UNITED STATES DEPARTMENT OF THE INTERIOR

GEOLOGICAL SURVEY

Analytical results and sample locality map of stream-sediment, heavy-mineral-concentrate, rock, and soil samples from the Whipple Mountains Wilderness Study Area (CDCA-312) and Whipple Mountains Addition Wilderness Study Area (AZ-050-010), San Bernardino County, California

By

M. S. Erickson*, S. P. Marsh*,

D. E. Detra*, and B. F. Arbogast*

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*U.S. Geological Survey, DFC, Box 25046, MS 973, Denver, CO 80225

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STUDIES RELATED TO WILDERNESS

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 Whipple Mountains Wilderness Study Area, California Desert Conservation Area and Whipple Mountains Addition Wilderness Study Area, San Bernardino County, California.

INTRODUCTION

In 1980, the U.S. Geological Survey conducted a reconnaissance geochemical survey of the Whipple Mountains Wilderness Study Area, San Bernardino County, California. Approximately 77,000 acres were sampled. This included 75,841 acres of the Whipple Mountains Wilderness Study Area as well as an additional 1,385 acres adjacent in the Whipple Mountains Addition Wilderness Study Area (fig. 1).

The Whipple Mountains Wilderness Study Area is located in the southeast corner of San Bernardino County, California, and lies about 6 mi northwest of Parker, Arizona, and 10 mi southwest of Lake Havasu City, Arizona. Access to the study area is provided on the south by California Street and Highway 62, and on the west side of the Colorado River by a paved road.

The Whipple Mountains Wilderness Study Area is situated in the geologically complex region just west of the California-Arizona border, northwest of Parker, Arizona. The Whipple Mountains consist primarily of a metamorphic basement or core complex overlain on the Whipple Mountains detachment fault by unmetamorphosed Tertiary volcanic and sedimentary rocks. This detachment fault separates the lower plate metamorphic domal core of the Whipple Mountains from the Tertiary upper plate rocks exposed around the flanks. The core complex has been intruded by Cretaceous and Tertiary plutonic sheets and dikes, which are associated with mineralization in many areas of lower plate rocks. Detachment and normal faulting occurred in the Miocene and resulted in mobilization and redistribution of mineralization into upper plate rocks. Numerous studies have investigated the geology of the Whipple Mountains (Anderson and others, 1979; Carr and others, 1980; Dickey and others, 1980; Frost, 1980; Davis and others, 1980, 1982a; Anderson and Frost, 1981; Anderson and Rowley, 1981; Carr, 1981; and Anderson, 1981). The geology and description of map units are shown on plate 1.

The topographic relief in the area is about 3,000 feet rising to a maximum elevation of 4,131 feet in the central part of the area. The area is rugged with sloping flanks to the south and precipitous faces in the metamorphic core complex to the north. Several large northeast-trending canyons cut into the area from the north.

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.

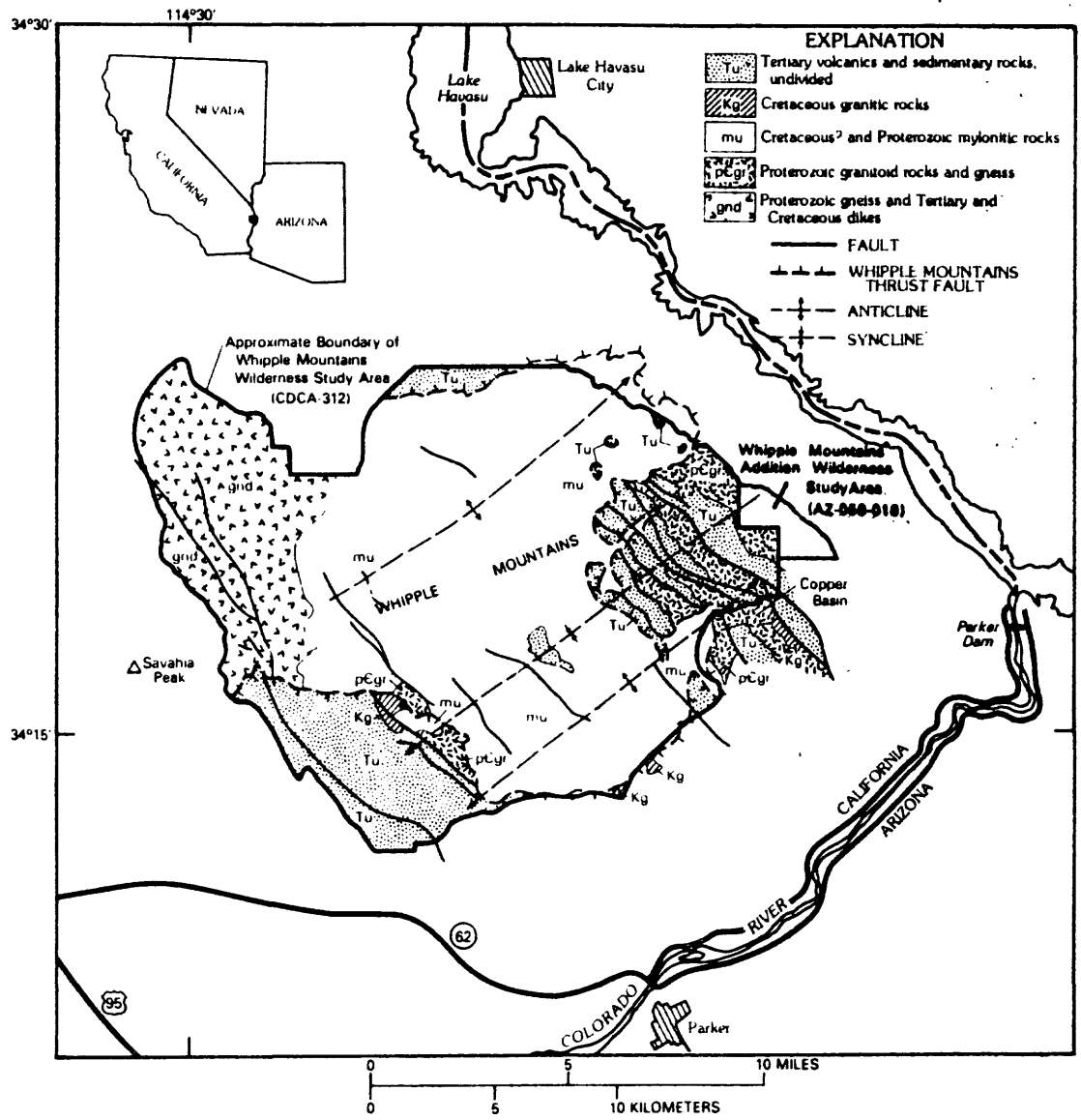

Figure 1. Location map and generalized geology of the Whipple Mountains Wilderness Study Area (CDCA-312) and Whipple Mountains Addition Wilderness Study Area (AZ-050-010), San Bernardino County, California.

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 certain 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.

Analyses of unaltered or unmineralized rock samples provide background geochemical data for individual rock units. On the other hand, analyses of altered or mineralized rocks, where present, may provide useful geochemical information about the major- and trace-element assemblages associated with a mineralizing system.

Sample Collection

Samples were collected at 154 sites (see fig. 1 and plate 1). At nearly all of those sites, both a stream-sediment sample and a heavy-mineral-concentrate sample were collected. In addition, 45 rock and 5 soil samples were taken, average sampling density was about one sample site per square mile for the stream sediments and heavy-mineral concentrates. The area of the drainage basins sampled ranged from 1 mi^2 to 5 mi^2.

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 = 1:24,000). Each sample was composited from several localities that may extend as much as 10 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.

Rock samples

Rock samples were collected from outcrops or exposures at locations shown on plate 1. Samples were collected from areas of hydrothermal or iron oxide alteration and from selected mining areas.

Soil samples

Soil samples were collected from areas of hydrothermal or iron oxide alteration to supplement rock samples taken from these areas.

Sample Preparation

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

After the samples were air dried, bromoform (specific gravity 2.8) 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 analysis/archival storage. The third fraction (the least magnetic material which may include the nonmagnetic ore minerals, 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° and a tilt of 10° with a current of 0.2 ampere to remove the magnetite and ilmenite, and a current of 0.6 ampere to split the remainder of the sample into paramagnetic and nonmagnetic fractions.

Rock samples were crushed and then pulverized to minus 0.15 mm with ceramic plates.

Sample Analysis

Spectrographic method

The stream-sediment, heavy-mineral-concentrate, rock samples and soil samples were analyzed for 31 elements using a semiquantitative, direct-current arc emission spectrographic method (Grimes and Marranzino, 1968). 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).

Chemical methods

Other methods of analysis used on samples from the Whipple Mountains Wilderness Study Area are summarized in table 2.

Analytical results for stream-sediment, heavy-mineral-concentrate, and rock and soil samples are listed in tables (3, 4, and 5, respectively).

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 or publication (VanTrump and Miesch, 1977).

DESCRIPTION OF DATA TABLES

Tables 3-5 list the results of analyses for the samples of stream sediment, heavy-mineral concentrate, rock and soils, respectively. For the three tables, 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 maps (plate 1). Columns in which the element headings show the letter "s" below the element symbol are emission spectrographic analyses; "cm" indicates colorimetric; "instr" indicates Jerome gold-film mercury detector; and "aa" indicates atomic absorption analyses. 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 tables 3-5 in place of an analytical value. Because of the formatting used in the computer program that produced tables 3-5, 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 rocks and stream sediments, based on a 10-mg sample

[The spectrographic limits of determination for heavy-mineral-concentrate samples are based on a 5-mg sample, and are therefore two reporting intervals higher than the limits given for rocks and stream sediments]

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

TABLE 2.--Chemical methods used

[AA = atomic absorption; CM = Colorimetric, I = Instrumental]

Element or constituent determined	Sample type	Method	Determination limit (micrograms/ gram or ppm)	Analyst	Reference
Gold (Au)		AA	0.05	C. R. Eason	Thompson and others, 1968.
Mercury (Hg)		Inst	.02	R. B. Vaughn	Vaughn and McCarthy, 1964.
Arsenic (As)		CM	5 or 10	B. Arbogast	Ward et al., 1963.
Antimony (Sb)		AA	2	B. Arbogast	Welsch and Chao, 1975.
Tungsten (W)		CM	0.5 or 1	B. Arbogast	Welsch, 1983.

TABLE 3.--Results of analyses of stream sediments, Whipple Mountains Wilderness Study Area and Whipple Mountains Addition Wilderness Study Area, San Bernardino County, California

[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
WM001	34 19 14	114 14 1	5	3.0	3.0	.3	1,000	N	N	N
WM002	34 20 3	114 14 45	5	3.0	3.0	.5	1,000	N	N	N
WM003	34 20 53	114 14 36	5	3.0	3.0	.3	1,000	N	N	N
WM004	34 20 47	114 16 38	10	2.0	3.0	.7	1,500	N	N	N
WM005	34 23 34	114 17 2	7	2.0	3.0	.3	1,000	N	N	N
WM006	34 21 30	114 17 23	10	3.0	3.0	.5	1,500	N	N	N
WM007	34 22 5	114 18 10	10	3.0	2.0	.5	1,000	N	N	N
WM008	34 22 18	114 18 49	7	3.0	2.0	.3	1,500	N	N	N
WM009	34 13 0	114 22 54	5	1.5	5.0	.5	1,500	N	N	N
WM010	34 13 55	114 23 8	3	1.5	5.0	.3	1,000	N	N	N
WM011	34 14 46	114 23 40	5	1.0	3.0	.3	1,000	N	N	N
WM012	34 15 14	114 24 6	10	1.5	2.0	.7	1,000	N	N	N
WM013	34 15 30	114 25 7	10	.7	1.5	.5	1,000	N	N	N
WM014	34 15 39	114 25 40	5	1.0	2.0	.3	1,000	N	N	N
WM015	34 16 15	114 25 37	5	1.5	2.0	.5	700	N	N	N
WM016	34 16 45	114 25 37	5	1.0	1.5	.5	500	N	N	N
WM017	34 16 47	114 25 46	5	1.5	2.0	.3	700	N	N	N
WM018	34 16 26	114 24 42	5	1.5	2.0	.5	700	N	N	N
WM019	34 16 33	114 24 22	7	1.5	2.0	.5	700	N	N	N
WM020	34 16 49	114 23 39	2	1.0	1.5	.3	500	N	N	N
WM021	34 16 51	114 23 47	7	1.5	2.0	.5	1,000	N	N	N
WM022	34 16 31	114 23 12	5	1.0	2.0	.3	1,000	<.5	N	N
WM023	34 15 47	114 23 7	5	1.5	2.0	.5	1,000	N	N	N
WM024	34 15 42	114 23 33	5	1.0	2.0	.3	500	N	N	N
WM025	34 17 17	114 23 27	7	1.5	2.0	.5	1,000	N	N	N
WM026	34 17 18	114 24 19	10	1.5	3.0	.7	700	N	N	N
WM027	34 17 35	114 24 17	10	1.5	2.0	.7	700	N	N	N
WM028	34 18 4	114 24 4	7	1.0	1.5	.5	700	N	N	N
WM029	34 19 8	114 21 56	20	1.0	1.5	.3	1,000	N	N	N
WM030	34 19 14	114 22 14	5	1.5	2.0	.3	700	N	N	N
WM031	34 18 55	114 22 34	20	1.5	2.0	.5	1,000	N	N	N
WM032	34 18 31	114 21 5	10	1.0	2.0	.5	1,000	N	N	N
WM033	34 18 12	114 20 49	10	1.5	5.0	.5	1,000	N	N	N
WM034	34 17 45	114 21 5	20	1.0	1.5	.7	1,000	N	N	N
WM035	34 17 25	114 21 34	5	1.0	1.5	.5	500	N	N	N
WM036	34 17 20	114 21 29	3	1.0	2.0	.3	1,000	N	N	N
WM037	34 16 32	114 21 22	10	1.5	2.0	.5	1,000	N	N	N
WM038	34 16 28	114 21 21	5	.7	1.5	.5	500	N	N	N
WM039	34 13 32	114 21 5	5	1.0	2.0	.7	500	N	N	N
WM040	34 13 38	114 21 15	5	1.5	2.0	.7	1,500	N	N	N
WM041	34 14 3	114 20 45	10	1.0	2.0	.7	700	N	N	N
WM042	34 14 49	114 22 12	5	1.0	2.0	.3	700	N	N	N
WM043	34 14 25	114 19 10	5	1.0	3.0	.5	700	N	N	N
WM044	34 14 24	114 19 19	5	1.0	2.0	.3	1,000	N	N	N
WM045	34 14 34	114 18 47	5	1.0	2.0	.7	700	N	N	N

