UNITED STATES DEPARTMENT OF THE INTERIOR

GEOLOGICAL SURVEY

Analytical results and sample locality map of stream-sediment, heavy-mineral-concentrate, and rock samples from in and around the Mount Wilson Wilderness Study Area, Mohave County, Arizona

By

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Open-File Report 89-23

This report is preliminary and has not been reviewed for conformity with U.S. Geological Survey editorial standards and stratigraphic nomenclature. Any use of trade names is for descriptive purposes only and does not imply endorsement by the USGS.

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1989

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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 that may be present. Results must be made available to the public and be submitted to the President and the Congress. This report presents the results of a geochemical survey of the Mount Wilson (AZ-020-001A) Study Area, Mohave County, Arizona.

INTRODUCTION

In the spring of 1987 the U.S. Geological Survey conducted a reconnaissance geochemical survey of the Mount Wilson Study Area, Mohave County, Arizona.

The Mount Wilson Wilderness Study Area (WSA) comprises about 38.8 mi^2 (24,821 acres) in the northwest corner of Mohave County, Arizona. This study area is east and south of the Colorado River and is approximately 40 miles southeast of Las Vegas, Nevada (fig. 1).

The Lake Mead National Recreation Area surrounds all but the southeastern corner of the WSA. Access from the east is by two unimproved roads from the Temple Bar road north of U.S. Highway 93. Unimproved roads following dry washes provide proximate access to the west part of the WSA from Highway 93.

The WSA is in the north end of the Black Mountains, a loosely defined range about 135 miles long which is part of the Basin and Range province. Topographic relief is about 3,464 ft, and the highest point is Mount Wilson at 5,445 ft. The land slopes gently to the Detrital Valley to the east, and more steeply to the Colorado River to the west.

The western half of the WSA is underlain principally by Precambrian hornblende-biotite gneiss, gray granite gneiss, and biotite-hornblende schist, with local bands, pods, lenses, and layers of amphibolite and granite pegmatite (Anderson, 1978). The Tertiary Wilson Ridge pluton (Anderson and others, 1972) underlies the northern part of the WSA. The pluton composition is principally hornblende-biotite granodiorite and biotite granite with less common pyroxene-biotite diorite. Border zones of these Tertiary intrusives are heterogeneous, containing mafic intrusive rocks, and siliceous pegmatites and aplites. Small areas are underlain by the Miocene Mount Davis Volcanics (mafic lavas, flow breccias, and tuffaceous sedimentary rocks). Numerous Tertiary dikes ranging from basalt to rhyolite cut Precambrian to Tertiary crystalline rocks in the northern half of the WSA. The eastern half of the WSA is underlain by the Miocene to Pliocene Muddy Creek Formation, principally a coarse, heterogeneous, weakly lithified, poorly sorted fanglomerate derived from metamorphic rocks upslope, and locally containing intercalated olivine basalt (Anderson, 1978). An exceptional, nearly monolithologic, coarse megabreccia is found along the northwestern edge of the WSA (Anderson, 1978). The area is cut by numerous low- to high-angle normal faults, which appear most concentrated in Precambrian rocks.

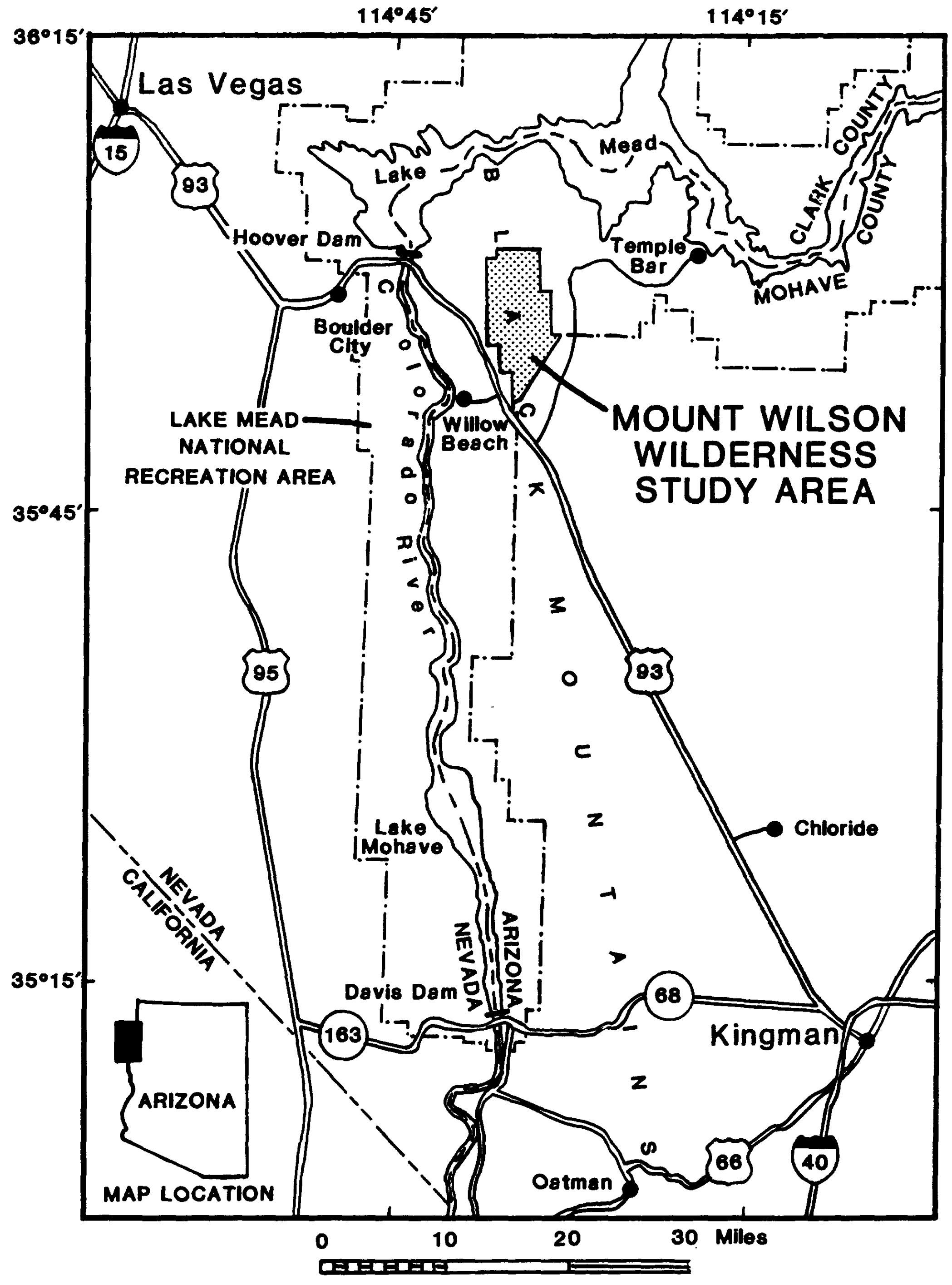

Figure 1. Location map of the Mount Wilson Wilderness Study Area, Mohave County, Arizona.

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 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

Heavy-mineral-concentrate samples were collected at 41 sites; stream-sediment samples were collected at 52 sites; and rock samples were collected at 15 sites (plate 1). Sampling density was about one sample site per .75 mi^2 for the stream sediments, .95 mi^2 for the heavy-mineral concentrates, and 2.6 mi^2 for the rocks. The area of the drainage basins sampled ranged from 1/4 mi^2 to 3 mi^2.

Stream-sediment samples

The stream-sediment samples consisted of active alluvium, minus the larger pebbles and cobbles collected primarily from first-order (unbranched) and second-order (below the junction of two first-order) streams as shown on USGS topographic map 1:62,500.

Heavy-mineral-concentrate samples

Heavy-mineral-concentrate samples were collected from the same active alluvium as the stream-sediment samples. These samples were panned until most of the quartz, feldspar, organic material, and clay-sized material were removed.

Rock samples

Rock samples were collected from altered or mineralized areas in the vicinity of the plotted site location. Descriptions of rock samples are in table 6.

Sample Preparation

The stream-sediment samples were air dried, then sieved using 100-mesh (0.15-mm) stainless-steel sieves. The portion of the sediment passing through the sieve was saved for analysis.

