50	<50	15	<200	150	<200	<.1	<5	<2	.5	<2	64
CK057S	<10	500	50	<50	15	<200	150	<200	<.1	7	<2	.9	<2	54
CK058S	<10	500	30	<50	15	<200	150	<200	<.1	<5	<2	.8	<2	56
CK059S	<10	300	30	<50	10	<200	100	<200	<.1	<5	<2	.8	<2	56
CK060S	<10	700	70	<50	30	<200	150	<200	<.1	<5	<2	.8	<2	57
CK061S	<10	500	50	<50	15	<200	150	<200	<.1	7	<2	.9	<2	54
CK062S	<10	500	50	<50	15	<200	300	<200	<.1	<5	<2	.9	<2	67
CK063S	<10	700	70	<50	10	<200	200	<200	<.1	<5	<2	.8	<2	62
CK064S	<10	700	30	<50	<10	<200	150	<200	<.1	<5	<2	.8	5	54
CK065S	<10	700	30	<50	15	<200	150	<200	<.1	<5	<2	.9	<2	56
CK066S	<10	500	30	<50	15	<200	150	<200	<.1	<5	<2	.8	<2	44
CK067S	<10	500	50	<50	15	<200	200	<200	<.1	<5	<2	.6	<2	56
CK068S	<10	500	50	<50	15	<200	200	<200	<.1	7	<2	.5	2	100
CK069S	<10	700	150	<50	10	<200	150	<200	<.1	5	<2	.8	<2	68
CK070S	<10	700	150	<50	15	<200	150	<200	<.1	<5	<2	1.0	<2	95

Table 4.--Spectrographic and Inductively coupled plasma atomic emission spectroscopy analysis of stream sediment samples from the Clan Alpine Mountains Wilderness Study Area, Churchill County, Nevada

[N, not detected; <, detected but below the limit of determination shown; >, determined to be greater than the value shown.]

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
CB019H	39 33 19	117 50 6	.50	.15	3.0	1.50	300	N	N	N
CB020H	39 34 7	117 49 21	.70	.10	2.0	2.00	200	100	N	N
CB021H	39 34 31	117 49 4	.20	.10	1.5	.30	150	N	N	N
CB022H	39 35 44	117 47 44	2.00	.30	3.0	2.00	500	N	N	N
CB023H	39 36 13	117 46 48	5.00	1.00	3.0	1.50	2,000	N	N	N
CB024H	39 36 21	117 46 32	2.00	.15	3.0	2.00	1,000	N	N	N
CB025H	39 36 53	117 47 12	.70	.07	3.0	.50	200	N	N	N
CB026H	39 36 46	117 45 43	.50	.15	7.0	>2.00	700	N	N	N
CB027H	39 37 32	117 46 34	1.50	.15	3.0	1.50	150	N	N	N
CB028H	39 37 26	117 45 28	<.10	<.05	.3	.20	50	N	N	N
CB030H	39 33 32	117 57 47	1.00	.10	1.5	1.50	200	N	N	N
CB034H	39 31 9	117 59 34	1.50	.70	3.0	2.00	500	N	N	N
CB035H	39 31 23	117 58 4	.30	.10	3.0	1.00	500	N	N	N
CB037H	39 29 34	117 55 36	1.50	.50	3.0	2.00	300	N	N	N
CB038H	39 30 4	117 51 52	1.50	.20	1.5	>2.00	500	N	N	N
CB040H	39 32 58	117 50 17	1.50	.20	3.0	1.50	700	N	N	N
CB041H	39 32 9	117 53 4	.30	.05	3.0	>2.00	200	100	N	N
CB042H	39 32 4	117 53 2	.50	.05	2.0	>2.00	300	N	N	N
CB043H	39 34 58	117 51 49	.30	.05	1.5	>2.00	200	1,000	N	1,000
CB044H	39 35 21	117 52 26	.70	.20	2.0	1.50	150	N	N	N
CB047H	39 37 5	117 50 24	.70	.15	2.0	2.00	200	N	N	N
CH036H	39 34 28	117 54 23	1.50	.50	3.0	>2.00	500	N	N	N
CH037H	39 34 26	117 54 29	.30	.05	1.0	1.00	150	N	N	N
CH039H	39 34 1	117 53 44	1.00	.30	5.0	>2.00	700	N	N	N
CH040H	39 34 12	117 53 32	2.00	.50	5.0	>2.00	700	N	N	N
CH041H	39 33 47	117 52 42	3.00	.50	5.0	>2.00	700	N	N	N
CH042H	39 33 45	117 52 25	.15	.05	15.0	.70	300	N	N	<20
CH043H	39 39 41	117 53 28	.70	.20	5.0	1.00	700	N	N	N
CH044H	39 39 12	117 53 28	3.00	1.00	7.0	>2.00	1,500	N	N	N
CH045H	39 38 47	117 54 17	1.00	.05	10.0	1.00	700	N	N	N
CH047H	39 37 11	117 53 6	.30	.10	1.5	1.00	150	N	N	N
CH048H	39 37 7	117 55 34	.70	.15	2.0	1.50	150	N	N	N
CH049H	39 37 2	117 55 32	3.00	.50	2.0	1.50	500	N	N	N
CH051H	39 37 35	117 58 50	.30	.07	15.0	>2.00	300	N	N	N
CH052H	39 37 52	117 58 24	.15	.05	15.0	>2.00	300	N	N	N
CH054H	39 39 51	117 55 44	.70	.20	5.0	1.50	500	200	N	200
CH055H	39 36 29	118 0 26	3.00	1.00	5.0	>2.00	1,000	N	N	N
CH056H	39 35 14	118 0 29	2.00	.70	7.0	>2.00	1,000	N	N	N
CH058H	39 35 22	117 57 41	.10	<.05	20.0	.70	100	N	N	N
CH059H	39 33 26	117 58 8	2.00	.70	5.0	>2.00	700	15	N	N
CH060H	39 33 28	117 58 0	3.00	1.00	5.0	>2.00	1,000	N	N	N
CH061H	39 33 55	117 57 14	1.50	.30	3.0	2.00	500	N	N	N
CH062H	39 32 39	117 59 37	2.00	.70	7.0	>2.00	1,000	N	N	N
CH063H	39 32 43	117 57 35	.50	.05	1.5	1.50	200	N	N	N
CH065H	39 31 2	117 58 44	.30	.10	1.5	1.50	70	N	N	N