Table 3.--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
WM001	20	2,000	1.5	N	N	20	50	70	50	N	N
WM002	20	1,500	1.5	N	N	20	50	30	50	N	<20
WM003	20	3,000	1.0	N	N	20	70	50	50	N	N
WM004	20	3,000	1.0	N	N	20	50	70	100	N	20
WM005	15	3,000	1.0	N	N	20	100	30	70	N	N
WM006	15	2,000	N	N	N	30	100	50	70	N	N
WM007	20	5,000	<1.0	N	N	30	500	70	150	N	20
WM008	15	3,000	1.0	N	N	30	70	70	70	N	<20
WM009	30	1,500	1.5	N	N	15	150	50	100	<5	<20
WM010	30	1,000	2.0	N	N	15	150	30	70	N	N
WM011	30	1,000	1.5	N	N	10	50	20	100	N	N
WM012	20	2,000	1.0	N	N	20	100	70	100	N	<20
WM013	20	2,000	1.0	N	N	15	70	30	100	N	N
WM014	20	1,000	1.5	N	N	15	150	20	50	N	N
WM015	20	3,000	1.0	N	N	15	70	30	150	N	<20
WM016	15	1,500	1.5	N	N	10	50	20	100	N	20
WM017	20	1,500	1.5	N	N	15	100	30	100	N	<20
WM018	20	5,000	1.5	N	N	15	70	30	100	N	<20
WM019	20	1,500	1.5	N	N	20	70	50	100	N	<20
WM020	15	1,000	2.0	N	N	10	20	30	50	N	<20
WM021	20	1,500	1.0	N	N	20	70	50	100	N	20
WM022	20	1,500	1.5	N	N	15	50	50	70	N	<20
WM023	20	1,500	1.5	N	N	20	70	50	70	N	N
WM024	15	1,000	2.0	N	N	10	30	20	100	N	<20
WM025	20	1,500	1.5	N	N	20	50	50	70	N	<20
WM026	20	1,500	1.0	N	N	20	70	50	150	<5	20
WM027	20	2,000	1.0	N	N	20	70	50	70	N	<20
WM028	15	1,000	1.0	N	N	15	50	30	70	N	<20
WM029	30	3,000	1.0	N	N	30	150	70	100	N	<20
WM030	20	2,000	1.0	N	N	15	70	50	70	N	<20
WM031	30	1,500	1.5	N	N	20	100	70	150	N	<20
WM032	20	1,000	1.5	N	N	20	50	50	200	N	20
WM033	15	1,500	1.5	N	N	30	100	50	150	N	<20
WM034	30	1,000	1.0	N	N	30	70	50	200	N	<20
WM035	15	1,000	1.5	N	N	15	30	20	100	N	20
WM036	20	3,000	2.0	N	N	15	50	30	70	<5	<20
WM037	20	3,000	1.5	N	N	30	70	50	70	N	N
WM038	10	1,000	1.5	N	N	15	30	20	50	N	N
WM039	20	1,500	2.0	N	N	15	50	30	70	N	<20
WM040	20	2,000	1.5	N	N	20	100	70	100	<5	<20
WM041	20	3,000	1.5	N	N	20	100	50	150	N	20
WM042	20	2,000	2.0	N	N	20	50	50	70	N	<20
WM043	30	2,000	2.0	N	N	15	70	30	100	N	20
WM044	20	1,500	1.5	N	N	15	30	30	70	N	N
WM045	15	1,000	1.5	N	N	15	50	30	100	N	<20

Table 3.--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
WM001	20	50	N	10	N	150	70	N	20	300	100	N
WM002	20	30	N	10	N	150	100	N	20	N	150	N
WM003	20	70	N	10	N	150	100	N	20	300	100	N
WM004	20	30	N	10	N	150	100	N	30	N	200	N
WM005	30	10	N	7	N	300	70	N	20	N	150	N
WM006	50	10	N	10	N	500	100	N	20	N	150	N
WM007	50	20	N	15	N	500	200	N	30	N	300	N
WM008	30	20	N	15	N	300	150	N	20	200	150	N
WM009	20	50	N	15	N	300	100	N	50	N	700	N
WM010	30	30	N	10	N	300	70	N	30	N	500	N
WM011	15	20	N	10	N	150	100	N	50	N	300	N
WM012	15	30	N	10	N	200	100	N	50	N	1,000	N
WM013	20	20	N	10	N	200	150	N	50	N	>1,000	N
WM014	20	30	N	10	N	200	70	N	20	<200	150	N
WM015	15	30	N	15	N	200	100	N	50	N	200	N
WM016	15	20	N	15	N	200	100	N	50	N	700	N
WM017	20	30	N	15	N	200	100	N	30	N	500	N
WM018	20	30	N	15	N	300	70	N	30	N	700	N
WM019	20	30	N	15	N	300	100	N	30	N	500	N
WM020	10	15	N	10	N	200	70	N	30	N	300	N
WM021	20	20	N	20	N	300	100	N	50	N	500	N
WM022	15	30	N	15	N	200	70	N	30	N	300	N
WM023	20	20	N	15	N	200	70	N	30	N	300	N
WM024	15	20	N	10	N	200	70	N	30	N	200	N
WM025	20	20	N	15	N	200	100	N	50	N	500	N
WM026	20	50	N	20	N	500	100	N	70	N	300	N
WM027	20	20	N	15	N	300	100	N	30	N	300	N
WM028	20	15	N	15	N	300	100	N	50	N	300	N
WM029	20	20	N	15	N	300	200	N	50	N	>1,000	N
WM030	20	20	N	10	N	500	70	N	30	N	200	N
WM031	30	20	N	15	N	300	200	N	50	N	>1,000	N
WM032	20	10	N	20	N	300	100	N	50	N	>1,000	N
WM033	30	15	N	20	N	500	100	N	50	N	1,000	N
WM034	30	20	N	20	N	300	200	N	50	N	>1,000	N
WM035	20	10	N	20	N	200	70	N	50	N	>1,000	N
WM036	15	30	N	10	N	200	50	N	20	N	300	N
WM037	30	20	N	20	N	300	100	N	50	N	>1,000	N
WM038	15	10	N	10	N	200	70	N	30	N	>1,000	N
WM039	20	15	N	15	N	200	70	N	30	N	500	N
WM040	30	15	N	15	N	200	100	N	50	N	300	N
WM041	30	15	N	20	N	200	100	N	70	N	>1,000	N
WM042	15	15	N	10	N	200	70	N	20	N	200	N
WM043	15	20	N	15	N	200	70	N	50	N	>1,000	N
WM044	15	15	N	10	N	200	70	N	30	N	500	N
WM045	15	15	N	15	N	200	100	N	50	N	700	N

Table 3.--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
WM046	34 14 52	114 19 54	3	1.0	1.5	.5	700	N	N	N
WM047	34 15 24	114 20 36	5	1.5	2.0	.5	700	N	N	N
WM048	34 15 24	114 19 11	10	1.5	3.0	.5	700	N	N	N
WM049	34 15 55	114 18 50	15	1.0	5.0	.7	1,000	N	N	N
WM050	34 17 21	114 19 19	10	1.0	3.0	.5	1,000	N	N	N
WM051	34 17 39	114 18 34	10	1.5	3.0	.5	1,500	N	N	N
WM052	34 18 14	114 18 49	10	1.5	3.0	.3	1,000	N	N	N
WM053	34 19 5	114 19 51	15	1.5	3.0	.7	1,000	N	N	N
WM054	34 19 44	114 17 17	10	1.5	5.0	.7	1,000	N	N	N
WM055	34 19 47	114 17 11	15	1.0	3.0	.5	1,500	N	N	N
WM056	34 19 49	114 18 9	10	1.5	3.0	.3	1,000	N	N	N
WM057	34 20 55	114 20 40	15	1.5	3.0	.5	1,000	N	N	N
WM058	34 21 4	114 21 0	10	2.0	3.0	.3	700	N	N	N
WM059	34 20 27	114 22 27	10	1.5	2.0	.5	1,000	N	N	N
WM060	34 20 53	114 23 58	5	1.0	2.0	.3	700	N	N	N
WM061	34 20 54	114 24 9	7	1.5	2.0	.3	1,000	N	N	N
WM062	34 21 14	114 23 51	7	1.5	1.5	.3	700	N	N	N
WM063	34 21 35	114 23 23	7	1.5	2.0	.3	700	N	N	N
WM064	34 21 44	114 23 2	10	1.5	2.0	.5	1,000	N	N	N
WM065	34 22 9	114 23 57	10	1.5	1.5	.7	1,000	N	N	N
WM066	34 22 31	114 24 39	10	1.5	3.0	.7	1,000	N	N	N
WM067	34 23 15	114 24 28	10	1.5	3.0	.5	1,000	N	N	N
WM068	34 24 32	114 23 48	7	1.5	3.0	.5	3,000	N	N	N
WM069	34 23 13	114 22 57	10	1.5	3.0	.7	3,000	N	N	N
WM070	34 17 46	114 14 49	10	1.5	1.5	.5	1,000	N	N	N
WM071	34 17 58	114 15 55	15	1.5	2.0	.7	1,500	N	N	N
WM072	34 17 48	114 15 50	5	1.0	2.0	.5	1,000	N	N	N
WM073	34 17 3	114 16 54	15	.7	1.5	.5	1,000	N	N	N
WM074	34 16 54	114 17 0	10	1.5	3.0	.5	1,000	N	N	N
WM075	34 16 19	114 16 21	10	1.5	2.0	.5	1,500	N	N	N
WM076	34 17 30	114 15 17	10	1.5	2.0	.5	1,000	N	N	N
WM077	34 21 31	114 26 35	10	1.5	2.0	.3	1,000	N	N	N
WM078	34 21 8	114 26 46	7	1.5	3.0	.5	700	N	N	N
WM079	34 20 27	114 26 18	15	1.5	2.0	.5	1,000	N	N	N
WM080	34 20 29	114 25 34	10	1.5	3.0	.3	700	N	N	N
WM081	34 20 35	114 25 28	10	2.0	3.0	.3	1,000	N	N	N
WM082	34 22 14	114 25 50	10	2.0	5.0	.7	1,000	N	N	N
WM083	34 20 2	114 26 26	15	1.5	2.0	.7	1,000	N	N	N
WM084	34 19 54	114 26 37	15	2.0	2.0	.5	1,000	N	N	N
WM085	34 22 16	114 22 12	15	2.0	2.0	.3	1,000	N	N	N
WM086	34 22 8	114 22 4	15	1.5	2.0	1.0	1,500	N	N	N
WM087	34 22 13	114 21 42	3	1.5	2.0	.3	500	N	N	N
WM088	34 16 52	114 13 7	5	1.5	2.0	.5	700	N	N	N
WM089	34 18 56	114 26 35	3	1.0	1.5	.3	500	N	N	N
WM090	34 19 22	114 27 18	5	2.0	2.0	.7	500	N	N	N