After air drying, the heavy-mineral concentrates that had been panned in the field were sieved at 16-mesh. Once the samples were sieved, bromoform (a heavy liquid with specific gravity 2.8) was used to remove the remaining quartz and feldspar from the heavy-mineral-concentrate samples. 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, 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 samples were analyzed for 31 elements, the rocks were analyzed for 35 elements, and the heavy-mineral concentrate were analyzed for 37 elements using a semiquantitative, direct-current arc emission spectrographic method (Grimes and Marranzino, 1968). The elements analyzed and their lower and upper limits of determination are listed in tables 1 and 2. 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 for samples from in and around the Mount Wilson Study Area are listed in tables 4, 5, and 6.

Chemical methods

Stream-sediment samples from in and around the Mount Wilson WSA were analyzed for As, Bi, Cd, Sb, and Zn using atomic absorption spectroscopy. Rock samples were analyzed for Au, Pd, and Pt using atomic absorption spectroscopy. See table 3 for a more detailed summary of these analyses.

Analytical results for stream-sediment, and rock samples are listed in tables 4, and 6, respectively.

DATA STORAGE SYSTEM

Upon completion of all analytical work, the analytical results were entered into either the Branch of Geochemistry computer data base called PLUTO or the data base called RASS (Rock Analysis Storage System). These data bases contain 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 4-6 list the results of analyses for the samples of stream sediment, heavy-mineral concentrate, and rock, respectively. For the three tables, the data are arranged so that column 1 contains the USGS-assigned sample field numbers. These numbers correspond to the numbers shown on the site location map (plate 1). 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 parentheses and in tables 1 and 2. If an element was observed but was below the lowest reporting value, a "less than" symbol (L) 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 (G) was entered in the tables in front of the upper limit of determination. The letter "B" indicates elements not looked for in a sample.

ACKNOWLEDGMENTS

Two of our colleagues also participated in the collection and analyses of these samples, Tom McCollum and Olga Erlich (respectively).

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TABLE 1.--Limits of determination for the spectrographic analysis of stream sediments, based on a 10-mg sample

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)	1	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.--Limits of determination for the spectrographic analysis of rocks, 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 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
Sodium (Na)	.2	5
Phosphorous (P)	.2	10
	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)	10	2,000
Chromium (Cr)	10	5,000
Copper (Cu)	5	20,000
Gallium (Ga)	10	500
Germanium (Ge)	10	100
Lanthanum (La)	50	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)	20	10,000
Yttrium (Y)	10	2,000
Zinc (Zn)	200	10,000
Zirconium (Zr)	10	1,000
Thorium (Th)	100	2,000

TABLE 3.--Chemical methods used
[AA = atomic absorption]

Element or constituent determined	Sample type	Method	Determination limit (micrograms/gram or ppm)	Reference
Arsenic (As)	rocks	AA	10	O'Leary and Viets, 1986.
Antimony (Sb)	and	AA	2	
Zinc (Zn)	stream	AA	5	
Bismuth (Bi)	sediments	AA	1	
Cadmium (Cd)		AA	.1	
Platinum (Pt)	rocks	AA	0.005	J.R. Hassemer, unpublished laboratory procedure.
Paladium (Pd)	rocks	AA	0.005	
Gold (Au)	rocks	AA	.02	Thompson and others, 1968.

Table 4.--Results of analyses of stream-sediment samples from in and around the Mount Wilson Wilderness Study Area, Mohave County, Arizona.

All analyses are in ppm unless noted otherwise. Analyses are by semiquantitative emission spectrography, except elements with a "-aa" suffix, which indicates atomic absorption methods.

Field #	Tag #	Latitude	Longitude	Ca %	Fe %	Mg %	Ti %
MW01S	ERY328	35 51 40	114 34 33	2	3	2	0.3
MW02S	ERY329	35 53 14	114 34 42	1.5	5	2	0.5
MW03S	ERY330	35 54 10	114 33 53	2	3	3	0.3
MW04S	ERY331	35 54 45	114 34 05	3	7	5	1
MW05S	ERY332	35 55 26	114 34 19	3	7	5	0.5
MW06S	ERY333	35 55 51	114 34 57	2	5	3	1
MW07S	ERY334	35 56 24	114 34 11	3	3	2	0.5
MW08S	ERY335	35 56 32	114 35 18	2	5	3	0.5
MW09S	ERY336	35 57 05	114 35 07	5	5	5	0.3
MW10S	ERY337	35 57 23	114 34 27	2	7	5	0.3
MW11S	ERY338	35 58 08	114 34 03	2	7	5	1
MW12S	ERY339	35 58 41	114 33 48	2	10	3	1
MW13S	ERY340	35 59 58	114 34 00	3	7	3	1
MW14S	ERY341	36 00 35	114 33 24	3	7	3	1
MW15S	ERY342	36 00 46	114 33 25	3	7	3	1
MW16S	ERY343	36 01 01	114 32 58	3	7	3	1
MW17S	ERY344	36 01 10	114 35 41	3	10	5	1
MW18S	ERY345	36 01 12	114 35 43	3	10	3	1
MW20S	ERY346	36 02 02	114 36 17	2	3	2	0.3
MW21S	ERY347	36 03 21	114 36 28	1.5	3	1.5	0.3
MW23S	ERY348	36 04 33	114 37 12	2	2	1.5	0.3
MW24S	ERY349	36 04 09	114 38 40	2	3	1.5	0.3
MW25S	ERY350	36 03 10	114 38 51	3	5	1.5	0.5
MW26S	ERY351	36 01 45	114 38 24	2	3	1.5	0.3
MW27S	ERY352	36 01 11	114 38 24	2	5	2	0.3
MW28S	ERY353	36 00 53	114 38 24	2	5	2	0.3
MW29S	ERY354	35 59 54	114 37 48	3	7	3	0.7
MW30S	ERY355	35 59 59	114 37 47	2	3	3	0.3
MW32S	ERY356	35 58 21	114 37 42	3	10	3	1
MW33S	ERY357	35 55 56	114 37 12	2	3	2	0.2
MW34S	ERY358	35 56 18	114 37 11	2	2	2	0.3
MW35S	ERY359	35 57 05	114 37 09	2	3	3	0.3
MW36S	ERY360	35 57 17	114 37 06	2	5	3	0.5
MW37S	ERY361	35 57 27	114 37 29	2	5	2	0.7
MW38S	ERY362	35 58 53	114 38 07	2	3	1.5	1

Table 4.--Results of analyses of stream-sediment samples--Continued

Field #	Tag #	Latitude	Longitude	Ca %	Fe %	Mg %	Ti %
MW41S	ERY363	35 55 01	114 36 57	2	3	3	0.3
MW44S	ERY364	35 54 20	114 36 56	3	3	5	0.3
MW45S	ERY365	35 53 49	114 36 35	2	3	1.5	0.2
MW46S	ERY366	35 53 34	114 36 30	1.5	3	1.5	0.3
MW47S	ERY367	35 52 56	114 36 00	2	3	3	0.3
MW48S	ERY368	35 52 11	114 36 12	5	3	3	1
MW49S	ERY369	35 51 47	114 35 52	3	3	3	0.3
MW50S	ERY370	35 51 39	114 31 43	3	5	2	0.7
MW51S	ERY371	35 52 09	114 31 31	2	3	1.5	0.2
MW52S	ERY372	35 53 40	114 30 49	2	3	1.5	G(1)
MW53S	ERY373	35 53 48	114 35 22	3	3	2	0.2
MW54S	ERY374	35 54 18	114 30 45	2	3	1	0.5
MW55S	ERY375	35 55 35	114 30 10	3	3	1	0.3
MW56S	ERY376	35 59 28	114 34 19	3	5	2	1
MW57S	ERY377	35 59 10	114 30 16	1.5	7	2	G(1)
MW58S	ERY378	35 57 54	114 29 57	3	10	3	1
MW59S	ERY379	35 57 15	114 29 56	5	3	2	1