TABLE 4. SPECTROGRAPHIC & ICP ANALYSIS OF STREAM SEDIMENT SAMPLES [redacted]--Continued

Sample	B-ppm s	Ba-ppm s	Be-ppm s	Bi-ppm s	Cd-ppm s	Co-ppm s	Cr-ppm s	Cu-ppm s	La-ppm s	Mo-ppm s	Nb-ppm s
CB019H	20	700	2	N	N	N	<20	30	70	N	N
CB020H	<20	100	7	N	N	N	50	100	1,000	N	100
CB021H	20	1,500	3	N	N	N	N	N	<50	N	N
CB022H	30	100	5	N	N	N	70	N	200	N	<50
CB023H	50	1,500	5	N	N	<10	70	10	500	N	N
CB024H	50	>10,000	5	N	N	N	20	N	200	N	<50
CB025H	20	10,000	5	N	N	N	<20	N	100	N	N
CB026H	50	1,500	7	N	N	N	70	N	700	N	<50
CB027H	N	>10,000	<2	N	N	N	30	<10	70	N	N
CB028H	N	>10,000	N	N	N	N	N	N	50	N	N
CB030H	20	700	7	N	N	N	<20	N	100	N	N
CB034H	30	700	5	N	N	N	70	N	200	N	<50
CB035H	70	700	7	N	N	N	N	N	100	N	N
CB037H	50	700	3	N	N	N	100	N	300	N	N
CB038H	<20	200	7	N	N	N	<20	N	200	50	<50
CB040H	20	2,000	3	N	N	N	70	N	500	N	N
CB041H	N	500	5	N	N	N	<20	N	300	N	<50
CB042H	<20	10,000	5	N	N	N	<20	N	500	N	<50
CB043H	<20	700	5	N	N	N	<20	N	100	N	50
CB044H	20	700	<2	N	N	N	50	15	70	N	<50
CB047H	20	1,000	2	N	N	N	<20	N	70	N	N
CH036H	50	200	3	N	N	N	50	N	200	N	100
CH037H	N	1,000	5	N	N	N	30	N	100	N	N
CH039H	20	300	3	100	N	N	30	N	700	N	200
CH040H	<20	200	5	N	N	N	70	N	700	N	<50
CH041H	20	300	5	N	N	<10	70	N	700	N	70
CH042H	<20	200	<2	N	N	N	<20	N	70	N	<50
CH043H	<20	7,000	5	N	N	N	20	N	200	N	N
CH044H	70	10,000	3	N	N	N	150	<10	700	N	50
CH045H	N	>10,000	5	N	N	N	<20	N	1,500	N	N
CH047H	<20	150	2	N	N	N	20	N	150	N	N
CH048H	20	700	5	N	N	N	30	N	150	N	N
CH049H	50	1,500	7	N	N	N	20	N	300	N	N
CH051H	20	150	5	N	N	N	<20	N	500	N	70
CH052H	N	200	5	N	N	N	N	N	200	N	100
CH054H	70	7,000	2	N	N	N	20	N	500	N	N
CH055H	100	300	2	1,500	N	<10	150	N	1,000	N	<50
CH056H	30	300	2	N	N	<10	70	<10	1,000	<10	100
CH058H	N	50	3	1,500	N	N	N	N	70	N	<50
CH059H	100	300	<2	N	N	N	100	N	700	N	50
CH060H	100	300	5	N	N	N	100	70	700	N	70
CH061H	30	500	7	N	N	N	30	N	500	N	N
CH062H	70	200	3	N	N	N	50	N	1,000	N	70
CH063H	N	2,000	5	N	N	N	<20	10	700	N	N
CH065H	<20	500	10	N	N	N	N	N	70	N	N