Table 3.--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
WM046	30	1,500	1.5	N	N	15	50	20	50	N	<20
WM047	20	1,000	1.5	N	N	15	50	30	70	N	<20
WM048	15	1,500	1.5	N	N	20	70	50	100	N	20
WM049	15	1,000	1.0	N	N	20	70	50	150	N	20
WM050	15	>5,000	1.5	N	N	20	70	50	150	<5	<20
WM051	20	2,000	1.5	N	N	30	70	70	150	5	20
WM052	15	>5,000	1.5	N	N	30	100	50	100	N	<20
WM053	10	1,000	1.0	N	N	30	100	70	100	N	<20
WM054	20	>5,000	1.5	N	N	15	50	70	150	N	20
WM055	20	>5,000	1.5	N	N	20	100	70	150	N	<20
WM056	20	>5,000	1.0	N	N	15	100	50	100	N	N
WM057	15	3,000	1.0	N	N	20	150	70	150	N	N
WM058	15	2,000	1.0	N	N	20	100	50	50	N	<20
WM059	10	3,000	1.0	N	N	15	70	50	100	N	<20
WM060	10	1,500	1.5	N	N	10	50	20	100	N	N
WM061	10	1,000	1.5	N	N	15	70	50	100	N	N
WM062	10	1,500	1.5	N	N	15	100	30	100	N	N
WM063	10	1,500	1.0	N	N	15	100	50	70	N	<20
WM064	15	3,000	1.0	N	N	15	150	50	50	N	N
WM065	15	1,500	1.0	N	N	20	150	70	100	N	N
WM066	15	1,500	<1.0	N	N	20	100	50	70	N	<20
WM067	15	2,000	1.0	N	N	30	100	50	50	N	<20
WM068	20	5,000	1.5	N	N	20	100	50	100	N	<20
WM069	15	5,000	1.5	N	N	30	150	50	70	N	<20
WM070	20	1,500	1.5	N	N	30	100	100	70	N	20
WM071	20	3,000	1.5	N	N	20	100	70	70	N	N
WM072	15	2,000	1.5	N	N	20	50	70	70	N	<20
WM073	20	1,500	1.5	N	N	20	100	70	100	N	<20
WM074	20	>5,000	1.5	N	N	15	70	50	100	N	20
WM075	30	>5,000	1.5	N	N	20	150	70	100	N	30
WM076	20	3,000	1.5	N	N	15	100	70	70	N	N
WM077	15	2,000	1.0	N	N	20	150	50	200	N	N
WM078	15	2,000	1.5	N	N	20	150	50	70	N	<20
WM079	15	1,500	1.5	N	N	20	100	50	100	N	<20
WM080	15	1,500	1.5	N	N	15	100	30	70	N	N
WM081	10	1,500	1.0	N	N	50	200	50	100	N	<20
WM082	15	1,500	1.0	N	N	30	200	50	100	N	20
WM083	15	1,000	1.0	N	N	20	150	70	150	N	<20
WM084	15	2,000	1.0	N	N	20	150	50	150	N	<20
WM085	15	5,000	<1.0	N	N	15	100	50	100	N	N
WM086	15	5,000	<1.0	N	N	30	150	70	150	N	<20
WM087	15	1,000	1.0	N	N	15	70	50	50	N	N
WM088	20	2,000	2.0	N	N	15	70	50	70	N	<20
WM089	10	500	1.0	N	N	10	50	20	70	N	N
WM090	15	700	1.5	N	N	15	100	50	100	N	<20

Table 3.--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
WM046	15	10	N	10	N	200	100	N	30	N	300	N
WM047	20	15	N	15	N	200	70	N	30	N	1,000	N
WM048	30	20	N	30	N	300	100	N	50	N	700	N
WM049	20	20	N	50	N	300	100	N	70	N	700	N
WM050	20	20	N	30	N	300	100	N	50	N	500	N
WM051	30	30	N	50	N	300	100	N	50	N	300	N
WM052	50	50	N	30	N	300	100	N	70	300	300	200
WM053	50	20	N	50	N	500	150	50	30	N	1,000	N
WM054	20	20	N	50	N	300	100	N	50	N	500	N
WM055	30	30	N	30	N	200	100	N	30	N	300	N
WM056	30	30	N	30	N	300	100	N	20	200	200	N
WM057	50	30	N	30	N	500	150	N	30	N	300	N
WM058	50	50	N	30	N	300	100	N	30	N	300	N
WM059	30	20	N	50	N	300	70	N	50	N	>1,000	N
WM060	20	15	N	20	N	300	50	N	20	N	500	N
WM061	30	20	N	30	N	300	70	N	30	N	200	N
WM062	30	20	N	30	N	300	70	N	30	N	700	N
WM063	30	20	N	30	N	300	70	N	30	N	200	N
WM064	30	30	N	30	N	300	100	N	30	N	200	N
WM065	50	70	N	30	N	500	150	N	30	N	700	N
WM066	70	20	N	30	N	300	100	N	30	N	300	N
WM067	50	30	N	30	N	300	100	N	20	N	300	N
WM068	50	30	N	30	N	300	70	N	30	N	500	N
WM069	50	50	N	30	N	300	100	N	30	N	200	N
WM070	20	20	N	30	N	200	100	N	30	N	500	N
WM071	30	30	N	30	N	200	100	N	30	N	300	N
WM072	20	15	N	30	N	200	100	N	50	N	1,000	N
WM073	15	20	N	30	N	200	200	N	70	N	>1,000	N
WM074	20	50	N	30	N	300	70	N	50	300	1,000	N
WM075	50	30	N	30	N	200	100	N	100	200	>1,000	100
WM076	20	20	N	30	N	150	100	N	50	N	>1,000	N
WM077	50	30	N	50	N	300	100	N	50	<200	300	N
WM078	30	30	N	50	N	300	70	N	30	N	700	N
WM079	50	30	N	50	N	300	150	N	50	N	>1,000	N
WM080	30	20	N	20	N	300	100	N	30	N	1,000	N
WM081	70	30	N	30	N	500	100	N	30	N	300	N
WM082	70	30	N	30	N	500	100	N	30	<200	200	N
WM083	50	30	N	50	N	300	150	N	50	200	>1,000	N
WM084	50	30	N	50	N	300	100	N	70	N	>1,000	N
WM085	50	30	N	30	N	500	150	N	20	N	1,000	N
WM086	30	30	N	50	N	500	150	N	70	N	>1,000	N
WM087	20	20	N	10	N	300	100	N	20	N	200	N
WM088	20	50	N	15	N	200	100	N	30	300	500	N
WM089	20	10	N	10	N	200	100	N	20	N	150	N
WM090	20	20	N	15	N	500	100	N	50	N	300	N

Table 3.--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
WM091	34 20 21	114 28 24	2	1.5	3.0	.3	300	N	N	N
WM092	34 20 3	114 28 27	5	2.0	3.0	.5	500	N	N	N
WM093	34 19 46	114 28 33	7	2.0	3.0	.7	1,000	N	N	N
WM094	34 19 6	114 28 24	7	2.0	3.0	.7	1,000	N	N	N
WM095	34 18 41	114 28 1	5	2.0	3.0	.5	700	N	N	N
WM096	34 18 56	114 27 34	10	2.0	3.0	1.0	1,500	N	N	N
WM097	34 18 53	114 27 45	5	2.0	2.0	.5	700	N	N	N
WM098	34 16 19	114 26 33	10	1.5	2.0	.7	700	N	N	N
WM099	34 17 18	114 26 48	7	2.0	2.0	.5	1,500	N	N	N
WM100	34 17 30	114 26 35	5	2.0	3.0	.3	1,000	N	N	N
WM101	34 17 12	114 27 30	7	2.0	3.0	.5	1,000	N	N	N
WM102	34 17 14	114 27 56	7	3.0	3.0	.7	1,000	.5	N	N
WM103	34 17 18	114 28 23	7	2.0	3.0	.7	1,500	N	N	N
WM104	34 17 14	114 28 38	5	2.0	3.0	.3	700	N	N	N
WM105	34 16 16	114 28 26	7	2.0	3.0	.7	500	N	N	N
WM106	34 16 20	114 28 30	5	2.0	3.0	.5	500	N	N	N
WM107	34 13 1	114 23 58	7	1.5	3.0	.3	2,000	N	N	N
WM108	34 12 58	114 24 38	5	1.5	3.0	.3	1,000	.5	N	N
WM109	34 13 18	114 25 20	7	1.5	3.0	.5	1,000	.5	N	N
WM110	34 14 3	114 25 40	7	1.0	3.0	.7	1,000	N	N	N
WM111	34 14 7	114 26 20	5	1.5	3.0	.5	1,000	N	N	N
WM112	34 14 17	114 27 13	3	1.0	3.0	.3	700	N	N	N
WM113	34 16 22	114 27 36	7	2.0	3.0	.5	1,000	.5	N	N
WM114	34 15 35	114 28 3	7	1.5	3.0	.5	700	.5	N	N
WM115	34 15 55	114 28 16	7	1.5	3.0	1.0	1,000	.5	N	N
WM116	34 16 0	114 28 51	7	1.5	3.0	.5	700	.5	N	N
WM117	34 17 47	114 29 17	5	2.0	3.0	.3	700	N	N	N
WM118	34 16 33	114 29 45	5	2.0	3.0	.5	700	.5	N	N
WM119	34 17 25	114 29 28	5	1.5	2.0	.5	1,000	N	N	N
WM120	34 17 22	114 29 34	7	2.0	3.0	.7	1,000	.5	N	N
WM121	34 19 0	114 30 21	7	1.5	3.0	.5	700	.5	N	N
WM122	34 19 15	114 29 56	7	2.0	2.0	.5	700	N	N	N
WM123	34 19 58	114 30 27	7	2.0	2.0	.5	1,000	N	N	N
WM124	34 20 18	114 30 34	7	2.0	3.0	.3	1,000	N	N	N
WM126	34 23 6	114 30 17	7	1.5	7.0	.7	1,500	N	N	N
WM127	34 21 50	114 29 3	10	1.5	7.0	.7	1,500	N	N	N
WM128	34 21 55	114 28 41	10	1.5	10.0	.5	1,500	N	N	N
WM129	34 24 51	114 26 46	2	1.0	5.0	.5	700	N	N	N
WM130	34 25 4	114 27 32	7	1.5	15.0	.7	2,000	N	N	N
WM131	34 26 31	114 28 40	5	1.5	3.0	1.0	1,000	N	N	N
WM132	34 25 25	114 25 54	3	1.5	3.0	.7	1,000	N	N	N
WM133	34 23 37	114 21 49	5	2.0	7.0	.7	2,000	N	N	N
WM134	34 23 3	114 20 34	5	1.5	7.0	.5	2,000	N	N	N
WM135	34 22 33	114 19 13	3	1.5	5.0	.5	1,500	N	N	N
WM136	34 15 26	114 15 19	5	1.5	7.0	.3	2,000	N	N	N

Table 3.--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
WM091	15	500	2.0	N	N	10	50	10	50	N	N
WM092	20	700	1.0	N	N	30	100	50	70	N	<20
WM093	20	2,000	1.0	N	N	20	150	30	50	N	<20
WM094	15	700	1.0	N	N	20	200	50	70	N	<20
WM095	15	1,000	1.0	N	N	30	150	30	100	<5	N
WM096	15	5,000	1.0	N	N	50	300	70	150	<5	20
WM097	20	1,000	1.0	N	N	15	100	30	70	N	N
WM098	20	>5,000	1.0	N	N	20	100	50	100	N	<20
WM099	15	3,000	1.0	N	N	15	150	30	100	N	30
WM100	20	1,000	1.5	N	N	15	100	30	100	N	<20
WM101	20	5,000	1.0	N	N	20	150	50	150	N	<20
WM102	20	3,000	1.0	N	N	20	150	50	70	N	20
WM103	15	2,000	1.0	N	N	30	150	50	100	N	20
WM104	20	1,000	1.5	N	N	15	100	50	50	N	N
WM105	20	1,500	1.0	N	N	20	100	50	70	N	<20
WM106	20	700	1.0	N	N	20	100	50	70	N	20
WM107	30	1,000	1.0	N	N	30	150	70	70	N	N
WM108	30	2,000	1.5	N	N	15	70	30	70	5	N
WM109	30	3,000	2.0	N	N	20	100	50	70	5	<20
WM110	20	2,000	1.5	N	N	20	50	30	100	N	20
WM111	20	1,500	1.5	N	N	15	70	20	70	N	20
WM112	10	1,000	1.5	N	N	15	30	15	70	N	20
WM113	15	5,000	1.5	N	N	30	150	70	100	<5	<20
WM114	15	1,500	1.5	N	N	30	100	30	50	N	<20
WM115	15	>5,000	1.0	N	N	30	150	50	100	N	20
WM116	20	700	1.5	N	N	20	100	30	70	N	<20
WM117	15	500	1.0	N	N	20	200	70	70	N	N
WM118	20	500	1.0	N	N	20	100	50	70	N	<20
WM119	20	500	1.0	N	N	20	70	50	100	N	20
WM120	20	500	2.0	N	N	20	150	70	100	N	30
WM121	15	500	1.0	N	N	20	200	1,000	70	N	<20
WM122	15	500	1.0	N	N	20	200	70	100	N	N
WM123	15	1,000	1.5	N	N	30	150	30	100	N	<20
WM124	15	1,000	1.0	N	N	30	150	30	100	N	N
WM126	30	1,500	1.0	N	N	50	150	50	50	N	<20
WM127	20	1,500	1.5	N	N	30	200	100	70	N	20
WM128	20	2,000	1.0	N	N	30	200	70	70	N	<20
WM129	20	1,500	2.0	N	N	10	20	20	50	N	<20
WM130	30	2,000	1.0	N	N	50	150	100	70	N	30
WM131	20	1,500	1.0	N	N	20	70	30	70	N	20
WM132	15	>5,000	1.0	N	N	15	70	20	100	N	20
WM133	30	3,000	1.0	N	N	20	200	70	50	N	<20
WM134	30	3,000	1.5	N	N	20	70	70	50	N	N
WM135	30	>5,000	1.5	N	N	15	70	70	70	N	N
WM136	30	5,000	1.5	N	N	15	70	50	50	N	<20