Table 4.--Results of analyses of stream-sediment samples--Continued

Field #	Ag	As	As--aa	Au	B	Ba	Be
MW01S	N(0.5)	N(200)	N(10)	N(10)	50	500	1.5
MW02S	N(0.5)	N(200)	N(10)	N(10)	70	200	1.5
MW03S	N(0.5)	N(200)	N(10)	N(10)	30	500	1
MW04S	N(0.5)	N(200)	N(10)	N(10)	30	500	1
MW05S	N(0.5)	N(200)	N(10)	N(10)	20	300	L(1)
MW06S	N(0.5)	N(200)	N(10)	N(10)	20	500	1.5
MW07S	N(0.5)	N(200)	N(10)	N(10)	50	500	1
MW08S	N(0.5)	N(200)	N(10)	N(10)	20	500	1
MW09S	N(0.5)	N(200)	N(10)	N(10)	20	700	L(1)
MW10S	N(0.5)	N(200)	N(10)	N(10)	15	1000	1
MW11S	N(0.5)	N(200)	N(10)	N(10)	15	300	L(1)
MW12S	N(0.5)	N(200)	N(10)	N(10)	30	500	L(1)
MW13S	N(0.5)	N(200)	N(10)	N(10)	15	700	1
MW14S	N(0.5)	N(200)	N(10)	N(10)	15	500	L(1)
MW15S	2	N(200)	B	N(10)	10	700	L(1)
MW16S	N(0.5)	N(200)	N(10)	N(10)	20	700	L(1)
MW17S	N(0.5)	N(200)	B	N(10)	15	700	1
MW18S	N(0.5)	N(200)	N(10)	N(10)	10	300	L(1)
MW20S	N(0.5)	N(200)	N(10)	N(10)	30	500	1
MW21S	N(0.5)	N(200)	N(10)	N(10)	30	500	1.5
MW23S	N(0.5)	N(200)	N(10)	N(10)	30	1000	1.5
MW24S	N(0.5)	N(200)	N(10)	N(10)	30	1000	1
MW25S	N(0.5)	N(200)	N(10)	N(10)	20	700	1.5
MW26S	N(0.5)	N(200)	N(10)	N(10)	30	700	2
MW27S	N(0.5)	N(200)	N(10)	N(10)	20	500	L(1)
MW28S	N(0.5)	N(200)	N(10)	N(10)	20	500	L(1)
MW29S	N(0.5)	N(200)	N(10)	N(10)	20	300	1.5
MW30S	N(0.5)	N(200)	N(10)	N(10)	20	300	N(1)
MW32S	N(0.5)	N(200)	N(10)	N(10)	20	700	L(1)
MW33S	N(0.5)	N(200)	N(10)	N(10)	70	700	1.5
MW34S	N(0.5)	N(200)	N(10)	N(10)	50	500	1.5
MW35S	N(0.5)	N(200)	N(10)	N(10)	30	500	1
MW36S	N(0.5)	N(200)	N(10)	N(10)	20	1000	1
MW37S	N(0.5)	N(200)	N(10)	N(10)	50	500	1
MW38S	N(0.5)	N(200)	N(10)	N(10)	50	700	1.5

Table 4.--Results of analyses of stream-sediment samples--Continued

Field #	Ag	As	As--aa	Au	B	Ba	Be
MW41S	N(0.5)	N(200)	N(10)	N(10)	30	500	1.5
MW44S	N(0.5)	N(200)	N(10)	N(10)	30	300	1
MW45S	N(0.5)	N(200)	N(10)	N(10)	50	300	1
MW46S	N(0.5)	N(200)	N(10)	N(10)	50	300	1.5
MW47S	N(0.5)	N(200)	N(10)	N(10)	50	300	1.5
MW48S	N(0.5)	N(200)	N(10)	N(10)	50	500	1
MW49S	N(0.5)	N(200)	N(10)	N(10)	50	300	1
MW50S	N(0.5)	N(200)	N(10)	N(10)	30	500	L(1)
MW51S	N(0.5)	N(200)	N(10)	N(10)	50	500	1
MW52S	N(0.5)	N(200)	N(10)	N(10)	50	500	1
MW53S	N(0.5)	N(200)	N(10)	N(10)	50	500	1
MW54S	N(0.5)	N(200)	N(10)	N(10)	50	300	L(1)
MW55S	N(0.5)	N(200)	N(10)	N(10)	30	500	1
MW56S	N(0.5)	N(200)	N(10)	N(10)	20	500	1
MW57S	N(0.5)	N(200)	N(10)	N(10)	30	300	L(1)
MW58S	N(0.5)	N(200)	N(10)	N(10)	20	300	L(1)
MW59S	N(0.5)	N(200)	N(10)	N(10)	15	500	L(1)

Table 4.--Results of analyses of stream-sediment samples--Continued

Field #	Bi	Bi--aa	Cd	Cd--aa	Co	Cr	Cu
MW01S	N(10)	N(1)	N(20)	0.2	15	150	20
MW02S	N(10)	N(1)	N(20)	0.4	20	150	50
MW03S	N(10)	N(1)	N(20)	0.1	30	200	30
MW04S	N(10)	N(1)	N(20)	0.1	20	150	50
MW05S	N(10)	N(1)	N(20)	0.1	30	100	30
MW06S	N(10)	N(1)	N(20)	0.1	20	150	20
MW07S	N(10)	N(1)	N(20)	0.2	20	70	15
MW08S	N(10)	N(1)	N(20)	L(0.1)	30	200	30
MW09S	N(10)	N(1)	N(20)	0.1	30	300	30
MW10S	N(10)	N(1)	N(20)	L(0.1)	30	200	50
MW11S	N(10)	N(1)	N(20)	L(0.1)	30	300	30
MW12S	N(10)	N(1)	N(20)	L(0.1)	50	200	70
MW13S	N(10)	N(1)	N(20)	N(0.1)	30	100	50
MW14S	N(10)	N(1)	N(20)	N(0.1)	20	100	50
MW15S	N(10)	B	N(20)	B	30	150	50
MW16S	N(10)	N(1)	N(20)	N(0.1)	30	70	70
MW17S	N(10)	B	N(20)	B	30	100	70
MW18S	N(10)	N(1)	N(20)	N(0.1)	30	100	30
MW20S	N(10)	N(1)	N(20)	L(0.1)	15	70	15
MW21S	N(10)	N(1)	N(20)	0.1	10	50	10
MW23S	N(10)	N(1)	N(20)	0.1	7	70	10
MW24S	N(10)	N(1)	N(20)	0.1	7	50	10
MW25S	N(10)	N(1)	N(20)	0.1	7	50	7
MW26S	N(10)	N(1)	N(20)	0.1	7	50	7
MW27S	N(10)	N(1)	N(20)	0.2	20	70	30
MW28S	N(10)	N(1)	N(20)	L(0.1)	20	70	15
MW29S	N(10)	N(1)	N(20)	0.2	30	200	50
MW30S	N(10)	N(1)	N(20)	0.1	20	100	20
MW32S	N(10)	N(1)	N(20)	0.1	30	200	30
MW33S	N(10)	N(1)	N(20)	0.2	20	150	50
MW34S	N(10)	N(1)	N(20)	0.1	10	100	30
MW35S	N(10)	N(1)	N(20)	0.1	20	200	30
MW36S	N(10)	N(1)	N(20)	0.1	20	200	20
MW37S	N(10)	N(1)	N(20)	0.2	20	150	50
MW38S	N(10)	N(1)	N(20)	0.1	20	100	200
MW41S	N(10)	N(1)	N(20)	0.2	20	200	30
MW44S	N(10)	N(1)	N(20)	0.2	30	200	70
MW45S	N(10)	N(1)	N(20)	0.2	20	150	50
MW46S	N(10)	N(1)	N(20)	0.1	15	150	20
MW47S	N(10)	N(1)	N(20)	0.1	20	150	30

Table 4.--Results of analyses of stream-sediment samples--Continued

Field #	Bi	Bi--aa	Cd	Cd--aa	Co	Cr	Cu
MW48S	N(10)	N(1)	N(20)	0.3	20	200	100
MW49S	N(10)	N(1)	N(20)	0.3	30	200	70
MW50S	N(10)	N(1)	N(20)	0.2	30	200	50
MW51S	N(10)	N(1)	N(20)	0.2	15	150	20
MW52S	N(10)	N(1)	N(20)	0.2	10	100	15
MW53S	N(10)	N(1)	N(20)	0.1	20	150	15
MW54S	N(10)	N(1)	N(20)	0.2	15	150	10
MW55S	N(10)	N(1)	N(20)	0.2	15	100	15
MW56S	N(10)	N(1)	N(20)	0.2	20	150	50
MW57S	N(10)	N(1)	N(20)	0.2	20	200	30
MW58S	N(10)	N(1)	N(20)	0.1	30	300	50
MW59S	N(10)	N(1)	N(20)	0.1	15	150	10