TABLE 4. SPECTROGRAPHIC & ICP ANALYSIS OF STREAM SEDIMENT SAMPLES [redacted]--Continued

Sample	Ni-ppm s	Pb-ppm s	Sb-ppm s	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
CB019H	N	50	N	<10	N	300	50	N	300	N	>2,000	N
CB020H	N	100	N	20	N	N	50	N	1,000	N	>2,000	N
CB021H	N	50	N	<10	N	500	<20	N	50	N	>2,000	N
CB022H	N	20	N	70	N	N	100	N	700	N	>2,000	N
CB023H	N	50	N	70	N	N	150	N	700	N	>2,000	N
CB024H	N	70	N	50	N	5,000	100	N	700	N	>2,000	N
CB025H	N	N	1,000	100	N	N	30	N	1,000	N	>2,000	N
CB026H	N	300	N	70	200	N	150	N	700	N	>2,000	N
CB027H	N	<20	N	10	70	5,000	70	N	150	N	>2,000	N
CB028H	N	N	N	<10	N	2,000	<20	N	50	N	>2,000	N
CB030H	N	N	N	70	N	N	70	N	1,000	N	>2,000	N
CB034H	N	N	N	50	N	N	100	N	700	N	>2,000	N
CB035H	N	N	N	70	N	N	100	N	500	N	>2,000	N
CB037H	N	N	N	70	N	N	150	N	700	N	>2,000	N
CB038H	N	100	N	70	N	N	100	N	1,000	N	>2,000	N
CB040H	N	<20	N	50	N	N	100	N	1,000	N	>2,000	N
CB041H	N	N	N	70	N	N	50	N	1,000	N	>2,000	N
CB042H	N	70	N	70	<20	N	50	100	1,000	N	>2,000	N
CB043H	N	50	N	50	N	N	20	N	700	N	>2,000	N
CB044H	N	<20	N	30	N	300	50	N	200	N	>2,000	N
CB047H	N	N	N	50	N	200	50	N	500	N	>2,000	N
CH036H	N	300	N	50	N	N	150	N	700	N	>2,000	N
CH037H	N	N	N	70	N	N	50	N	1,000	N	>2,000	N
CH039H	N	70	N	70	70	N	100	N	700	N	>2,000	N
CH040H	N	30	N	70	N	N	100	N	700	N	>2,000	N
CH041H	N	70	N	70	150	N	70	N	700	N	>2,000	N
CH042H	N	70	N	15	N	N	<20	N	300	N	>2,000	N
CH043H	N	30	N	70	N	<200	70	N	700	N	>2,000	N
CH044H	N	70	N	50	500	N	200	N	700	N	>2,000	N
CH045H	N	2,000	N	20	N	700	30	N	700	N	>2,000	N
CH047H	N	N	N	30	N	N	30	N	500	N	>2,000	N
CH048H	N	<20	N	20	100	<200	70	N	300	N	>2,000	N
CH049H	N	30	N	30	N	N	100	N	700	N	>2,000	N
CH051H	N	<20	N	50	50	N	100	N	700	N	>2,000	N
CH052H	N	20	N	50	70	N	50	N	700	N	>2,000	N
CH054H	N	150	N	20	N	N	100	N	700	N	>2,000	N
CH055H	N	70	N	50	50	N	200	N	700	N	>2,000	N
CH056H	N	300	N	50	70	N	200	N	700	N	>2,000	N
CH058H	N	50	N	<10	N	N	20	N	700	N	>2,000	N
CH059H	N	70	N	70	300	N	200	N	700	N	>2,000	N
CH060H	N	150	N	50	30	N	150	N	500	N	>2,000	N
CH061H	N	50	N	50	<20	N	150	N	700	N	>2,000	N
CH062H	N	50	N	70	50	N	200	N	700	N	>2,000	N
CH063H	N	50	N	70	N	N	50	N	700	N	>2,000	N
CH065H	N	<20	N	70	N	N	50	N	700	N	>2,000	N