Table 3.--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
WM091	20	15	N	10	N	300	100	N	20	N	150	N
WM092	30	20	N	15	N	300	100	N	30	N	200	N
WM093	30	20	N	15	N	500	150	N	30	N	300	N
WM094	30	30	N	20	N	500	100	N	50	N	150	N
WM095	30	30	N	15	N	500	100	N	30	N	150	N
WM096	30	70	N	20	N	500	150	N	50	N	300	N
WM097	20	20	N	15	N	500	100	N	30	N	300	N
WM098	30	20	N	20	N	500	150	N	50	N	>1,000	N
WM099	20	50	N	15	N	500	100	N	50	N	300	N
WM100	20	30	N	15	N	500	100	N	50	N	300	N
WM101	20	30	N	20	N	500	100	N	50	N	300	N
WM102	30	30	N	15	N	500	100	N	50	N	200	N
WM103	30	30	N	20	N	500	150	N	50	N	300	N
WM104	20	20	N	10	N	300	100	N	30	N	300	N
WM105	30	20	N	20	N	300	100	N	50	N	500	N
WM106	30	20	N	15	N	300	100	N	30	N	200	N
WM107	50	50	N	15	N	300	150	N	30	N	300	N
WM108	20	50	N	10	N	500	100	N	30	200	300	N
WM109	20	50	N	15	N	300	100	N	30	<200	500	N
WM110	20	20	N	10	N	300	100	N	50	<200	300	N
WM111	30	15	N	15	N	300	100	N	50	N	500	N
WM112	20	20	N	10	N	500	100	N	50	N	150	N
WM113	50	50	N	20	N	500	150	N	50	N	500	N
WM114	30	30	N	15	N	300	150	N	30	N	500	N
WM115	50	30	N	15	N	500	150	N	50	N	500	N
WM116	50	20	N	15	N	300	150	N	30	N	300	N
WM117	70	20	N	15	N	300	100	N	20	N	200	N
WM118	50	20	N	15	N	300	100	N	30	N	500	N
WM119	30	20	N	20	N	200	100	N	50	N	300	N
WM120	50	20	N	20	N	200	100	N	50	N	500	N
WM121	30	15	N	15	N	200	100	N	30	N	300	N
WM122	50	30	N	20	N	200	150	N	30	N	300	N
WM123	30	30	N	20	N	300	150	N	30	N	500	N
WM124	30	50	N	20	N	300	150	N	30	N	500	N
WM126	50	50	N	15	N	300	100	N	50	N	1,000	N
WM127	50	50	N	20	N	500	200	N	50	N	700	N
WM128	50	50	N	20	N	500	150	N	100	N	>1,000	N
WM129	30	20	N	10	N	500	70	N	20	N	300	N
WM130	50	50	N	20	N	300	200	N	100	N	>1,000	N
WM131	20	30	N	7	N	500	200	N	30	N	>1,000	N
WM132	20	20	N	10	N	300	150	N	50	N	700	N
WM133	70	70	N	15	N	300	150	N	30	N	500	N
WM134	50	70	N	15	N	500	150	N	50	N	>1,000	N
WM135	50	50	N	15	N	500	200	N	50	N	700	N
WM136	30	70	N	15	N	200	200	N	100	N	>1,000	N

Table 3.--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
WM137	34 15 37	114 16 44	5	1.5	7.0	.5	2,000	N	N	N
WM138	34 15 3	114 17 40	5	1.5	5.0	.7	1,000	N	N	N
WM139	34 14 26	114 18 26	7	2.0	7.0	1.0	700	N	N	N
WM140	34 13 15	114 19 55	5	2.0	7.0	.5	1,000	N	N	N
WM141	34 26 14	114 27 54	5	1.5	7.0	.7	2,000	N	N	N
WM142	34 24 49	114 28 15	5	2.0	7.0	.7	1,500	N	N	N
WM143	34 24 43	114 28 47	3	1.5	10.0	.7	700	N	N	N
WM144	34 24 16	114 28 51	5	1.5	7.0	.7	1,000	N	N	N
WM145	34 23 41	114 29 11	3	1.5	10.0	.7	1,000	N	N	N
WM146	34 23 8	114 29 6	15	1.5	7.0	1.0	3,000	N	N	N
WM147	35 8 13	114 36 34	20	1.5	5.0	1.0	3,000	N	N	N
WM148	34 23 56	114 27 33	10	2.0	10.0	.7	1,500	N	N	N
WM149	34 24 18	114 24 59	5	2.0	10.0	.7	1,000	N	N	N
WM150	34 24 16	114 24 34	10	2.0	10.0	1.0	2,000	N	N	N
WM151	34 22 50	114 25 59	15	2.0	10.0	.7	1,500	N	N	N
WM152	34 22 22	114 30 5	5	2.0	10.0	.7	1,000	N	N	N
WM153	34 15 13	114 26 41	7	1.5	10.0	.5	2,000	N	N	N
WM154	34 15 11	114 26 14	7	2.0	10.0	.7	1,500	N	N	N

Table 3.--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
WM137	20	2,000	1.5	N	N	30	70	70	70	N	20
WM138	15	2,000	1.5	N	N	30	50	50	100	N	20
WM139	15	3,000	1.0	N	N	20	50	50	100	N	30
WM140	30	2,000	1.5	N	N	15	70	70	70	N	20
WM141	20	2,000	1.5	N	N	15	100	30	150	N	<20
WM142	20	1,500	1.0	N	N	20	100	50	50	N	<20
WM143	30	1,500	1.5	N	N	10	70	50	70	N	N
WM144	20	1,500	1.0	N	N	20	150	50	70	N	N
WM145	20	1,500	1.5	N	N	15	100	50	50	N	N
WM146	30	2,000	1.0	N	N	70	150	70	150	N	20
WM147	50	2,000	1.0	N	N	30	300	70	150	N	<20
WM148	20	2,000	1.0	N	N	30	100	70	70	N	20
WM149	20	700	1.5	N	N	30	150	50	200	N	<20
WM150	20	700	1.5	N	N	50	200	70	200	N	<20
WM151	20	1,000	2.0	N	N	20	150	50	150	N	<20
WM152	30	1,000	2.0	N	N	10	100	30	50	N	20
WM153	30	2,000	1.5	N	N	20	100	50	70	N	N
WM154	50	2,000	1.5	N	N	15	70	50	70	N	<20

Table 3.--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
WM137	30	50	N	20	N	300	150	N	70	N	700	N
WM138	30	50	N	15	N	300	100	N	50	N	300	N
WM139	30	30	N	20	N	500	150	N	100	N	>1,000	N
WM140	30	50	N	15	N	200	100	N	30	N	700	N
WM141	30	70	N	15	N	1,000	150	N	50	N	300	N
WM142	50	50	N	15	N	300	150	N	20	N	>1,000	N
WM143	30	30	N	10	N	300	100	N	20	N	500	N
WM144	50	30	N	15	N	300	150	N	50	N	700	N
WM145	50	30	N	15	N	300	150	N	30	N	200	N
WM146	50	200	N	20	N	200	300	N	50	N	>1,000	N
WM147	50	30	N	20	N	200	300	N	100	N	>1,000	N
WM148	50	50	N	20	N	500	150	N	30	N	300	N
WM149	50	50	N	15	N	300	100	N	30	N	300	N
WM150	70	50	N	20	N	500	200	N	70	N	300	N
WM151	70	50	N	20	N	500	200	N	50	N	200	N
WM152	50	50	N	15	N	500	100	N	30	N	300	N
WM153	30	100	N	15	N	500	70	N	30	N	100	N
WM154	30	30	N	15	N	300	100	N	30	N	200	N

Table 4.--Results of analyses of heavy-mineral-concentrate samples, Whipple Mountains Wilderness Study Area and Whipple Mountains Addition Wilderness Study Area, San Bernardino County, California

[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
WM001C	34 19 14	114 14 1	1.0	1.0	10	1.5	200	N	N	N
WM002C	34 20 3	114 14 45	2.0	2.0	20	>2.0	500	N	N	N
WM003C	34 20 53	114 14 36	2.0	5.0	30	>2.0	500	N	N	N
WM004C	34 20 47	114 16 38	1.0	1.0	15	2.0	200	N	N	N
WM005C	34 23 34	114 17 2	3.0	3.0	30	2.0	700	N	N	N
WM006C	34 21 30	114 17 23	3.0	3.0	50	1.5	3,000	N	N	N
WM007C	34 22 5	114 18 10	1.0	.7	30	>2.0	1,000	N	N	N
WM008C	34 22 18	114 18 49	.7	.7	20	2.0	500	N	N	N
WM009C	34 13 0	114 22 54	2.0	1.0	20	>2.0	2,000	N	N	N
WM010C	34 13 55	114 23 8	1.5	.7	10	>2.0	1,500	N	N	N
WM011C	34 14 46	114 23 40	.7	.2	7	>2.0	700	N	N	N
WM012C	34 15 14	114 24 6	1.5	.7	20	>2.0	1,000	N	N	N
WM013C	34 15 30	114 25 7	1.0	.5	15	>2.0	500	N	N	N
WM014C	34 15 39	114 25 40	3.0	3.0	10	>2.0	10,000	N	N	N
WM015C	34 16 15	114 25 37	2.0	1.5	15	>2.0	700	N	N	N
WM016C	34 16 45	114 25 37	2.0	1.0	20	>2.0	1,000	N	N	N
WM017C	34 16 47	114 25 46	2.0	.7	15	>2.0	1,000	N	N	N
WM018C	34 16 26	114 24 42	1.5	1.0	15	>2.0	700	N	N	N
WM019C	34 16 33	114 24 22	1.0	.7	30	>2.0	700	N	N	N
WM020C	34 16 49	114 23 39	1.0	.7	20	>2.0	1,000	N	N	N
WM021C	34 16 51	114 23 47	2.0	.7	10	>2.0	700	N	N	N
WM022C	34 16 31	114 23 12	1.0	.7	15	>2.0	700	N	N	N
WM023C	34 15 47	114 23 7	1.0	1.0	20	>2.0	700	<1	N	N
WM024C	34 15 42	114 23 33	1.5	.7	20	>2.0	700	<1	N	N
WM025C	34 17 17	114 23 27	.7	1.0	30	>2.0	1,000	N	N	N
WM026C	34 17 18	114 24 19	2.0	.7	20	>2.0	700	N	N	N
WM027C	34 17 35	114 24 17	.7	1.0	30	>2.0	700	N	N	N
WM028C	34 18 4	114 24 4	1.0	.7	10	>2.0	500	N	N	N
WM029C	34 19 8	114 21 56	1.0	.5	15	>2.0	500	N	N	N
WM030C	34 19 14	114 22 14	1.0	.5	20	>2.0	500	N	N	N
WM031C	34 18 55	114 22 34	.5	.7	15	>2.0	1,000	N	N	N
WM032C	34 18 31	114 21 5	.7	.7	30	>2.0	700	N	N	N
WM033C	34 18 12	114 20 49	.7	1.0	30	>2.0	700	N	N	N
WM034C	34 17 45	114 21 5	.5	.7	20	>2.0	1,000	N	N	N
WM035C	34 17 25	114 21 34	1.0	1.0	30	>2.0	1,000	N	N	N
WM036C	34 17 20	114 21 29	1.0	1.0	30	>2.0	1,500	N	N	N
WM037C	34 16 32	114 21 22	1.0	.7	15	>2.0	1,000	N	N	N
WM038C	34 16 28	114 21 21	1.0	.5	10	>2.0	700	N	N	N
WM039C	34 13 32	114 21 5	2.0	1.0	20	>2.0	700	N	N	N
WM040C	34 13 38	114 21 15	2.0	1.5	15	>2.0	1,000	N	N	N
WM041C	34 14 3	114 20 45	3.0	1.0	10	>2.0	1,000	N	N	N
WM042C	34 14 49	114 22 12	1.5	.7	15	>2.0	1,000	N	N	N
WM043C	34 14 25	114 19 10	3.0	.7	15	>2.0	1,000	N	N	N
WM044C	34 14 24	114 19 19	2.0	.7	15	>2.0	700	N	N	N
WM045C	34 14 34	114 18 47	3.0	.7	15	>2.0	1,000	N	N	N