Table 4.--Results of analyses of stream-sediment samples--Continued

Field #	La	Mn	Mo	Nb	Ni	Pb	Sb
MW01S	150	1000	N(5)	N(20)	50	30	N(100)
MW02S	300	1500	N(5)	L(20)	50	50	N(100)
MW03S	70	700	N(5)	N(20)	100	30	N(100)
MW04S	70	700	N(5)	N(20)	100	30	N(100)
MW05S	50	1000	N(5)	N(20)	70	30	N(100)
MW06S	50	1000	5	N(20)	70	20	N(100)
MW07S	70	700	N(5)	L(20)	20	20	N(100)
MW08S	70	700	N(5)	L(20)	100	20	N(100)
MW09S	50	700	N(5)	N(20)	100	20	N(100)
MW10S	100	1000	N(5)	N(20)	100	50	N(100)
MW11S	150	500	N(5)	N(20)	100	20	N(100)
MW12S	70	500	N(5)	20	150	30	N(100)
MW13S	100	700	N(5)	30	50	20	N(100)
MW14S	100	1000	N(5)	20	30	20	N(100)
MW15S	70	1000	N(5)	20	50	30	N(100)
MW16S	70	1000	N(5)	L(20)	50	20	N(100)
MW17S	100	1000	N(5)	20	50	20	N(100)
MW18S	70	700	N(5)	N(20)	30	20	N(100)
MW20S	100	500	N(5)	L(20)	20	20	N(100)
MW21S	150	500	N(5)	30	15	30	N(100)
MW23S	200	500	N(5)	30	15	20	N(100)
MW24S	150	700	N(5)	20	15	20	N(100)
MW25S	150	700	N(5)	30	10	20	N(100)
MW26S	150	500	N(5)	50	15	30	N(100)
MW27S	100	500	N(5)	20	30	30	N(100)
MW28S	100	500	N(5)	20	20	20	N(100)
MW29S	100	700	N(5)	20	70	30	N(100)
MW30S	70	500	N(5)	L(20)	30	20	N(100)
MW32S	100	700	N(5)	20	100	20	N(100)
MW33S	50	700	N(5)	L(20)	70	50	N(100)
MW34S	70	700	N(5)	N(20)	30	30	N(100)
MW35S	100	500	N(5)	L(20)	70	20	N(100)
MW36S	70	700	N(5)	N(20)	70	20	N(100)
MW37S	70	700	L(5)	L(20)	70	30	N(100)
MW38S	150	500	N(5)	20	30	20	N(100)
MW41S	100	700	N(5)	N(20)	100	50	N(100)
MW44S	50	700	N(5)	N(20)	200	50	N(100)
MW45S	70	500	N(5)	N(20)	100	30	N(100)
MW46S	200	500	N(5)	N(20)	70	20	N(100)
MW47S	70	500	N(5)	L(20)	100	30	N(100)

Table 4.--Results of analyses of stream-sediment samples--Continued

Field #	La	Mn	Mo	Nb	Ni	Pb	Sb
MW48S	50	1000	N(5)	L(20)	150	100	N(100)
MW49S	50	700	N(5)	L(20)	150	50	N(100)
MW50S	100	1000	N(5)	L(20)	50	150	N(100)
MW51S	70	700	N(5)	L(20)	50	30	N(100)
MW52S	50	700	N(5)	N(20)	30	20	N(100)
MW53S	100	700	N(5)	L(20)	100	20	N(100)
MW54S	70	500	N(5)	L(20)	50	30	N(100)
MW55S	50	500	N(5)	L(20)	30	20	N(100)
MW56S	100	700	N(5)	L(20)	100	15	N(100)
MW57S	150	700	N(5)	20	50	30	N(100)
MW58S	200	700	N(5)	L(20)	150	20	N(100)
MW59S	70	700	N(5)	N(20)	30	20	N(100)

Table 4.--Results of analyses of stream-sediment samples--Continued

Field #	Sb--aa	Sc	Sn	Sr	Th	V	W
MW01S	N(2)	20	N(10)	200	N(100)	100	N(50)
MW02S	N(2)	30	N(10)	100	L(100)	150	N(50)
MW03S	N(2)	20	N(10)	200	N(100)	100	N(50)
MW04S	N(2)	20	N(10)	200	N(100)	150	N(50)
MW05S	N(2)	20	N(10)	200	N(100)	150	N(50)
MW06S	N(2)	20	N(10)	200	N(100)	150	N(50)
MW07S	N(2)	15	N(10)	300	N(100)	150	N(50)
MW08S	N(2)	20	N(10)	200	N(100)	150	N(50)
MW09S	N(2)	30	N(10)	500	N(100)	150	N(50)
MW10S	N(2)	20	N(10)	200	N(100)	200	N(50)
MW11S	N(2)	20	N(10)	200	N(100)	300	N(50)
MW12S	N(2)	20	N(10)	150	N(100)	300	N(50)
MW13S	N(2)	20	N(10)	500	N(100)	200	N(50)
MW14S	N(2)	20	20	300	N(100)	200	N(50)
MW15S	B	20	N(10)	300	N(100)	300	N(50)
MW16S	N(2)	20	N(10)	300	N(100)	300	N(50)
MW17S	B	30	N(10)	700	N(100)	300	N(50)
MW18S	N(2)	20	N(10)	150	N(100)	500	N(50)
MW20S	N(2)	15	N(10)	500	N(100)	150	N(50)
MW21S	N(2)	10	N(10)	200	200	100	N(50)
MW23S	N(2)	10	N(10)	200	N(100)	70	N(50)
MW24S	N(2)	15	N(10)	200	N(100)	100	N(50)
MW25S	N(2)	15	N(10)	200	L(100)	150	N(50)
MW26S	N(2)	10	N(10)	200	N(100)	100	N(50)
MW27S	N(2)	15	N(10)	200	N(100)	200	N(50)
MW28S	N(2)	20	N(10)	300	N(100)	200	N(50)
MW29S	N(2)	20	N(10)	200	N(100)	300	N(50)
MW30S	N(2)	20	N(10)	200	N(100)	150	N(50)
MW32S	N(2)	15	N(10)	200	N(100)	300	N(50)
MW33S	N(2)	20	N(10)	150	N(100)	100	N(50)
MW34S	N(2)	15	N(10)	200	N(100)	100	N(50)
MW35S	N(2)	20	N(10)	300	N(100)	150	N(50)
MW36S	N(2)	20	N(10)	300	N(100)	150	N(50)
MW37S	N(2)	15	N(10)	150	N(100)	150	N(50)
MW38S	N(2)	15	N(10)	300	N(100)	150	N(50)
MW41S	N(2)	20	N(10)	200	N(100)	100	N(50)
MW44S	N(2)	15	N(10)	150	N(100)	100	N(50)
MW45S	N(2)	15	N(10)	150	N(100)	100	N(50)
MW46S	N(2)	15	N(10)	150	N(100)	70	N(50)
MW47S	N(2)	15	N(10)	150	N(100)	100	N(50)

Table 4.--Results of analyses of stream-sediment samples--Continued

Field #	Sb--aa	Sc	Sn	Sr	Th	V	W
MW48S	N(2)	20	N(10)	300	N(100)	150	N(50)
MW49S	N(2)	20	N(10)	500	N(100)	100	N(50)
MW50S	N(2)	30	N(10)	200	N(100)	200	N(50)
MW51S	N(2)	30	N(10)	200	N(100)	100	N(50)
MW52S	N(2)	20	N(10)	200	N(100)	100	N(50)
MW53S	N(2)	15	N(10)	200	N(100)	70	N(50)
MW54S	N(2)	15	N(10)	200	N(100)	100	N(50)
MW55S	N(2)	15	N(10)	200	N(100)	100	N(50)
MW56S	N(2)	20	N(10)	500	N(100)	150	N(50)
MW57S	N(2)	15	N(10)	150	N(100)	300	N(50)
MW58S	N(2)	20	N(10)	300	N(100)	300	N(50)
MW59S	N(2)	20	N(10)	500	N(100)	150	N(50)