TABLE 4. SPECTROGRAPHIC & ICP ANALYSIS OF STREAM SEDIMENT SAMPLES _____ --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
CH067H	39 30 4	117 56 45	2.00	.70	3.0	2.00	700	N	N	N
CH068H	39 29 32	117 50 44	.50	.15	1.5	2.00	300	N	N	N
CH070H	39 31 8	117 53 7	1.50	.30	10.0	>2.00	700	N	N	N
CH071H	39 33 3	117 51 20	.50	.10	3.0	1.00	100	N	N	N
CH072H	39 33 37	117 49 44	.30	.07	15.0	>2.00	200	N	N	N
CH075H	39 35 55	117 51 20	1.50	.70	3.0	1.00	300	N	N	N
CH076H	39 37 29	117 50 24	.20	<.05	.7	.10	70	N	N	N
CH077H	39 37 43	117 50 54	.70	.30	10.0	1.50	500	N	N	N
CH080H	39 39 14	117 50 32	.30	.15	7.0	2.00	300	N	N	N
CH081H	39 38 49	117 47 38	3.00	.70	3.0	1.00	700	N	N	N
CJ022H	39 40 42	117 54 40	3.00	.70	7.0	>2.00	1,000	N	N	N
CJ023H	39 38 41	117 53 38	.70	.10	3.0	2.00	300	N	N	N
CJ024H	39 38 9	117 53 43	1.50	.30	3.0	1.50	700	N	N	N
CJ025H	39 36 43	117 54 11	.70	.10	2.0	1.50	150	N	N	N
CJ026H	39 36 40	117 54 17	3.00	.70	3.0	2.00	700	N	N	N
CJ027H	39 36 37	117 55 43	2.00	.50	3.0	1.50	500	N	N	N
CJ028H	39 36 41	117 55 45	2.00	1.00	3.0	2.00	1,000	N	N	N
CJ030H	39 38 56	117 57 35	.70	.15	3.0	2.00	1,000	N	N	N
CJ031H	39 38 58	117 56 43	3.00	1.00	5.0	2.00	2,000	N	N	N
CJ032H	39 37 54	118 0 44	1.50	.20	5.0	>2.00	200	N	N	N
CJ033H	39 34 40	117 59 55	.15	.15	20.0	1.00	150	N	N	N
CJ034H	39 33 25	117 52 7	<.10	<.05	20.0	.15	70	N	N	N
CJ036H	39 35 9	117 51 26	.30	.05	7.0	1.00	100	N	N	N
CJ037H	39 35 47	117 49 2	1.50	.20	3.0	1.50	300	N	N	N
CJ039H	39 35 52	117 48 36	5.00	.30	3.0	1.50	700	N	N	N
CJ041H	39 39 29	117 52 9	1.50	.70	5.0	1.50	700	N	N	N
CJ042H	39 38 47	117 49 40	2.00	.30	5.0	2.00	1,000	N	N	N
CJ043H	39 37 55	117 45 55	3.00	.50	5.0	>2.00	300	N	N	N
CK044H	39 40 26	117 54 18	1.00	.30	7.0	>2.00	1,000	N	N	N
CK045H	39 40 12	117 54 10	.50	.07	1.0	.70	300	N	N	N
CK046H	39 38 27	117 54 23	2.00	.70	5.0	2.00	1,000	N	N	N
CK047H	39 37 22	117 54 22	3.00	1.00	5.0	2.00	1,000	N	N	N
CK048H	39 36 50	117 54 50	.70	.15	1.5	1.00	150	N	N	N
CK049H	39 36 51	117 54 33	.50	.15	2.0	1.50	300	N	N	N
CK050H	39 37 8	117 57 37	2.00	.70	10.0	>2.00	1,500	N	N	N
CK056H	39 36 5	118 0 15	.20	.15	10.0	>2.00	200	N	N	N
CK059H	39 33 45	117 58 52	1.50	.50	10.0	>2.00	500	N	N	N
CK060H	39 34 16	118 0 20	.70	.20	10.0	2.00	300	N	N	N
CK061H	39 32 21	117 59 25	.30	.10	1.5	.70	100	N	N	N
CK062H	39 32 21	117 57 29	1.50	.50	3.0	1.50	500	N	N	N
CK063H	39 30 18	118 0 18	.30	.07	2.0	1.50	150	N	N	N
CK064H	39 30 35	117 58 53	.30	<.05	1.5	1.50	300	N	N	N
CK065H	39 30 37	117 58 41	1.00	.20	3.0	1.50	300	N	N	N
CK066H	39 29 37	117 58 27	.50	.10	5.0	2.00	700	N	N	N
CK067H	39 29 27	117 55 31	1.00	.20	1.0	1.00	700	N	N	N