Table 4.--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
WM001C	20	>10,000	2	N	N	<10	30	50	1,000	N	<50
WM002C	20	>10,000	2	N	N	<10	50	50	1,000	N	<50
WM003C	30	>10,000	2	N	N	N	200	70	1,000	20	50
WM004C	N	>10,000	1	N	N	N	30	50	700	N	N
WM005C	70	500	2	N	N	15	50	100	500	N	100
WM006C	20	1,000	2	70	N	N	20	150	500	N	50
WM007C	20	>10,000	3	N	N	N	70	50	300	10	<50
WM008C	<20	>10,000	2	N	N	N	50	30	300	<10	N
WM009C	200	>10,000	3	N	N	N	70	70	500	30	200
WM010C	50	>10,000	3	N	N	N	100	70	1,000	<10	100
WM011C	20	10,000	2	N	N	N	20	20	300	N	N
WM012C	<20	>10,000	5	N	N	N	100	50	300	20	100
WM013C	N	>10,000	3	N	N	N	50	30	300	<10	50
WM014C	100	>10,000	3	N	N	30	100	100	500	30	150
WM015C	20	>10,000	3	N	N	<10	150	70	300	30	200
WM016C	<20	>10,000	N	N	N	15	70	20	300	50	100
WM017C	30	>10,000	N	N	N	15	100	20	500	30	100
WM018C	<20	>10,000	N	N	N	N	70	20	500	20	70
WM019C	<20	1,000	N	N	N	N	100	20	700	20	50
WM020C	20	5,000	N	N	N	N	100	700	300	20	100
WM021C	<20	500	<2	N	N	<10	50	30	1,000	20	150
WM022C	20	2,000	3	N	N	N	70	30	500	15	100
WM023C	20	1,000	3	N	N	<10	70	1,000	300	10	150
WM024C	50	1,000	5	N	N	N	50	50	500	20	150
WM025C	N	>10,000	5	N	N	N	150	50	500	30	50
WM026C	N	>10,000	5	N	N	N	100	30	500	50	150
WM027C	20	2,000	5	N	N	N	100	30	500	10	<50
WM028C	<20	>10,000	3	N	N	N	100	30	300	10	50
WM029C	20	>10,000	3	N	N	N	70	50	700	10	50
WM030C	N	>10,000	3	N	N	N	50	50	200	15	50
WM031C	20	10,000	5	N	N	N	50	50	>2,000	10	<50
WM032C	N	3,000	5	N	N	N	70	30	200	N	N
WM033C	N	700	N	N	N	N	100	50	300	<10	100
WM034C	20	5,000	3	N	N	N	100	50	200	N	50
WM035C	30	>10,000	2	N	N	15	150	70	300	20	100
WM036C	20	>10,000	2	N	N	N	100	50	300	15	100
WM037C	<20	>10,000	5	N	N	N	70	50	300	<10	50
WM038C	N	>10,000	5	N	N	N	50	50	200	N	70
WM039C	20	>10,000	N	N	N	N	100	50	500	20	70
WM040C	N	>10,000	N	N	N	N	150	70	300	30	100
WM041C	N	>10,000	N	N	N	20	100	50	500	30	100
WM042C	20	>10,000	N	N	N	N	50	50	300	20	100
WM043C	N	>10,000	2	N	N	N	50	50	500	50	100
WM044C	<20	>10,000	N	N	N	N	30	30	500	20	100
WM045C	<20	7,000	2	N	N	N	50	50	500	20	100

Table 4.--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
WM001C	<10	200	N	20	N	2,000	150	N	30	N	>2,000	500
WM002C	<10	70	N	70	N	700	100	1,000	N	N	>2,000	N
WM003C	20	200	N	70	N	2,000	300	1,000	N	N	>2,000	N
WM004C	<10	50	N	70	N	2,000	100	500	<20	N	>2,000	1,000
WM005C	<10	200	N	20	20	500	200	N	200	N	>2,000	N
WM006C	N	50	N	20	N	500	200	N	150	N	1,500	N
WM007C	N	200	N	30	N	2,000	200	N	20	N	>2,000	N
WM008C	<10	500	N	20	N	1,500	150	N	<20	N	>2,000	N
WM009C	N	300	N	50	100	1,500	200	N	50	N	>2,000	N
WM010C	N	500	N	70	50	2,000	300	N	20	N	>2,000	1,000
WM011C	N	100	N	150	<20	500	200	N	N	N	>2,000	3,000
WM012C	N	100	N	30	<20	500	300	N	50	N	>2,000	500
WM013C	N	70	N	70	N	1,000	150	N	20	N	>2,000	200
WM014C	N	700	N	100	100	1,000	200	N	50	N	>2,000	N
WM015C	N	70	N	50	100	1,000	200	N	50	N	>2,000	N
WM016C	<10	50	N	50	100	2,000	200	N	20	N	>2,000	N
WM017C	N	50	N	50	100	2,000	200	N	<20	N	>2,000	N
WM018C	<10	30	N	30	20	2,000	150	N	<20	N	>2,000	N
WM019C	N	70	N	50	20	1,500	200	N	<20	N	>2,000	<200
WM020C	N	30	N	50	30	1,000	200	N	<20	N	>2,000	N
WM021C	N	50	N	20	50	<200	150	N	700	N	>2,000	300
WM022C	N	30	N	30	30	1,000	200	N	<20	N	>2,000	N
WM023C	N	20	N	50	20	1,000	150	N	<20	N	>2,000	N
WM024C	N	20	N	30	50	300	300	N	20	N	>2,000	N
WM025C	30	30	N	50	<20	1,000	200	N	20	N	>2,000	N
WM026C	<10	20	N	30	50	1,000	200	N	20	N	>2,000	N
WM027C	N	50	N	50	20	1,000	150	N	<20	N	>2,000	N
WM028C	N	30	N	30	20	1,000	200	N	20	N	>2,000	N
WM029C	N	30	N	70	<20	1,000	200	N	20	N	>2,000	N
WM030C	N	20	N	30	20	1,000	200	N	20	N	>2,000	N
WM031C	N	150	N	150	N	1,000	200	100	20	N	>2,000	200
WM032C	N	30	N	70	N	1,000	200	N	<20	N	>2,000	N
WM033C	N	20	N	30	N	1,000	200	N	20	N	>2,000	N
WM034C	N	30	N	50	N	700	150	N	<20	N	>2,000	N
WM035C	N	20	N	50	30	700	200	N	20	N	>2,000	N
WM036C	N	50	N	30	<20	>10,000	200	N	20	N	>2,000	N
WM037C	N	20	N	70	N	7,000	300	N	<20	N	>2,000	N
WM038C	N	30	N	50	<20	5,000	200	N	<20	N	>2,000	N
WM039C	N	50	N	30	70	1,000	200	N	500	N	>2,000	N
WM040C	N	70	N	70	50	2,000	200	N	700	N	>2,000	N
WM041C	N	50	N	70	50	2,000	200	<100	500	N	>2,000	N
WM042C	N	50	N	50	100	500	200	N	1,000	N	>2,000	N
WM043C	N	50	N	50	100	2,000	200	N	1,000	N	>2,000	500
WM044C	N	50	N	30	70	1,000	200	N	700	N	>2,000	N
WM045C	N	50	N	70	70	1,000	200	N	700	N	>2,000	N

Table 4.--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
WM046C	34 14 52	114 19 54	3.0	.7	15	>2.0	1,000	N	N	N
WM047C	34 15 24	114 20 36	3.0	.7	15	>2.0	1,000	N	N	N
WM048C	34 15 24	114 19 11	3.0	.7	15	>2.0	1,000	N	N	N
WM049C	34 15 55	114 18 50	2.0	.5	10	>2.0	700	N	N	N
WM050C	34 17 21	114 19 19	2.0	.7	15	>2.0	1,000	N	N	N
WM051C	34 17 39	114 18 34	3.0	.7	15	>2.0	1,000	N	N	N
WM052C	34 18 14	114 18 49	3.0	.7	15	>2.0	1,000	N	N	N
WM053C	34 19 5	114 19 51	2.0	.5	30	>2.0	1,000	N	N	N
WM054C	34 19 44	114 17 17	2.0	.5	10	1.0	700	N	N	N
WM055C	34 19 47	114 17 11	1.5	.5	15	2.0	700	N	N	N
WM056C	34 19 49	114 18 9	1.5	.7	7	1.5	1,000	N	N	N
WM057C	34 20 55	114 20 40	3.0	.7	20	>2.0	1,000	N	N	N
WM058C	34 21 4	114 21 0	2.0	.5	20	>2.0	1,000	N	N	N
WM059C	34 20 27	114 22 27	1.5	.7	20	>2.0	700	N	N	N
WM060C	34 20 53	114 23 58	2.0	.7	30	>2.0	1,000	N	N	N
WM061C	34 20 54	114 24 9	1.5	.7	30	>2.0	1,000	N	N	N
WM062C	34 21 14	114 23 51	1.5	.3	15	>2.0	500	N	N	N
WM063C	34 21 35	114 23 23	1.5	.7	15	2.0	700	N	N	N
WM064C	34 21 44	114 23 2	1.0	.3	7	1.5	500	N	N	N
WM065C	34 22 9	114 23 57	1.0	.5	20	>2.0	700	N	N	N
WM066C	34 22 31	114 24 39	7.0	5.0	15	2.0	1,000	N	N	N
WM067C	34 23 15	114 24 28	2.0	1.5	10	>2.0	700	N	N	N
WM068C	34 24 32	114 23 48	2.0	.3	10	>2.0	1,000	N	N	<20
WM069C	34 23 13	114 22 57	2.0	1.0	15	>2.0	3,000	N	N	N
WM071C	34 17 58	114 15 55	2.0	.3	7	.7	500	N	N	N
WM072C	34 17 48	114 15 50	3.0	.5	15	>2.0	700	N	N	N
WM073C	34 17 3	114 16 54	2.0	.5	20	>2.0	700	N	N	N
WM074C	34 16 54	114 17 0	1.0	.3	10	>2.0	700	N	N	N
WM075C	34 16 19	114 16 21	1.5	.5	15	>2.0	1,000	N	N	N
WM076C	34 17 30	114 15 17	1.0	.5	15	>2.0	1,000	N	N	N
WM077C	34 21 31	114 26 35	7.0	.5	10	2.0	500	N	N	N
WM078C	34 21 8	114 26 46	1.5	.7	15	>2.0	700	N	N	N
WM079C	34 20 27	114 26 18	1.0	.5	15	2.0	300	N	N	N
WM080C	34 20 29	114 25 34	1.0	.7	15	2.0	500	N	N	N
WM081C	34 20 35	114 25 28	1.5	1.5	20	2.0	1,000	N	<500	N
WM081C	34 20 35	114 25 28	1.5	.3	15	>2.0	700	N	N	N
WM082C	34 22 14	114 25 50	1.5	1.5	10	2.0	500	N	N	N
WM083C	34 20 2	114 26 26	1.5	.5	10	1.5	500	N	N	N
WM084C	34 19 54	114 26 37	1.5	.7	10	2.0	500	N	N	N
WM085C	34 22 16	114 22 12	1.5	.7	15	>2.0	500	N	N	N
WM086C	34 22 8	114 22 4	1.0	.2	15	>2.0	500	N	N	N
WM087C	34 22 13	114 21 42	1.5	.7	10	>2.0	500	N	N	N
WM088C	34 16 52	114 13 7	1.0	.2	7	1.0	300	N	N	N
WM089C	34 18 56	114 26 35	2.0	.7	10	>2.0	500	N	N	N
WM090C	34 19 22	114 27 18	2.0	1.0	15	>2.0	500	N	N	N