Table 4.--Results of analyses of stream-sediment samples--Continued

Field #	Y	Zn	Zn--aa	Zr
MW01S	50	L(200)	75	300
MW02S	70	L(200)	125	500
MW03S	30	N(200)	50	200
MW04S	30	N(200)	55	700
MW05S	30	N(200)	50	100
MW06S	30	N(200)	40	200
MW07S	30	N(200)	45	300
MW08S	30	N(200)	40	500
MW09S	30	N(200)	45	1000
MW10S	30	N(200)	40	300
MW11S	50	N(200)	45	G(1000)
MW12S	30	N(200)	55	1000
MW13S	50	N(200)	30	700
MW14S	30	N(200)	60	700
MW15S	30	N(200)	B	700
MW16S	30	N(200)	60	1000
MW17S	30	N(200)	B	700
MW18S	30	N(200)	45	G(1000)
MW20S	50	N(200)	50	500
MW21S	50	N(200)	55	1000
MW23S	30	N(200)	35	500
MW24S	50	N(200)	30	500
MW25S	50	N(200)	10	G(1000)
MW26S	30	N(200)	45	700
MW27S	30	N(200)	50	700
MW28S	30	N(200)	40	500
MW29S	50	N(200)	40	1000
MW30S	30	N(200)	45	500
MW32S	50	N(200)	40	1000
MW33S	30	N(200)	90	500
MW34S	30	N(200)	55	300
MW35S	50	N(200)	30	700
MW36S	30	N(200)	40	200
MW37S	30	N(200)	50	500
MW38S	30	N(200)	40	1000
MW41S	30	N(200)	65	300
MW44S	30	N(200)	85	200
MW45S	30	N(200)	70	200
MW46S	50	N(200)	40	500
MW47S	50	N(200)	45	500

Table 4.--Results of analyses of stream-sediment samples--Continued

Field #	Y	Zn	Zn--aa	Zr
MW48S	30	300	90	200
MW49S	30	N(200)	120	300
MW50S	70	L(200)	60	700
MW51S	50	N(200)	60	700
MW52S	50	N(200)	45	700
MW53S	30	N(200)	35	500
MW54S	30	N(200)	40	700
MW55S	30	N(200)	40	500
MW56S	30	N(200)	65	300
MW57S	30	N(200)	45	1000
MW58S	50	N(200)	35	1000
MW59S	50	N(200)	30	500

Table 5.--Results of analyses of heavy-mineral-concentrate samples from in and around the Mount Wilson Wilderness Study Area, Mohave County, Arizona.

All analyses are in ppm unless noted otherwise. Analyses are by semiquantitative emission spectrography.

Field #	Tag #	Latitude	Longitude	Ca %	Fe %	Mg %	Na %
MW01C	ERY286	35 51 40	114 34 33	10	5	1.5	L(0.5)
MW02C	ERY287	35 53 14	114 34 42	15	0.7	0.2	L(0.5)
MW03C	ERY288	35 54 10	114 33 53	30	0.5	0.15	L(0.5)
MW04C	ERY289	35 54 45	114 34 05	20	0.3	0.2	L(0.5)
MW05C	ERY290	35 55 26	114 34 19	20	0.3	0.1	L(0.5)
MW06C	ERY291	35 55 51	114 34 57	30	0.5	0.2	L(0.5)
MW07C	ERY292	35 56 24	114 34 11	20	1	0.3	L(0.5)
MW08C	ERY293	35 56 32	114 35 18	30	0.5	0.15	L(0.5)
MW09C	ERY294	35 57 05	114 35 07	15	0.3	0.1	L(0.5)
MW10C	ERY295	35 57 23	114 34 27	30	0.5	0.1	L(0.5)
MW11C	ERY296	35 58 08	114 34 03	20	0.3	0.15	L(0.5)
MW12C	ERY297	35 58 41	114 33 48	20	0.5	0.1	L(0.5)
MW13C	ERY298	35 59 58	114 34 00	15	1.5	0.07	L(0.5)
MW14C	ERY299	36 00 35	114 33 24	15	1	0.2	L(0.5)
MW15C	ERY300	36 00 46	114 33 25	15	1	0.15	L(0.5)
MW16C	ERY301	36 01 01	114 32 58	15	1	0.07	L(0.5)
MW17C	ERY302	36 01 10	114 35 41	15	1	0.1	L(0.5)
MW18C	ERY303	36 01 12	114 35 43	15	1	0.1	L(0.5)
MW20C	ERY304	36 02 02	114 36 17	15	1	0.1	L(0.5)
MW21C	ERY305	36 03 21	114 36 28	20	0.7	0.07	L(0.5)
MW23C	ERY306	36 04 33	114 37 12	0.5	0.15	L(0.05)	N(0.5)
MW24C	ERY307	36 04 09	114 38 40	0.3	0.2	L(0.05)	L(0.5)
MW25C	ERY308	36 03 10	114 38 51	1	0.2	0.05	L(0.5)
MW26C	ERY309	36 01 45	114 38 24	3	0.15	0.05	L(0.5)
MW27C	ERY310	36 01 11	114 38 24	5	0.2	0.05	L(0.5)
MW28C	ERY311	36 00 53	114 38 24	5	0.5	0.07	L(0.5)
MW29C	ERY312	35 59 54	114 37 48	7	0.7	0.05	L(0.5)
MW30C	ERY313	35 59 59	114 37 47	7	0.7	0.05	L(0.5)
MW32C	ERY314	35 58 21	114 37 42	10	0.5	0.05	L(0.5)
MW33C	ERY315	35 55 56	114 37 12	3	0.1	L(0.05)	L(0.5)
MW34C	ERY316	35 56 18	114 37 11	3	0.15	L(0.05)	L(0.5)
MW35C	ERY317	35 57 05	114 37 09	15	0.3	0.1	L(0.5)
MW36C	ERY318	35 57 17	114 37 06	20	0.2	0.07	L(0.5)
MW37C	ERY319	35 57 27	114 37 29	15	0.5	0.1	L(0.5)
MW41C	ERY320	35 55 01	114 36 57	20	0.15	0.07	L(0.5)

Table 5. Results of analyses of heavy-mineral-concentrate samples--Continued

Field #	Tag #	Latitude	Longitude	Ca %	Fe %	Mg %	Na %
MW44C	ERY321	35 54 20	114 36 56	20	0.3	0.1	L(0.5)
MW47C	ERY322	35 52 56	114 36 00	30	0.2	0.1	L(0.5)
MW48C	ERY323	35 52 11	114 36 12	10	0.3	0.15	L(0.5)
MW49C	ERY324	35 51 47	114 35 52	20	0.2	0.1	L(0.5)
MW53C	ERY325	35 53 48	114 35 22	20	0.2	0.07	L(0.5)
MW56C	ERY326	35 59 28	114 34 19	10	0.15	0.05	L(0.5)