TABLE 4. SPECTROGRAPHIC & ICP ANALYSIS OF STREAM SEDIMENT SAMPLES_____--Continued

Sample	P-ppm s	Ba-ppm s	Be-ppm s	Bi-ppm s	Cd-ppm s	Co-ppm s	Cr-ppm s	Cu-ppm s	La-ppm s	Mo-ppm s	Nb-ppm s
CH067H	150	700	5	N	N	N	70	N	700	N	N
CH068H	30	700	5	N	N	N	<20	N	100	N	N
CH070H	20	300	5	1,000	N	N	20	N	700	N	<50
CH071H	70	700	<2	N	N	N	70	N	70	N	<50
CH072H	20	10,000	<2	N	N	N	<20	N	300	N	<50
CH075H	50	3,000	<2	N	N	N	100	N	70	100	<50
CH076H	N	>10,000	<2	N	N	N	<20	N	50	N	N
CH077H	20	700	<2	N	N	N	50	N	700	N	N
CH080H	50	>10,000	3	N	N	N	<20	15	300	N	N
CH081H	100	>10,000	2	N	N	N	100	30	150	N	N
CJ022H	100	300	2	N	N	<10	100	N	700	N	<50
CJ023H	N	10,000	<2	N	N	N	70	30	70	N	N
CJ024H	70	5,000	3	N	N	N	70	N	300	N	N
CJ025H	<20	300	7	N	N	N	20	N	150	N	N
CJ026H	50	700	7	N	N	N	100	N	500	N	<50
CJ027H	30	300	3	N	N	N	50	N	700	N	N
CJ028H	30	500	5	N	N	N	100	N	1,000	N	N
CJ030H	30	10,000	N	N	N	N	<20	N	700	N	N
CJ031H	30	3,000	7	N	N	N	100	10	1,000	N	N
CJ032H	100	2,000	2	2,000	N	N	50	N	300	30	<50
CJ033H	<20	N	3	N	N	N	<20	N	200	N	100
CJ034H	N	N	<2	N	N	N	20	N	50	N	N
CJ036H	<20	300	<2	N	N	N	30	N	100	N	N
CJ037H	20	1,500	3	N	N	N	50	70	70	N	N
CJ039H	N	1,500	7	N	N	N	30	N	100	N	N
CJ041H	30	7,000	3	N	N	N	70	<10	200	N	N
CJ042H	20	>10,000	2	N	N	N	50	<10	300	N	N
CJ043H	100	>10,000	<2	N	N	N	70	N	200	N	50
CK044H	50	3,000	3	50	N	N	50	N	700	N	<50
CK045H	<20	5,000	2	N	N	N	30	N	50	N	N
CK046H	30	2,000	2	N	N	N	70	N	500	N	<50
CK047H	100	1,500	7	N	N	N	70	10	700	N	N
CK048H	<20	500	7	N	N	N	50	N	100	N	N
CK049H	20	300	7	N	N	N	50	N	1,000	N	N
CK050H	30	1,500	2	N	N	N	<20	N	500	N	<50
CK056H	30	200	5	N	N	N	50	N	500	N	50
CK059H	70	2,000	3	N	N	N	30	N	1,000	N	150
CK060H	20	200	3	N	N	N	N	N	150	N	N
CK061H	20	700	2	N	N	N	30	N	70	N	N
CK062H	50	700	3	N	N	N	50	70	300	N	<50
CK063H	N	700	7	N	N	N	<20	N	70	N	N
CK064H	N	10,000	7	N	N	N	<20	N	150	N	N
CK065H	30	700	7	N	N	N	20	N	150	N	N
CK066H	N	200	<2	N	N	N	<20	N	300	N	<50
CK067H	N	7,000	5	N	N	N	N	N	300	N	N
CK070H	70	1,500	2	N	N	N	20	N	100	N	N