Table 4.--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
WM046C	<20	>10,000	N	N	N	N	100	30	300	20	70
WM047C	N	1,500	<2	N	N	N	100	50	500	30	100
WM048C	N	10,000	2	N	N	N	70	70	500	20	100
WM049C	<20	10,000	2	N	N	N	50	30	200	20	200
WM050C	N	>10,000	2	N	N	N	100	50	200	20	100
WM051C	N	>10,000	2	N	N	15	100	70	300	50	150
WM052C	N	>10,000	2	N	N	<10	100	50	300	20	100
WM053C	N	10,000	N	N	N	N	100	50	700	N	50
WM054C	N	>10,000	2	N	N	10	20	200	500	N	N
WM055C	N	>10,000	2	N	N	N	100	50	1,500	N	N
WM056C	N	>10,000	2	N	N	N	70	20	200	N	N
WM057C	N	>10,000	N	N	N	<10	100	50	2,000	10	50
WM058C	N	>10,000	N	N	N	N	150	70	>2,000	15	50
WM059C	N	>10,000	N	N	N	N	100	50	1,000	N	70
WM060C	N	10,000	N	N	N	N	150	50	1,000	10	100
WM061C	N	10,000	N	N	N	N	150	50	1,000	10	<50
WM062C	N	>10,000	N	N	N	N	70	20	2,000	N	150
WM063C	N	10,000	<2	N	N	10	100	20	300	<10	100
WM064C	N	>10,000	N	N	N	N	50	15	1,000	N	50
WM065C	20	10,000	N	N	N	N	50	20	300	<10	150
WM066C	30	>10,000	N	N	N	30	700	30	300	N	100
WM067C	30	>10,000	N	N	N	<10	200	20	500	15	150
WM068C	20	>10,000	N	N	N	N	100	50	500	20	200
WM069C	30	>10,000	N	N	N	<10	150	50	300	15	200
WM071C	20	>10,000	2	N	N	10	20	50	300	N	N
WM072C	20	10,000	3	N	N	30	30	100	1,000	10	200
WM073C	20	10,000	3	N	N	N	30	100	700	10	200
WM074C	<20	>10,000	2	N	N	N	20	50	150	20	200
WM075C	30	>10,000	3	N	N	20	50	50	1,500	N	100
WM076C	30	>10,000	3	N	N	10	50	50	700	N	150
WM077C	20	>10,000	<2	N	N	100	70	100	200	N	70
WM078C	20	7,000	2	N	N	10	70	50	200	<10	150
WM079C	20	10,000	<2	N	N	<10	50	30	300	N	50
WM080C	30	2,000	<2	N	N	<10	70	50	700	N	100
WM081C	20	7,000	N	N	N	<10	70	20	500	N	100
WM081C	30	>10,000	3	N	N	20	30	200	2,000	<10	150
WM082C	30	>10,000	2	N	N	100	70	100	300	N	50
WM083C	30	10,000	2	N	N	10	50	20	200	N	50
WM084C	30	10,000	2	N	N	10	70	30	1,000	10	50
WM085C	30	>10,000	<2	N	N	10	70	50	300	<10	100
WM086C	20	>10,000	<2	N	N	<10	20	20	500	N	<50
WM087C	30	>10,000	<2	N	N	<10	70	30	300	10	70
WM088C	30	>10,000	<2	N	N	N	20	10	200	N	50
WM089C	30	7,000	2	N	N	<10	70	15	200	N	70
WM090C	30	5,000	2	N	N	10	70	50	200	10	150

Table 4.--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
WM046C	N	50	N	50	30	1,000	200	N	1,000	N	>2,000	N
WM047C	N	50	N	50	70	1,000	200	<100	1,000	N	>2,000	N
WM048C	N	150	N	70	<20	1,000	200	200	500	N	>2,000	N
WM049C	N	50	N	50	20	1,000	200	<100	500	N	>2,000	N
WM050C	N	150	N	50	20	2,000	200	N	500	N	>2,000	N
WM051C	N	100	N	70	30	1,500	200	<100	700	N	>2,000	N
WM052C	N	100	N	70	20	1,000	200	N	500	N	>2,000	N
WM053C	N	20	N	30	N	1,000	150	N	300	N	>2,000	N
WM054C	N	20	N	20	N	3,000	70	N	500	N	>2,000	700
WM055C	N	<20	N	30	N	3,000	100	N	500	N	>2,000	500
WM056C	N	<20	N	20	N	5,000	100	N	100	N	>2,000	N
WM057C	N	50	N	70	N	2,000	200	N	500	N	>2,000	N
WM058C	N	100	N	150	N	2,000	150	N	700	N	>2,000	700
WM059C	N	100	N	70	30	2,000	200	N	700	N	>2,000	N
WM060C	N	30	N	50	100	700	150	N	1,000	N	>2,000	N
WM061C	N	100	N	70	50	1,000	150	N	1,000	N	>2,000	N
WM062C	N	<20	N	20	30	700	100	N	500	N	>2,000	200
WM063C	N	<20	N	10	N	500	100	N	200	N	>2,000	N
WM064C	N	<20	N	10	N	2,000	100	N	150	N	>2,000	500
WM065C	N	1,000	N	20	50	1,000	200	N	500	N	>2,000	N
WM066C	200	50	N	30	20	700	150	N	200	N	>2,000	N
WM067C	30	100	N	20	30	700	200	N	300	N	>2,000	N
WM068C	N	20	N	30	50	1,000	200	100	500	N	>2,000	200
WM069C	N	30	N	10	50	1,500	200	N	500	N	>2,000	N
WM071C	N	30	N	<10	N	2,000	50	N	100	N	>2,000	1,000
WM072C	N	30	N	20	20	700	70	N	500	N	>2,000	1,000
WM073C	N	30	N	20	30	500	100	N	500	N	>2,000	1,000
WM074C	N	50	N	10	30	3,000	100	N	300	N	>2,000	N
WM075C	30	50	N	30	<20	1,500	100	N	500	N	>2,000	1,500
WM076C	N	50	N	30	20	1,000	100	N	500	N	>2,000	1,000
WM077C	70	70	N	15	N	1,000	100	N	200	N	>2,000	N
WM078C	N	20	N	10	20	700	150	N	200	N	>2,000	N
WM079C	N	30	N	10	20	500	70	N	200	N	>2,000	N
WM080C	N	100	N	20	N	500	100	N	200	N	>2,000	200
WM081C	N	30	N	15	20	1,000	150	N	700	N	>2,000	N
WM081C	N	30	N	30	20	1,000	100	N	500	N	>2,000	700
WM082C	N	100	N	10	<20	1,000	100	N	100	N	>2,000	N
WM083C	N	30	N	10	N	700	70	N	300	N	>2,000	200
WM084C	30	20	N	15	N	700	100	N	500	N	>2,000	200
WM085C	N	50	N	20	10	1,500	150	N	300	N	>2,000	N
WM086C	N	30	N	30	<20	1,500	100	N	500	N	>2,000	N
WM087C	N	30	N	20	15	1,000	100	<100	300	N	>2,000	<200
WM088C	N	100	N	10	N	2,000	50	N	500	N	>2,000	200
WM089C	N	20	N	20	<20	1,000	100	<100	500	N	>2,000	300
WM090C	N	30	N	10	20	700	150	100	500	N	>2,000	N

Table 4.--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
WM091C	34 20 21	114 28 24	2.0	1.5	10	>2.0	300	N	N	N
WM092C	34 20 3	114 28 27	2.0	1.5	7	>2.0	500	N	N	N
WM093C	34 19 46	114 28 33	1.5	1.0	7	>2.0	500	N	N	N
WM094C	34 19 6	114 28 24	2.0	1.5	15	>2.0	500	N	N	N
WM095C	34 18 41	114 28 1	3.0	2.0	10	>2.0	500	N	N	N
WM096C	34 18 56	114 27 34	1.0	1.0	15	>2.0	500	N	N	N
WM097C	34 18 53	114 27 45	2.0	1.0	7	>2.0	500	N	N	N
WM098C	34 16 19	114 26 33	1.5	.5	15	>2.0	300	N	N	N
WM099C	34 17 18	114 26 48	2.0	.5	15	>2.0	500	N	N	N
WM100C	34 17 30	114 26 35	1.5	.5	7	>2.0	500	N	N	N
WM101C	34 17 12	114 27 30	2.0	.7	5	>2.0	500	N	N	N
WM102C	34 17 14	114 27 56	1.0	.3	10	1.0	200	N	N	N
WM103C	34 17 18	114 28 23	2.0	1.0	5	>2.0	500	N	N	N
WM104C	34 17 14	114 28 38	1.0	.5	15	1.0	200	N	N	N
WM105C	34 16 16	114 28 26	1.5	.7	10	>2.0	500	N	N	N
WM106C	34 16 20	114 28 30	2.0	1.0	15	>2.0	500	N	N	N
WM107C	34 13 1	114 23 58	3.0	2.0	7	>2.0	2,000	N	N	N
WM108C	34 12 58	114 24 38	1.0	.3	15	1.5	500	N	N	N
WM109C	34 13 18	114 25 20	2.0	1.0	10	1.0	5,000	3	N	N
WM110C	34 14 3	114 25 40	2.0	.5	10	>2.0	2,000	N	N	N
WM111C	34 14 7	114 26 20	2.0	.7	15	>2.0	1,000	N	N	N
WM112C	34 14 17	114 27 13	2.0	.5	7	>2.0	1,000	N	N	N
WM113C	34 16 22	114 27 36	1.0	.5	7	2.0	500	N	N	N
WM114C	34 15 35	114 28 3	1.5	.7	7	>2.0	500	N	N	N
WM115C	34 15 55	114 28 16	1.5	.7	7	2.0	300	N	N	N
WM116C	34 16 0	114 28 51	2.0	1.0	15	>2.0	700	N	N	N
WM117C	34 17 47	114 29 17	1.5	1.5	10	>2.0	300	N	N	N
WM118C	34 16 33	114 29 45	2.0	1.0	15	>2.0	500	N	N	N
WM119C	34 17 25	114 29 28	3.0	2.0	15	>2.0	700	N	N	N
WM120C	34 17 22	114 29 34	3.0	1.5	15	>2.0	700	N	N	N
WM121C	34 19 0	114 30 21	3.0	1.5	15	>2.0	700	N	N	N
WM122C	34 19 15	114 29 56	2.0	1.5	10	>2.0	500	N	N	N
WM123C	34 19 58	114 30 27	1.5	1.0	7	>2.0	300	N	N	N
WM124C	34 20 18	114 30 34	3.0	1.5	15	>2.0	1,000	N	N	N
WM125C	34 21 18	114 31 2	3.0	2.0	10	>2.0	700	N	N	N
WM126C	34 23 6	114 30 17	2.0	1.5	10	>2.0	500	N	N	N
WM127C	34 21 50	114 29 3	2.0	1.5	15	>2.0	500	N	N	N
WM128C	34 21 55	114 28 41	2.0	1.0	15	>2.0	700	N	N	N
WM129C	34 24 51	114 26 46	2.0	1.5	10	>2.0	500	N	N	N
WM130C	34 25 4	114 27 32	2.0	1.5	10	>2.0	500	N	N	N
WM131C	34 26 31	114 28 40	2.0	1.5	7	2.0	500	N	N	N
WM132C	34 25 25	114 25 54	2.0	1.5	10	>2.0	500	N	N	N
WM133C	34 23 37	114 21 49	1.5	1.0	7	.7	2,000	N	N	N
WM134C	34 23 3	114 20 34	2.0	1.0	10	>2.0	500	N	N	N
WM135C	34 22 33	114 19 13	2.0	1.0	15	2.0	500	N	N	N