Table 5. Results of analyses of heavy-mineral-concentrate samples--Continued

Field #	P %	Ti %	Ag	As	Au	B	Ba
MW01C	7	G2	N(1)	N(500)	N(20)	100	3000
MW02C	15	G2	N(1)	L(500)	N(20)	70	7000
MW03C	20	G2	N(1)	N(500)	N(20)	L(20)	2000
MW04C	20	G2	N(1)	N(500)	N(20)	L(20)	5000
MW05C	20	G2	N(1)	N(500)	N(20)	L(20)	3000
MW06C	20	G2	N(1)	N(500)	N(20)	L(20)	G(10000)
MW07C	15	G2	N(1)	1000	N(20)	20	70
MW08C	20	G2	N(1)	N(500)	N(20)	L(20)	10000
MW09C	15	2	N(1)	N(500)	N(20)	L(20)	G(10000)
MW10C	20	G2	70	N(500)	N(20)	L(20)	G(10000)
MW11C	20	G2	N(1)	N(500)	N(20)	L(20)	10000
MW12C	15	G2	N(1)	N(500)	N(20)	L(20)	10000
MW13C	2	G2	N(1)	N(500)	N(20)	L(20)	G(10000)
MW14C	7	G2	N(1)	N(500)	N(20)	20	G(10000)
MW15C	2	G2	N(1)	N(500)	N(20)	20	G(10000)
MW16C	1	G2	N(1)	N(500)	N(20)	L(20)	G(10000)
MW17C	2	G2	N(1)	N(500)	N(20)	L(20)	G(10000)
MW18C	5	G2	N(1)	N(500)	N(20)	L(20)	5000
MW20C	7	G2	N(1)	N(500)	N(20)	20	10000
MW21C	10	G2	N(1)	2000	N(20)	L(20)	G(10000)
MW23C	L(0.5)	0.5	N(1)	N(500)	N(20)	L(20)	G(10000)
MW24C	L(0.5)	0.5	N(1)	N(500)	N(20)	L(20)	G(10000)
MW25C	1.5	G2	N(1)	N(500)	N(20)	L(20)	G(10000)
MW26C	5	G2	N(1)	N(500)	N(20)	L(20)	G(10000)
MW27C	7	G2	N(1)	N(500)	N(20)	L(20)	G(10000)
MW28C	3	G2	N(1)	N(500)	N(20)	L(20)	G(10000)
MW29C	1.5	G2	N(1)	N(500)	N(20)	L(20)	10000
MW30C	2	G2	N(1)	N(500)	N(20)	L(20)	G(10000)
MW32C	5	G2	N(1)	N(500)	N(20)	L(20)	G(10000)
MW33C	3	0.5	N(1)	N(500)	N(20)	L(20)	G(10000)
MW34C	3	0.7	N(1)	N(500)	N(20)	L(20)	G(10000)
MW35C	7	2	N(1)	N(500)	N(20)	L(20)	G(10000)
MW36C	15	2	N(1)	N(500)	N(20)	L(20)	G(10000)
MW37C	7	G2	N(1)	N(500)	N(20)	L(20)	G(10000)
MW41C	10	1	N(1)	N(500)	N(20)	L(20)	G(10000)
MW44C	20	1.5	N(1)	N(500)	N(20)	L(20)	G(10000)
MW47C	15	0.7	N(1)	N(500)	N(20)	L(20)	1000
MW48C	7	2	N(1)	N(500)	N(20)	L(20)	G(10000)
MW49C	15	1	N(1)	N(500)	N(20)	L(20)	500
MW53C	7	0.7	70	N(500)	G(1000)	L(20)	G(10000)
MW56C	10	1	N(1)	N(500)	N(20)	20	G(10000)

Table 5. Results of analyses of heavy-mineral-concentrate samples--Continued

Field #	Be	Bi	Cd	Co	Cr	Cu	Ga
MW01C	3	N(20)	N(50)	20	300	20	15
MW02C	2	N(20)	N(50)	N(20)	200	15	10
MW03C	L(2)	N(20)	N(50)	N(20)	300	15	L(10)
MW04C	L(2)	N(20)	N(50)	N(20)	100	L(10)	L(10)
MW05C	L(2)	N(20)	N(50)	N(20)	150	L(10)	N(10)
MW06C	L(2)	N(20)	N(50)	N(20)	200	L(10)	N(10)
MW07C	L(2)	N(20)	N(50)	N(20)	100	L(10)	10
MW08C	L(2)	N(20)	N(50)	N(20)	200	L(10)	L(10)
MW09C	L(2)	N(20)	N(50)	N(20)	70	L(10)	L(10)
MW10C	L(2)	N(20)	N(50)	N(20)	100	L(10)	N(10)
MW11C	L(2)	N(20)	N(50)	N(20)	100	L(10)	L(10)
MW12C	L(2)	N(20)	N(50)	N(20)	100	L(10)	L(10)
MW13C	L(2)	N(20)	N(50)	20	50	20	L(10)
MW14C	L(2)	N(20)	N(50)	N(20)	70	10	L(10)
MW15C	L(2)	N(20)	N(50)	N(20)	70	10	L(10)
MW16C	L(2)	N(20)	N(50)	L(20)	20	10	L(10)
MW17C	L(2)	N(20)	N(50)	20	50	20	L(10)
MW18C	L(2)	N(20)	N(50)	L(20)	50	20	L(10)
MW20C	L(2)	N(20)	N(50)	20	50	30	L(10)
MW21C	L(2)	N(20)	N(50)	30	50	L(10)	10
MW23C	L(2)	N(20)	N(50)	N(20)	L(20)	L(10)	L(10)
MW24C	L(2)	N(20)	N(50)	N(20)	L(20)	L(10)	N(10)
MW25C	L(2)	N(20)	N(50)	L(20)	20	10	N(10)
MW26C	L(2)	N(20)	N(50)	20	30	10	N(10)
MW27C	L(2)	N(20)	N(50)	L(20)	30	L(10)	N(10)
MW28C	L(2)	N(20)	N(50)	L(20)	50	20	N(10)
MW29C	L(2)	N(20)	N(50)	20	50	30	N(10)
MW30C	L(2)	N(20)	N(50)	L(20)	20	15	N(10)
MW32C	L(2)	N(20)	N(50)	L(20)	30	15	N(10)
MW33C	L(2)	N(20)	N(50)	N(20)	L(20)	10	N(10)
MW34C	L(2)	N(20)	N(50)	N(20)	L(20)	L(10)	N(10)
MW35C	L(2)	N(20)	N(50)	N(20)	50	L(10)	N(10)
MW36C	L(2)	N(20)	N(50)	N(20)	70	L(10)	N(10)
MW37C	L(2)	N(20)	N(50)	L(20)	50	10	N(10)
MW41C	L(2)	N(20)	N(50)	L(20)	50	L(10)	N(10)
MW44C	L(2)	N(20)	N(50)	N(20)	100	L(10)	N(10)
MW47C	L(2)	N(20)	N(50)	L(20)	70	L(10)	N(10)
MW48C	L(2)	N(20)	N(50)	N(20)	70	15	10
MW49C	2	N(20)	N(50)	N(20)	20	L(10)	10
MW53C	L(2)	700	N(50)	N(20)	200	L(10)	L(10)
MW56C	L(2)	N(20)	N(50)	N(20)	20	L(10)	L(10)

Table 5. Results of analyses of heavy-mineral-concentrate samples--Continued

Field #	Ge	La	Mn	Mo	Nb	Ni	Pb
MW01C	N(20)	G(2000)	1000	10	L(50)	70	300
MW02C	N(20)	700	500	L(10)	50	10	1500
MW03C	N(20)	150	700	L(10)	L(50)	30	50
MW04C	N(20)	150	500	L(10)	N(50)	L(10)	30
MW05C	N(20)	100	500	L(10)	L(50)	L(10)	N(20)
MW06C	N(20)	100	500	L(10)	N(50)	10	70
MW07C	N(20)	200	500	L(10)	N(50)	50	50
MW08C	N(20)	200	700	50	N(50)	15	70
MW09C	N(20)	150	500	L(10)	N(50)	15	N(20)
MW10C	N(20)	300	700	L(10)	50	10	N(20)
MW11C	N(20)	700	500	L(10)	N(50)	15	L(20)
MW12C	N(20)	1000	500	L(10)	70	15	N(20)
MW13C	N(20)	G(2000)	500	20	100	L(10)	N(20)
MW14C	N(20)	G(2000)	500	L(10)	70	10	N(20)
MW15C	N(20)	2000	500	L(10)	70	10	N(20)
MW16C	N(20)	G(2000)	500	L(10)	100	L(10)	N(20)
MW17C	N(20)	2000	500	L(10)	100	L(10)	N(20)
MW18C	N(20)	2000	500	10	300	L(10)	N(20)
MW20C	N(20)	2000	700	L(10)	200	L(10)	N(20)
MW21C	N(20)	1500	700	L(10)	150	50	N(20)
MW23C	N(20)	L(100)	30	L(10)	L(50)	L(10)	200
MW24C	N(20)	L(100)	50	20	50	10	N(20)
MW25C	N(20)	300	100	50	200	10	70
MW26C	N(20)	1000	150	10	200	10	100
MW27C	N(20)	1000	200	L(10)	70	10	20
MW28C	N(20)	1500	300	L(10)	100	L(10)	70
MW29C	N(20)	2000	300	10	100	L(10)	N(20)
MW30C	N(20)	2000	300	L(10)	100	10	N(20)
MW32C	N(20)	2000	300	L(10)	70	10	N(20)
MW33C	N(20)	L(100)	100	20	N(50)	15	5000
MW34C	N(20)	L(100)	150	L(10)	N(50)	15	300
MW35C	N(20)	100	200	L(10)	N(50)	15	L(20)
MW36C	N(20)	200	200	L(10)	N(50)	15	L(20)
MW37C	N(20)	1500	300	500	70	10	1500
MW41C	N(20)	200	200	L(10)	N(50)	10	1000
MW44C	N(20)	300	300	50	N(50)	15	300
MW47C	N(20)	200	500	L(10)	N(50)	10	1500
MW48C	N(20)	150	200	100	N(50)	10	1000
MW49C	N(20)	200	500	L(10)	N(50)	10	300
MW53C	N(20)	100	500	10	N(50)	10	N(20)
MW56C	N(20)	1500	200	L(10)	N(50)	10	2000