TABLE 4. SPECTROGRAPHIC & ICP ANALYSIS OF STREAM SEDIMENT SAMPLES [_____]--Continued

Sample	Ni-ppm s	Pb-ppm s	Sb-ppm s	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
CH067H	N	20	N	50	20	N	150	N	700	N	>2,000	N
CH068H	N	300	N	30	50	N	70	N	700	N	>2,000	N
CH070H	N	30	N	70	50	N	100	N	1,000	N	>2,000	N
CH071H	N	N	N	30	N	N	50	N	300	N	>2,000	N
CH072H	N	<20	N	30	200	1,000	200	N	1,000	N	>2,000	N
CH075H	N	200	N	30	N	700	70	N	300	N	>2,000	N
CH076H	N	N	N	10	N	3,000	<20	N	50	2,000	>2,000	N
CH077H	N	N	N	30	N	700	100	N	700	N	>2,000	N
CH080H	N	<20	N	30	N	700	50	N	500	N	>2,000	N
CH081H	N	20	N	70	N	700	150	N	500	N	>2,000	N
CJ022H	N	20	N	50	30	N	200	N	700	N	>2,000	N
CJ023H	N	N	N	70	N	<200	70	N	700	N	>2,000	N
CJ024H	N	50	N	50	N	N	100	N	1,000	N	>2,000	N
CJ025H	N	N	N	50	N	N	70	N	700	N	>2,000	N
CJ026H	30	20	N	50	N	N	150	N	1,000	N	>2,000	N
CJ027H	N	<20	N	30	N	N	100	N	700	N	>2,000	N
CJ028H	N	<20	N	50	<20	N	150	N	700	N	>2,000	N
CJ030H	N	700	N	70	N	N	300	N	1,000	N	>2,000	N
CJ031H	N	150	N	50	<20	N	150	N	1,000	N	>2,000	N
CJ032H	N	3,000	N	20	200	1,500	200	N	300	N	>2,000	N
CJ033H	N	N	N	15	N	N	30	N	500	N	>2,000	N
CJ034H	N	<20	N	<10	N	N	<20	N	150	N	1,000	N
CJ036H	N	N	N	50	N	N	20	N	700	N	>2,000	N
CJ037H	N	N	N	50	N	300	70	N	500	N	>2,000	N
CJ039H	N	<20	N	70	N	N	100	N	700	N	>2,000	N
CJ041H	N	20	N	30	N	700	100	N	500	N	>2,000	N
CJ042H	N	20	N	70	N	300	100	N	700	N	>2,000	N
CJ043H	N	50	N	20	N	1,500	150	N	500	N	>2,000	N
CK044H	N	150	N	30	100	N	150	N	700	N	>2,000	N
CK045H	N	N	N	30	N	200	20	N	200	N	>2,000	N
CK046H	N	<20	N	50	70	N	150	N	700	N	>2,000	N
CK047H	N	70	N	50	N	N	100	N	700	N	>2,000	N
CK048H	N	N	N	30	N	N	50	N	700	N	>2,000	N
CK049H	N	<20	N	50	N	N	70	N	700	N	>2,000	N
CK050H	N	30	N	20	30	<200	150	N	700	N	>2,000	N
CK056H	N	<20	N	50	300	N	70	N	500	N	>2,000	N
CK059H	N	70	N	30	30	N	200	N	700	N	>2,000	N
CK060H	N	20	N	30	N	N	70	N	700	N	>2,000	N
CK061H	N	<20	N	30	N	N	50	N	500	N	>2,000	N
CK062H	N	70	N	30	N	N	100	N	700	N	>2,000	N
CK063H	N	N	N	50	N	N	70	N	700	N	>2,000	N
CK064H	N	100	N	70	N	N	50	N	1,000	N	>2,000	N
CK065H	N	N	N	70	N	N	100	N	700	N	>2,000	N
CK066H	N	N	N	70	N	N	200	N	1,000	N	>2,000	N
CK067H	N	150	N	50	N	N	100	N	1,000	N	>2,000	N
CK070H	N	<20	N	30	N	N	150	N	700	N	>2,000	N