Table 4.--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
WM091C	30	3,000	2	N	N	10	100	50	300	10	100
WM092C	30	10,000	2	N	N	10	70	30	300	N	100
WM093C	30	>10,000	2	N	N	10	70	30	200	10	150
WM094C	20	>10,000	2	N	N	20	100	70	500	<10	N
WM095C	20	10,000	2	N	N	20	100	70	200	10	100
WM096C	30	>10,000	2	N	N	20	50	50	200	15	100
WM097C	20	>10,000	3	N	N	50	70	30	300	N	100
WM098C	30	>10,000	2	N	N	N	50	30	100	N	150
WM099C	30	>10,000	2	N	N	10	100	30	300	N	100
WM100C	20	>10,000	2	N	N	N	50	50	300	15	150
WM101C	30	>10,000	3	N	N	10	100	20	100	<10	200
WM102C	20	>10,000	2	N	N	N	20	20	70	N	150
WM103C	20	>10,000	2	N	N	20	70	30	200	N	50
WM104C	20	>10,000	2	N	N	<10	20	20	300	N	100
WM105C	20	>10,000	2	N	N	20	50	50	200	N	<50
WM106C	30	10,000	2	N	N	20	70	50	200	15	100
WM107C	70	>10,000	2	N	N	30	200	100	200	15	150
WM108C	20	>10,000	2	N	N	<10	50	30	100	N	100
WM109C	30	>10,000	2	N	N	20	100	50	300	10	70
WM110C	30	>10,000	2	N	N	10	50	50	300	15	100
WM111C	50	>10,000	2	N	N	N	70	30	500	15	200
WM112C	70	10,000	2	N	N	20	50	30	300	20	300
WM113C	10	>10,000	2	N	N	30	50	100	200	<10	150
WM114C	20	>10,000	2	N	N	20	70	50	300	10	200
WM115C	20	>10,000	2	N	N	10	50	30	200	N	100
WM116C	30	>10,000	2	N	N	10	70	50	200	10	100
WM117C	20	5,000	2	N	N	20	100	70	200	N	100
WM118C	20	1,500	2	N	N	<10	70	100	200	10	100
WM119C	30	1,000	2	N	N	30	200	100	700	10	100
WM120C	20	10,000	2	N	N	15	150	100	500	10	100
WM121C	30	10,000	2	N	N	30	150	5,000	1,000	15	150
WM122C	20	7,000	3	N	N	15	100	150	200	N	150
WM123C	20	10,000	2	N	N	15	50	30	150	N	100
WM124C	30	2,000	2	N	N	50	150	200	200	N	100
WM125C	20	1,000	2	N	N	50	200	50	200	<10	150
WM126C	30	1,500	2	N	N	100	150	50	200	<10	100
WM127C	30	1,500	2	N	N	100	300	50	700	20	100
WM128C	20	1,000	2	N	N	<10	50	50	700	20	150
WM129C	70	>10,000	3	N	N	10	300	30	700	10	150
WM130C	20	>10,000	3	N	N	10	300	50	500	15	150
WM131C	30	5,000	2	N	N	20	300	30	200	<10	100
WM132C	70	10,000	2	N	N	20	100	30	500	10	100
WM133C	<20	>10,000	<2	N	N	20	50	50	100	N	N
WM134C	<20	>10,000	2	N	N	20	50	30	300	N	100
WM135C	<20	10,000	2	N	N	15	50	30	200	N	70

Table 4.--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
WM091C	50	30	N	10	15	500	150	N	300	N	>2,000	N
WM092C	30	30	N	<10	15	500	100	<100	300	N	>2,000	N
WM093C	N	30	N	<10	10	1,000	150	<100	300	N	>2,000	N
WM094C	10	70	N	20	50	1,000	150	N	300	N	>2,000	<200
WM095C	30	50	N	15	<20	700	150	N	200	N	>2,000	<200
WM096C	10	50	N	10	N	1,500	100	N	200	N	>2,000	<200
WM097C	N	50	N	15	20	700	150	N	200	N	>2,000	<200
WM098C	<10	20	N	15	20	2,000	150	<100	200	N	>2,000	N
WM099C	10	30	N	20	10	1,000	150	<100	200	N	>2,000	N
WM100C	N	50	N	15	50	1,000	200	<100	500	N	>2,000	N
WM101C	<10	20	N	15	N	1,500	150	N	200	N	>2,000	N
WM102C	N	20	N	<10	<20	7,000	50	N	100	N	1,500	N
WM103C	<10	20	N	15	N	2,000	100	N	200	N	>2,000	N
WM104C	N	50	N	<10	N	5,000	100	150	100	N	>2,000	N
WM105C	N	50	N	15	<20	2,000	100	<100	200	N	>2,000	N
WM106C	N	300	N	15	20	1,000	150	150	500	N	>2,000	N
WM107C	50	200	N	30	20	700	150	N	200	N	>2,000	200
WM108C	N	200	N	<10	N	7,000	100	N	200	N	>2,000	300
WM109C	15	1,000	N	20	N	3,000	100	N	200	1,000	>2,000	N
WM110C	<10	300	N	20	20	1,000	150	<100	200	N	>2,000	N
WM111C	N	70	N	20	30	3,000	150	N	700	N	>2,000	1,000
WM112C	N	50	N	20	70	700	200	<100	700	N	>2,000	N
WM113C	N	500	N	10	N	3,000	200	N	200	N	>2,000	N
WM114C	N	50	N	20	30	1,000	150	N	500	N	>2,000	<200
WM115C	N	30	N	10	N	2,000	100	N	200	N	>2,000	N
WM116C	N	30	N	20	10	700	150	<100	500	N	>2,000	N
WM117C	30	20	N	15	N	700	150	N	200	N	>2,000	N
WM118C	N	30	N	20	<20	500	100	N	300	N	>2,000	N
WM119C	20	50	N	50	20	500	100	N	300	N	>2,000	N
WM120C	N	200	N	30	10	1,000	100	200	200	N	>2,000	N
WM121C	10	300	N	50	50	700	150	500	500	N	>2,000	5,000
WM122C	30	20	N	15	10	500	100	N	200	N	>2,000	N
WM123C	N	<20	N	15	N	500	100	N	100	N	1,500	N
WM124C	30	200	N	20	30	700	200	100	150	N	1,500	N
WM125C	50	100	N	20	30	700	200	<100	200	N	>2,000	N
WM126C	20	20	N	20	N	500	150	<100	200	N	>2,000	N
WM127C	20	30	N	20	50	500	200	N	300	N	>2,000	N
WM128C	<10	30	N	10	30	700	200	N	500	N	>2,000	N
WM129C	N	50	N	30	20	2,000	150	<100	500	N	>2,000	700
WM130C	<10	30	N	30	50	1,000	200	N	200	N	>2,000	N
WM131C	30	20	N	20	N	1,000	150	N	200	N	>2,000	N
WM132C	N	30	N	20	10	700	150	N	50	N	>2,000	<200
WM133C	N	50	N	<10	N	10,000	50	N	200	N	1,500	N
WM134C	N	50	N	10	N	1,500	150	N	150	N	>2,000	N
WM135C	N	<20	N	20	N	500	100	N	500	N	>2,000	N

Table 4.--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
WM136C	34 15 26	114 15 19	1.5	.2	7	1.5	500	N	N	N
WM137C	34 15 37	114 16 44	2.0	.5	10	>2.0	1,000	N	N	N
WM138C	34 15 3	114 17 40	3.0	.7	15	>2.0	1,000	N	N	N
WM139C	34 14 26	114 18 26	2.0	.5	15	>2.0	1,000	N	N	N
WM140C	34 13 15	114 19 55	3.0	1.0	10	>2.0	1,500	N	N	N
WM141C	34 26 14	114 27 54	3.0	2.0	15	>2.0	1,000	N	N	N
WM142C	34 24 49	114 28 15	2.0	1.0	10	>2.0	500	N	N	N
WM143C	34 24 43	114 28 47	2.0	1.0	10	2.0	500	N	N	N
WM144C	34 24 16	114 28 51	1.0	1.5	15	>2.0	500	N	N	N
WM145C	34 23 41	114 29 11	2.0	1.5	10	2.0	500	N	N	N
WM146C	34 23 8	114 29 6	1.5	1.5	10	>2.0	700	N	N	N
WM147C	35 8 13	114 36 34	1.5	1.5	15	2.0	500	N	N	N
WM148C	34 23 56	114 27 33	2.0	1.0	10	>2.0	700	N	N	N
WM149C	34 24 18	114 24 59	2.0	1.5	15	2.0	500	N	N	N
WM150C	34 24 16	114 24 34	2.0	2.0	20	1.5	500	N	N	N
WM151C	34 22 50	114 25 59	1.5	1.5	10	1.5	500	N	N	N
WM152C	34 22 22	114 30 5	2.0	3.0	15	>2.0	500	N	N	N
WM153C	34 15 13	114 26 41	1.5	.3	7	>2.0	500	N	N	N
WM154C	34 15 11	114 26 14	2.0	.7	10	1.5	1,000	N	N	N

Table 4.--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
WM136C	30	>10,000	5	N	N	N	70	30	2,000	N	100
WM137C	30	10,000	3	N	N	10	50	30	500	15	200
WM138C	20	2,000	5	N	N	20	30	50	700	10	100
WM139C	20	2,000	5	N	N	<10	50	30	300	30	200
WM140C	30	10,000	2	N	N	15	50	100	500	20	200
WM141C	30	7,000	<2	N	N	20	7,000	70	700	15	300
WM142C	30	>10,000	2	N	N	10	100	70	300	15	200
WM143C	30	>10,000	2	N	N	15	70	50	200	N	150
WM144C	50	>10,000	2	N	N	20	100	50	300	10	200
WM145C	20	5,000	3	N	N	15	100	30	200	N	100
WM146C	50	7,000	3	N	N	30	100	50	500	20	150
WM147C	20	>10,000	2	N	N	10	150	50	500	N	100
WM148C	20	>10,000	2	N	N	20	100	70	500	15	150
WM149C	30	7,000	2	N	N	20	200	50	500	<10	100
WM150C	20	3,000	2	N	N	20	200	30	300	<10	100
WM151C	20	5,000	3	N	N	20	150	30	300	N	100
WM152C	30	5,000	2	N	N	20	200	50	300	10	150
WM153C	30	>10,000	2	N	N	N	50	50	300	20	200
WM154C	30	>10,000	3	500	N	15	50	50	300	<10	100

Table 4.--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
WM001R	N	N	N	30	150	500	100	30	N	20	70	N	--
WM001RA	N	N	N	30	150	500	100	50	N	20	100	N	--
WM001RB	N	N	N	15	150	7	70	N	<20	50	N	N	--
WM002R	N	N	N	5	30	50	300	N	N	N	200	N	--
WM002RA	N	N	N	5	20	50	20	5	N	5	200	N	--
WM003R	N	N	N	20	70	10,000	N	10	N	50	N	N	--
WM004R	N	N	N	150	1,000	>20,000	N	30	N	500	20	N	--
WM005R	N	N	N	7	<10	500	70	N	N	10	20	N	5
WM006R	N	30	N	15	10	>20,000	N	20	N	7	20	N	--
WM007R	N	N	N	15	N	>20,000	N	15	N	30	10	N	--
WM007RA	N	N	N	50	700	3,000	70	N	<20	200	N	N	--
WM007RB	N	<10	N	N	30	>20,000	N	30	N	10	200	N	--
WM008R	N	N	N	N	10	>20,000	500	15	30	5	10,000	N	--
WM023R	N	N	N	7	15	50	20	N	N	<5	<10	N	5
WM024R	1.5	N	N	N	N	15	N	N	N	N	10	N	N
WM024RA	<1.0	N	N	<5	N	>20,000	N	20	N	N	50	N	N
WM068R	2.0	N	N	15	50	300	N	N	N	20	30	N	15
WM068RA	1.0	N	N	50	N	2,000	N	<5	N	15	20	N	7
WM071R	<1.0	10	N	100	20	5,000	N	10	N	20	<10	N	<5
WM078R	1.5	N	N	N	N	70	30	N	N	10	10	N	5
WM095R	N	10	N	15	20	>20,000	N	30	N	15	50	N	10
WM107R	<1.0	N	N	15	N	20,000	100	N	N	10	30	N	7
WM110R	15.0	N	N	N	N	>20,000	N	N	N	N	1,500	N	N
WM110RA	20.0	N	100	5	10	500	70	20	N	N	20,000	N	<5
WM119R	1.5	N	N	<5	N	20,000	N	N	N	5	30	N	N
WML11R	10.0	N	N	30	N	3,000	100	100	N	10	2,000	N	--
WML12R	<5.0	N	N	15	50	50	100	30	N	15	200	N	--
WML21R	<5.0	N	N	N	N	7	70	N	N	7	20	N	--
WML21S	N	N	N	15	100	30	100	15	20	50	30	N	--
WML31R	<5.0	N	N	N	N	10	20	5	N	7	50	N	--
WML41R	N	N	N	50	20	1,000	N	10	N	10	N	N	--
WML51R	N	N	N	N	10	2,000	50	7	N	5	3,000	N	--
WML51S	<5.0	N	N	15	100	20	100	10	20	30	150	N	--
WML52R	<5.0	150	N	20	100	20,000	70	70	<20	15	3,000	N	--
WML61R	N	N	300	15	100	1,000	50	100	N	5	>20,000	N	--
WML71R	5.0	300	N	10	20	>20,000	70	20	N	20	2,000	N	--
WML71S	<5.0	N	N	15	100	150	100	<5	<20	30	70	N	--
WML72R	N	10	N	10	10	3,000	50	15	<20	20	150	N	--
WML72S	<5.0	N	N	15	150	20	150	5	20	30	50	N	--
WML73R	N	N	N	15	20	30	70	N	N	7	70	N	--
WML74R	N	N	N	5	N	7	50	10	N	10	10	N	--
WML81R	N	N	N	50	700	70	100	5	<20	500	70	N	--
WML81S	<5.0	N	N	15	100	30	100	15	<20	30	300	N	--
WML82R	15.0	N	100	10	30	700	50	50	N	20	3,000	N	--
WML83R	<5.0	N	N	10	10	150	50	20	N	30	500	N	--