Table 5. Results of analyses of heavy-mineral-concentrate samples--Continued

Field #	Pd	Pt	Sb	Sc	Sn	Sr	Th
MW01C	N(5)	N(20)	N(200)	50	N(20)	700	700
MW02C	N(5)	N(20)	N(200)	70	N(20)	700	N(200)
MW03C	N(5)	N(20)	N(200)	50	N(20)	1000	N(200)
MW04C	N(5)	N(20)	N(200)	15	N(20)	1000	N(200)
MW05C	N(5)	N(20)	N(200)	L(10)	N(20)	1000	N(200)
MW06C	N(5)	N(20)	N(200)	20	N(20)	2000	N(200)
MW07C	N(5)	N(20)	N(200)	70	N(20)	1000	N(200)
MW08C	N(5)	N(20)	N(200)	15	N(20)	1000	N(200)
MW09C	N(5)	N(20)	N(200)	10	N(20)	5000	N(200)
MW10C	N(5)	N(20)	N(200)	L(10)	N(20)	3000	N(200)
MW11C	N(5)	N(20)	N(200)	10	N(20)	1500	N(200)
MW12C	N(5)	N(20)	N(200)	15	N(20)	1500	N(200)
MW13C	N(5)	N(20)	N(200)	20	20	1500	L(200)
MW14C	N(5)	N(20)	N(200)	15	L(20)	1500	L(200)
MW15C	N(5)	N(20)	N(200)	20	20	2000	N(200)
MW16C	N(5)	N(20)	N(200)	10	50	3000	N(200)
MW17C	N(5)	N(20)	N(200)	20	20	500	N(200)
MW18C	N(5)	N(20)	N(200)	15	30	L(200)	N(200)
MW20C	N(5)	N(20)	N(200)	20	50	200	300
MW21C	N(5)	N(20)	N(200)	15	N(20)	3000	2000
MW23C	N(5)	N(20)	N(200)	L(10)	N(20)	10000	N(200)
MW24C	N(5)	N(20)	N(200)	L(10)	N(20)	5000	200
MW25C	N(5)	N(20)	N(200)	L(10)	N(20)	5000	2000
MW26C	N(5)	N(20)	N(200)	L(10)	30	3000	2000
MW27C	N(5)	N(20)	N(200)	L(10)	N(20)	2000	1000
MW28C	N(5)	N(20)	N(200)	50	30	1500	200
MW29C	N(5)	N(20)	N(200)	70	50	L(200)	L(200)
MW30C	N(5)	N(20)	N(200)	50	30	L(200)	L(200)
MW32C	N(5)	N(20)	N(200)	50	30	500	300
MW33C	N(5)	N(20)	N(200)	L(10)	N(20)	5000	N(200)
MW34C	N(5)	N(20)	N(200)	L(10)	N(20)	5000	N(200)
MW35C	N(5)	N(20)	N(200)	L(10)	N(20)	2000	N(200)
MW36C	N(5)	N(20)	N(200)	L(10)	N(20)	3000	N(200)
MW37C	N(5)	N(20)	N(200)	L(10)	20	2000	500
MW41C	N(5)	N(20)	N(200)	L(10)	N(20)	2000	N(200)
MW44C	N(5)	N(20)	N(200)	L(10)	N(20)	1000	N(200)
MW47C	N(5)	N(20)	N(200)	L(10)	N(20)	500	N(200)
MW48C	N(5)	N(20)	N(200)	L(10)	N(20)	3000	N(200)
MW49C	N(5)	N(20)	N(200)	L(10)	N(20)	5000	N(200)
MW53C	N(5)	N(20)	N(200)	L(10)	N(20)	1000	N(200)
MW56C	N(5)	N(20)	300	L(10)	N(20)	2000	N(200)

Table 5. Results of analyses of heavy-mineral-concentrate samples--Continued

Field #	V	W	Y	Zn	Zr
MW01C	200	1000	500	N(500)	G(2000)
MW02C	200	1000	500	N(500)	G(2000)
MW03C	200	50	700	N(500)	G(2000)
MW04C	100	100	300	N(500)	G(2000)
MW05C	100	N(50)	700	N(500)	G(2000)
MW06C	50	70	500	N(500)	G(2000)
MW07C	100	50	700	N(500)	G(2000)
MW08C	150	50	500	N(500)	G(2000)
MW09C	100	150	300	N(500)	G(2000)
MW10C	100	N(50)	700	N(500)	G(2000)
MW11C	100	L(50)	500	N(500)	G(2000)
MW12C	150	L(50)	700	N(500)	G(2000)
MW13C	300	L(50)	700	N(500)	G(2000)
MW14C	200	L(50)	700	N(500)	G(2000)
MW15C	200	L(50)	700	N(500)	G(2000)
MW16C	300	L(50)	700	N(500)	G(2000)
MW17C	200	L(50)	700	N(500)	G(2000)
MW18C	200	L(50)	500	N(500)	G(2000)
MW20C	200	L(50)	700	N(500)	G(2000)
MW21C	100	L(50)	700	N(500)	G(2000)
MW23C	150	L(50)	30	N(500)	2000
MW24C	L(20)	100	30	N(500)	G(2000)
MW25C	50	150	500	N(500)	G(2000)
MW26C	100	L(50)	700	N(500)	G(2000)
MW27C	150	70	700	N(500)	G(2000)
MW28C	200	N(50)	500	N(500)	G(2000)
MW29C	300	N(50)	700	N(500)	G(2000)
MW30C	200	N(50)	500	N(500)	G(2000)
MW32C	200	N(50)	700	N(500)	G(2000)
MW33C	1000	700	150	N(500)	G(2000)
MW34C	150	1000	150	N(500)	G(2000)
MW35C	70	L(50)	500	N(500)	G(2000)
MW36C	70	N(50)	300	N(500)	G(2000)
MW37C	200	200	700	N(500)	G(2000)
MW41C	100	200	700	N(500)	G(2000)
MW44C	100	1000	700	N(500)	G(2000)
MW47C	L(20)	1000	700	N(500)	2000
MW48C	500	1500	500	N(500)	G(2000)
MW49C	70	150	700	N(500)	G(2000)
MW53C	L(20)	5000	700	N(500)	G(2000)
MW56C	50	70	500	N(500)	G(2000)

Table 6.--Results of analyses of rock samples from in and around the Mount Wilson Wilderness Study Area, Mohave County, Arizona.

All analyses are in ppm unless noted otherwise. Analyses are by semiquantitative emission spectrography, except elements with a "-aa" suffix, which indicates atomic absorption methods.