Table 4.--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
WM136C	N	70	N	20	<20	3,000	100	N	300	N	>2,000	2,000
WM137C	N	100	N	15	50	1,000	100	50	300	N	>2,000	N
WM138C	N	50	N	30	50	1,000	150	50	500	N	>2,000	N
WM139C	N	30	N	20	70	1,000	150	50	500	N	>2,000	N
WM140C	N	30	N	20	20	700	100	N	500	N	>2,000	200
WM141C	50	70	N	30	50	1,000	100	N	700	N	>2,000	N
WM142C	N	20	N	15	30	1,000	150	N	300	N	>2,000	N
WM143C	N	30	N	15	10	5,000	150	N	200	N	>2,000	N
WM144C	N	50	N	20	30	1,000	150	<100	500	N	>2,000	<200
WM145C	N	30	N	10	N	1,000	100	<100	150	N	>2,000	N
WM146C	N	30	N	20	30	1,000	150	<100	300	N	>2,000	<200
WM147C	N	30	N	20	20	1,000	100	<100	200	N	>2,000	N
WM148C	N	50	N	20	30	1,000	150	<100	300	N	>2,000	N
WM149C	30	50	N	20	N	1,000	100	N	200	N	>2,000	N
WM150C	30	20	N	20	N	1,000	100	N	300	N	>2,000	N
WM151C	30	20	N	15	N	1,000	100	<100	100	N	>2,000	N
WM152C	50	30	N	30	50	700	200	<100	300	N	>2,000	N
WM153C	N	20	N	15	50	2,000	150	N	500	N	>2,000	N
WM154C	N	100	N	20	N	1,500	100	N	300	N	>2,000	1,000

Table 5.--Results of analyses of rock and soil samples, Whipple Mountains Wilderness Study Area and Whipple Mountains Addition Wilderness Study Area, San Bernardino County, California

[N, 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
WM001R	34 21 20	114 26 30	20.0	.30	.30	.200	500	2.0	N	N	100	2,000
WM001RA	34 21 20	114 26 30	20.0	.30	.20	.300	300	2.0	N	N	100	2,000
WM001RB	34 21 20	114 26 30	7.0	3.00	1.00	.700	1,500	N	N	N	10	1,000
WM002R	34 20 30	114 22 50	.3	.05	7.00	.070	1,000	10.0	N	N	20	>5,000
WM002RA	34 20 30	114 22 50	.7	.05	20.00	.050	200	30.0	N	N	20	>5,000
WM003R	34 19 58	114 17 32	5.0	1.50	1.00	.200	1,000	1.0	N	N	10	2,000
WM004R	34 18 51	114 16 29	20.0	2.00	.20	.700	3,000	15.0	N	N	50	300
WM005R	34 23 34	114 17 2	5.0	.70	.10	.200	1,000	2.0	N	N	20	3,000
WM006R	34 16 17	114 16 18	7.0	.05	.15	.050	70	10.0	N	N	70	1,500
WM007R	34 18 22	114 29 34	10.0	.30	.07	.050	150	20.0	N	N	20	1,000
WM007RA	34 18 22	114 29 34	7.0	7.00	7.00	1.000	1,500	N	N	N	30	1,000
WM007RB	34 18 18	114 29 32	3.0	.20	.20	.150	50	300.0	N	20	70	100
WM008R	34 18 29	114 13 32	7.0	.10	.50	1.000	70	50.0	N	N	30	5,000
WM023R	34 15 47	114 23 7	7.0	.05	.10	.150	50	N	N	N	30	1,000
WM024R	34 15 42	114 23 33	1.0	.20	.30	.050	70	N	N	N	<10	5,000
WM024RA	34 15 42	114 23 33	1.5	.10	.05	.020	20	50.0	N	N	10	3,000
WM068R	34 24 32	114 23 48	2.0	.70	2.00	.500	1,000	N	N	N	20	1,500
WM068RA	34 24 32	114 23 48	3.0	.50	.20	.100	500	.5	N	N	10	2,000
WM071R	34 17 58	114 15 55	15.0	.50	<.05	.015	1,000	1.5	N	N	30	500
WM078R	34 21 8	114 26 46	2.0	.70	.20	.200	200	N	N	N	<10	2,000
WM095R	34 18 41	114 28 1	7.0	.70	.20	.150	200	15.0	N	N	70	700
WM107R	34 13 1	114 23 58	10.0	.15	.70	.020	2,000	.5	N	N	100	1,000
WM110R	34 14 3	114 25 40	7.0	.10	.20	.200	300	15.0	N	N	50	1,000
WM110RA	34 14 3	114 25 40	1.5	.20	15.00	<.002	>5,000	50.0	N	N	30	>5,000
WM119R	34 17 25	114 29 28	3.0	.05	.50	.005	1,000	3.0	N	N	20	1,000
WML11R	34 23 29	114 22 8	.1	.10	2.00	.005	>5,000	50.0	300	N	20	>5,000
WML12R	34 23 29	114 22 8	7.0	.50	1.50	.500	5,000	N	200	N	70	2,000
WML21R	34 19 56	114 23 48	.3	.20	.70	.030	700	N	N	N	10	500
WML21S	34 19 56	114 23 48	5.0	2.00	3.00	1.000	1,500	N	N	N	70	1,000
WML31R	34 17 33	114 15 12	.5	.20	.70	.020	700	N	N	N	15	700
WML41R	34 15 41	114 32 32	20.0	.02	.20	.050	500	1.0	N	N	30	300
WML51R	34 19 30	114 36 46	2.0	.20	5.00	.070	1,500	2.0	N	N	70	3,000
WML51S	34 19 30	114 36 46	5.0	1.50	7.00	.700	1,000	N	N	N	150	1,500
WML52R	34 19 30	114 36 46	7.0	.50	.20	.100	2,000	10.0	N	N	100	1,500
WML61R	34 20 43	114 30 0	.1	.07	2.00	.003	1,500	150.0	>10,000	N	10	>5,000
WML71R	34 16 30	114 27 36	5.0	.10	.70	.020	1,500	20.0	10,000	N	50	>5,000
WML71S	34 16 30	114 27 36	5.0	2.00	5.00	.700	1,500	N	N	N	150	2,000
WML72R	34 16 30	114 27 36	5.0	.50	2.00	.200	2,000	5.0	N	N	30	>5,000
WML72S	34 15 48	114 26 30	5.0	1.50	3.00	.700	1,500	N	N	N	200	700
WML73R	34 15 48	114 26 30	10.0	1.50	20.00	.200	>5,000	2.0	N	N	30	700
WML74R	34 15 48	114 26 30	2.0	.70	1.50	.150	1,500	N	N	N	50	500
WML81R	34 13 34	114 25 26	10.0	7.00	3.00	.700	3,000	5.0	N	N	100	1,500
WML81S	34 13 38	114 25 26	5.0	1.50	2.00	.700	2,000	5.0	N	N	150	5,000
WML82R	34 13 34	114 25 26	1.0	.30	10.00	.015	>5,000	700.0	N	N	20	>5,000
WML83R	34 13 36	114 25 28	.5	.20	7.00	.070	5,000	100.0	N	N	50	700

Table 5.--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	Hg-ppm inst	Sb-ppm aa	As-ppm aa	W-ppm cm
WM001R	N	200	500	N	30	500	--	N	--	--	--	--	--
WM001RA	N	300	500	N	30	500	--	N	--	--	--	--	--
WM001RB	N	200	100	N	30	200	--	N	--	--	--	--	--
WM002R	N	>5,000	70	N	100	>10,000	--	N	--	--	--	--	--
WM002RA	N	>5,000	100	N	100	>10,000	--	N	--	--	--	--	--
WM003R	N	200	70	N	15	200	--	N	--	--	--	--	--
WM004R	N	100	200	N	50	300	--	N	--	--	--	--	--
WM005R	N	100	50	N	30	2,000	300	N	.34	.06	1	20	5
WM006R	N	100	10	N	15	N	--	N	--	--	--	--	--
WM007R	N	N	10	N	N	N	--	N	--	--	--	--	--
WM007RA	N	700	200	N	30	N	--	N	--	--	--	--	--
WM007RB	N	1,000	70	N	15	N	--	N	--	--	--	--	--
WM008R	N	500	100	N	30	500	--	N	--	--	--	--	--
WM023R	N	200	50	N	10	N	200	N	N	.04	3	<10	10
WM024R	N	300	10	N	N	N	50	N	N	.02	1	N	N
WM024RA	N	N	50	N	N	N	30	N	.15	.02	4	<10	2
WM068R	N	150	70	N	30	500	100	N	N	.06	6	30	2
WM068RA	N	100	30	N	20	200	150	N	N	.04	5	20	N
WM071R	N	N	15	N	10	200	50	N	N	.04	2	20	2
WM078R	N	150	20	N	15	N	100	N	<.05	.02	12	N	<2
WM095R	N	<100	100	N	10	1,000	50	N	12.00	.04	2	<10	2
WM107R	N	100	50	N	20	1,000	<10	N	.90	.04	27	40	N
WM110R	N	150	70	N	10	2,000	50	N	.40	.22	4	120	N
WM110RA	30	3,000	100	N	20	7,000	N	N	<.05	.02	2	<10	5
WM119R	N	100	50	N	N	N	N	N	8.75	.08	1	10	N
WML11R	N	5,000	300	100	10	300	--	N	--	--	--	--	--
WML12R	N	300	200	N	30	500	--	N	--	--	--	--	--
WML21R	N	300	<10	N	50	N	--	N	--	--	--	--	--
WML21S	N	300	200	N	70	<200	--	N	--	--	--	--	--
WML31R	N	300	20	N	50	N	--	N	--	--	--	--	--
WML41R	N	N	100	50	15	300	--	N	--	--	--	--	--
WML51R	N	500	500	N	20	700	--	N	--	--	--	--	--
WML51S	N	500	150	N	70	<200	--	N	--	--	--	--	--
WML52R	N	100	300	N	70	>10,000	--	N	--	--	--	--	--
WML61R	N	>5,000	>10,000	N	N	>10,000	--	N	--	--	--	--	--
WML71R	N	5,000	500	<50	30	1,000	--	N	--	--	--	--	--
WML71S	N	500	150	N	70	300	--	N	--	--	--	--	--
WML72R	N	700	50	N	10	5,000	--	N	--	--	--	--	--
WML72S	N	300	100	N	100	200	--	N	--	--	--	--	--
WML73R	N	300	100	N	200	300	--	N	--	--	--	--	--
WML74R	N	N	30	N	30	N	--	N	--	--	--	--	--
WML81R	N	1,000	100	<50	30	500	--	N	--	--	--	--	--
WML81S	N	500	100	<50	70	500	--	N	--	--	--	--	--
WML82R	N	2,000	20	N	10	>10,000	--	N	--	--	--	--	--
WML83R	N	300	15	50	10	1,500	--	N	--	--	--	--	--

Table 5.--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
WML84R	34 13 39	114 25 28	1.0	.20	15.00	.002	>5,000	700.0	N	N	10	>5,000
WML85R	34 13 39	114 25 28	1.5	.20	>20.00	.015	>5,000	2,000.0	N	N	N	1,500
WML86R	34 13 40	114 25 32	1.0	.05	.70	.020	700	3.0	N	N	70	500
WML87R	34 13 53	114 25 43	2.0	2.00	>20.00	.100	>5,000	50.0	N	N	20	2,000
WML88R	34 13 53	114 25 43	3.0	.20	.50	.200	2,000	200.0	<200	N	200	1,000

Table 5.--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
WML84R	50.0	N	150	15	20	5,000	50	10	N	30	10,000	N	--
WML85R	<5.0	N	100	N	N	700	50	N	N	10	10,000	N	--
WML86R	N	N	N	N	N	10	50	N	N	N	30	N	--
WML87R	7.0	N	N	15	100	150	N	N	N	30	5,000	N	--
WML88R	15.0	N	N	N	30	>20,000	N	10	N	5	2,000	N	--

Table 5.--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	Hg-ppm inst	Sb-ppm aa	As-ppm aa	W-ppm cm
WML84R	N	>5,000	10	N	15	1,000	--	N	--	--	--	--	--
WML85R	N	700	10	N	30	>10,000	--	N	--	--	--	--	--
WML86R	N	N	<10	N	N	N	--	N	--	--	--	--	--
WML87R	N	500	70	N	15	500	--	N	--	--	--	--	--
WML88R	N	100	50	N	20	2,000	--	N	--	--	--	--	--