Field #	Latitude	Longitude	Ca %	Fe %	Mg %	Na %	P %
MW01R	35 51 40	114 34 33	1	1	0.1	0.5	N(0.2)
MW04R	35 54 45	114 34 05	B	B	B	B	B
MW13R	35 59 58	114 34 00	B	B	B	B	B
MW22R1	36 04 09	114 38 07	0.2	1.5	0.05	1.5	N(0.2)
MW22R2	36 04 09	114 38 07	0.1	10	0.15	3	L(0.2)
MW28R	36 00 53	114 38 24	7	2	0.2	3	L(0.2)
MW29R1	35 59 54	114 37 48	1	15	1.5	5	L(0.2)
MW33R	35 55 56	114 37 12	0.3	3	0.15	3	L(0.2)
MW36R	35 57 17	114 37 06	L(0.05)	5	L(0.02)	N(0.2)	L(0.2)
MW39R	35 58 56	114 38 06	0.1	15	0.02	1.5	N(0.2)
MW40R	35 58 38	114 37 51	B	B	B	B	B
MW42R1	35 54 48	114 36 54	0.07	10	0.7	2	N(0.2)
MW42R2	35 54 48	114 36 54	B	B	B	B	B
MW43R	35 54 50	114 36 54	0.07	5	0.15	5	L(0.2)
MW53R	35 53 48	114 35 22	7	G(20)	3	3	N(0.2)

Field #	Ti %	Ag	As	Au	Au-aa	B	Ba
MW01R	0.03	N(0.5)	N(200)	N(10)	L(0.02)	15	150
MW04R	B	B	B	B	L(0.02)	B	B
MW13R	B	B	B	B	L(0.02)	B	B
MW22R1	0.2	N(0.5)	N(200)	N(10)	0.14	15	G(5000)
MW22R2	0.1	N(0.5)	N(200)	N(10)	B	L(10)	G(5000)
MW28R	0.5	N(0.5)	N(200)	N(10)	L(0.02)	10	G(5000)
MW29R1	0.5	N(0.5)	L(200)	N(10)	L(0.02)	10	200
MW33R	0.2	N(0.5)	N(200)	N(10)	L(0.02)	10	500
MW36R	L(0.002)	N(0.5)	L(200)	N(10)	L(0.02)	L(10)	20
MW39R	0.1	2	N(200)	N(10)	L(0.02)	10	50
MW40R	B	B	B	B	0.06	B	B
MW42R1	0.2	N(0.5)	N(200)	N(10)	0.04	10	150
MW42R2	B	B	B	B	1.25	B	B
MW43R	0.15	N(0.5)	N(200)	N(10)	0.05	L(10)	100
MW53R	0.3	N(0.5)	N(200)	N(10)	L(0.02)	20	20

Table 6.--Results of analyses of rock samples--Continued

Field #	Be	Bi	Cd	Co	Cr	Cu	Ga
MW01R	1	N(10)	N(20)	N(10)	N(10)	L(5)	L(5)
MW04R	B	B	B	B	B	B	B
MW13R	B	B	B	B	B	B	B
MW22R1	2	300	N(20)	N(10)	N(10)	200	15
MW22R2	L(1)	N(10)	N(20)	L(10)	N(10)	1000	30
MW28R	L(1)	N(10)	N(20)	L(10)	20	70	20
MW29R1	1	N(10)	N(20)	30	100	5	50
MW33R	3	N(10)	N(20)	10	10	7	20
MW36R	N(1)	N(10)	N(20)	N(10)	L(10)	7	5
MW39R	1	N(10)	N(20)	N(10)	N(10)	15000	15
MW40R	B	B	B	B	B	B	B
MW42R1	1.5	N(10)	N(20)	20	100	50	30
MW42R2	B	B	B	B	B	B	B
MW43R	1	N(10)	N(20)	50	N(10)	700	50
MW53R	N(1)	N(10)	N(20)	N(10)	100	5	50

Field #	Ge	La	Mn	Mo	Nb	Ni	Pb
MW01R	N(10)	N(50)	200	L(5)	N(20)	15	N(10)
MW04R	B	B	B	B	B	B	B
MW13R	B	B	B	B	B	B	B
MW22R1	N(10)	L(50)	100	20	L(20)	7	N(10)
MW22R2	N(10)	50	G(5000)	10	L(20)	10	N(10)
MW28R	N(10)	100	5000	L(5)	L(20)	7	N(10)
MW29R1	N(10)	50	200	L(5)	N(20)	50	N(10)
MW33R	N(10)	L(50)	5000	L(5)	L(20)	15	N(10)
MW36R	N(10)	N(50)	50	7	N(20)	20	N(10)
MW39R	N(10)	L(50)	50	10	L(20)	5	N(10)
MW40R	B	B	B	B	B	B	B
MW42R1	N(10)	N(50)	3000	5	N(20)	30	N(10)
MW42R2	B	B	B	B	B	B	B
MW43R	N(10)	500	150	5	N(20)	15	N(10)
MW53R	N(10)	N(50)	2000	5	N(20)	30	N(10)

Table 6.--Results of analyses of rock samples--Continued

Field #	Sb	Sc	Sn	Sr	Th	V	W
MW01R	N(100)	N(5)	N(10)	L(100)	N(100)	10	L(20)
MW04R	B	B	B	B	B	B	B
MW13R	B	B	B	B	B	B	B
MW22R1	N(100)	7	N(10)	1500	N(100)	50	L(20)
MW22R2	N(100)	N(5)	N(10)	200	N(100)	50	50
MW28R	N(100)	20	N(10)	2000	N(100)	100	N(20)
MW29R1	N(100)	20	N(10)	150	N(100)	200	N(20)
MW33R	N(100)	5	N(10)	100	N(100)	50	N(20)
MW36R	N(100)	N(5)	N(10)	N(100)	N(100)	50	N(20)
MW39R	N(100)	10	N(10)	100	N(100)	100	50
MW40R	B	B	B	B	B	B	B
MW42R1	N(100)	7	N(10)	L(100)	N(100)	70	20
MW42R2	B	B	B	B	B	B	B
MW43R	N(100)	N(5)	N(10)	L(100)	150	50	L(20)
MW53R	N(100)	30	N(10)	150	N(100)	300	N(20)

Field #	Y	Zn	Zr	Pt-aa	Pd-aa
MW01R	N(10)	N(200)	N(10)	L(5)	L(5)
MW04R	B	B	B	L(5)	L(5)
MW13R	B	B	B	L(5)	L(5)
MW22R1	10	N(200)	150	L(5)	L(5)
MW22R2	10	N(200)	100	B	B
MW28R	15	N(200)	100	L(5)	L(5)
MW29R1	20	N(200)	50	L(5)	L(5)
MW33R	20	N(200)	100	L(5)	L(5)
MW36R	N(10)	N(200)	N(10)	L(5)	L(5)
MW39R	10	N(200)	50	L(5)	L(5)
MW40R	B	B	B	L(5)	L(5)
MW42R1	20	N(200)	70	L(5)	L(5)
MW42R2	B	B	B	L(5)	L(5)
MW43R	20	N(200)	30	L(5)	L(5)
MW53R	20	N(200)	50	L(5)	L(5)

Table 7. Brief descriptions for altered and/or mineralized rocks collected from the Mount Wilson Wilderness Study Area, Mohave County, Arizona.

SAMPLE	Sample Collection	Sample Source	Sample Description
MW01R	grab	float	quartz + specularite; argillically altered K-feldspar
MW04R	grab	float	---
MW13R	grab	float	---
MW22R1	grab	prospect	vuggy vein quartz; some FeO2 pseudomorphs after pyrite; trace pyrite, malachite, specularite, carbonate; argillically altered K-feldspar
MW22R2	grab	prospect	brecciated quartz; cemented with MnO2 and minor FeO2
MW28R	grab	float	felsic rock cut by thin quartz-hematite veinlets; argillically altered K-feldspar
MW29R1	grab	float	brecciated quartz; cemented with FeO2 and MnO2; some FeO2 pseudomorphs after pyrite
MW33R	grab	float	felsic rock cut by carbonate veinlets; FeO2- and MnO2-stained; argillically altered K-feldspar
MW36R	grab	float	vuggy gray quartz cut by specularite veinlets; drusy quartz in vugs; FeO2 -stained
MW39R	grab	prospect	brecciated quartz in specularite matrix; malachite; FeO2 pseudomorphs after pyrite
MW40R	grab	prospect	foliated quartz-biotite gneiss; trace FeO2 staining
MW42R1	grab	prospect	quartz and specularite; abundant clay
MW42R2	grab	prospect	quartz and specularite
MW43R	grab	prospect	coarse-grained granitic rock cut by specularite and MnO2 veinlets; trace secondary Cu, carbonate
MW53R	grab	float	felsic rock cut by specularite vein; argillically altered K-feldspar