UNITED STATES DEPARTMENT OF THE INTERIOR

GEOLOGICAL SURVEY

Analytical results and sample locality map of stream-sediment, heavy-mineral-concentrate, and rock samples from the Mount Nutt Wilderness Study Area, (AZ-020-024), Mohave County, Arizona

By

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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 resource potential. Results must be made available to the public and be submitted to the President and the Congress. This report presents the results of a geochemical survey of the Mount Nutt Wilderness Study Area (AZ-020-024), Mohave County, Arizona.

INTRODUCTION

In March 1987, the U.S. Geological Survey conducted a reconnaissance geochemical survey of the Mount Nutt Wilderness Study Area, (WSA) Mohave County, Arizona.

The Mount Nutt WSA comprises about 45.6 mi^2 (29,200 acres) in the western portion of central Mohave County, Arizona. The area of investigation, hereby termed the "study area", is 42.5 mi2 (27,210 acres) within the Mount Nutt WSA.

The study area is in the Black Mountains, 15 mi west-southwest of Kingman, Arizona, between State Highway 68 and old U.S. Highway 66 (fig. 1). Maintained and unimproved roads connecting with these highways provide access to the study area boundary, and foot trails provide interior access. Oatman, the nearest community, is about 1 1/2 mi south of the southern boundary.

The Black Mountains are a narrow, rugged, northwest-trending, east-tilted fault-block range in the Mohave Block of the Basin and Range physiographic province. Two peaks in the study area, Nutt Mountain (5,216 ft) and Mount Nutt (5,062 ft), are the highest points in the range. These peaks are surrounded by benches and precipitous cliffs, crags, small mesas, rough slopes, and steep-walled canyons, which merge with gentler slopes and rounded hills at lower elevations in the study area. The lowest elevation is approximately 2,260 ft at a point on the northwest border (Almquist, 1988).

Basement rocks in the study area are an assemblage of Precambrian-age granite gneiss and schist. These rocks are unconformably overlain by a thick sequence of Tertiary-age rhyolitic to andesitic flows, tuffs, breccias, and volcaniclastic sediments. Intrusive rocks include a quartz monzonite porphyry and rhyolite dikes cutting both the Precambrian and older Tertiary assemblages. A remnant of the late-Tertiary olivine basalt flow caps rocks along the southern boundary (Ransome, 1923; and Lausen, 1931).

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.

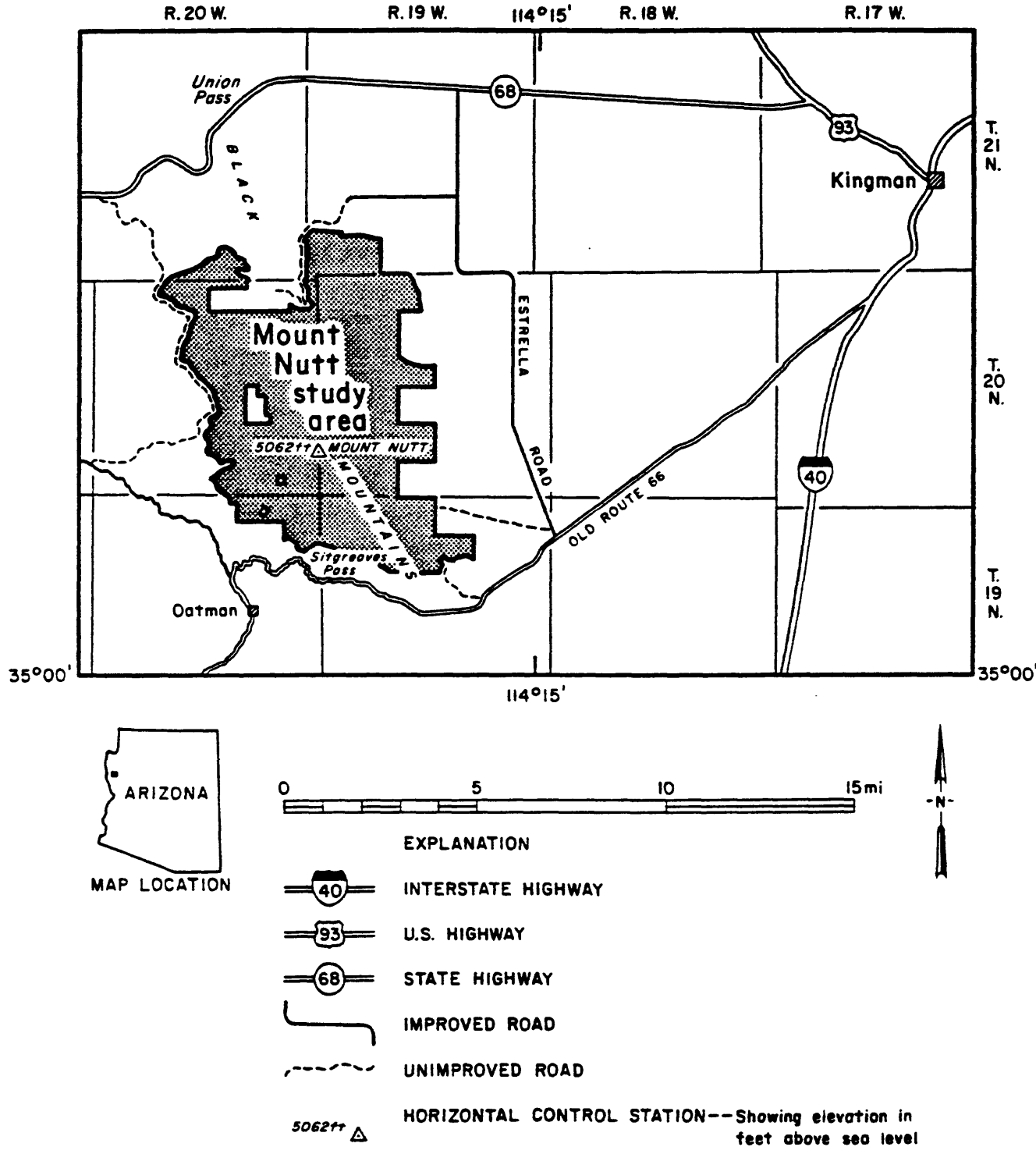

Figure 1.--Location of the Mount Nutt Wilderness Study Area, Mohave County Arizona.

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

Stream-sediment samples were collected at 58 sites (fig. 2). A corresponding heavy-mineral-concentrate sample was collected at all but ten sites. Rock samples were collected at 65 sites. Sampling density was about one sample site per 0.7 mi^2 for the stream sediments. The area of the drainage basins sampled ranged from 0.2 mi^2 to 2.0 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 within an area that may extend as much as 50 ft from the site plotted on the map.

Heavy-mineral-concentrate samples

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

Rock samples

Rock samples were collected from various types of occurrences 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 80-mesh (0.17-mm) stainless-steel sieves. The portion of the sediment passing through the sieve was saved for analysis.

Samples that had been panned in the field were air dried and sieved to minus 35 mesh; bromoform (specific gravity 2.85) was used to remove the remaining quartz and feldspar. The resultant heavy-mineral sample was separated into three fractions using a large electromagnet by placing the sample in contact with the face of the magnet (in this case a modified Frantz Isodynamic Separator). The most magnetic material (removed at a setting of 0.25 ampere), primarily magnetite, was not analyzed. The second fraction (removed at a setting of 1.75 ampere), largely ferromagnesian silicates and iron oxides, was saved for archival storage. The third fraction (the nonmagnetic 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.

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

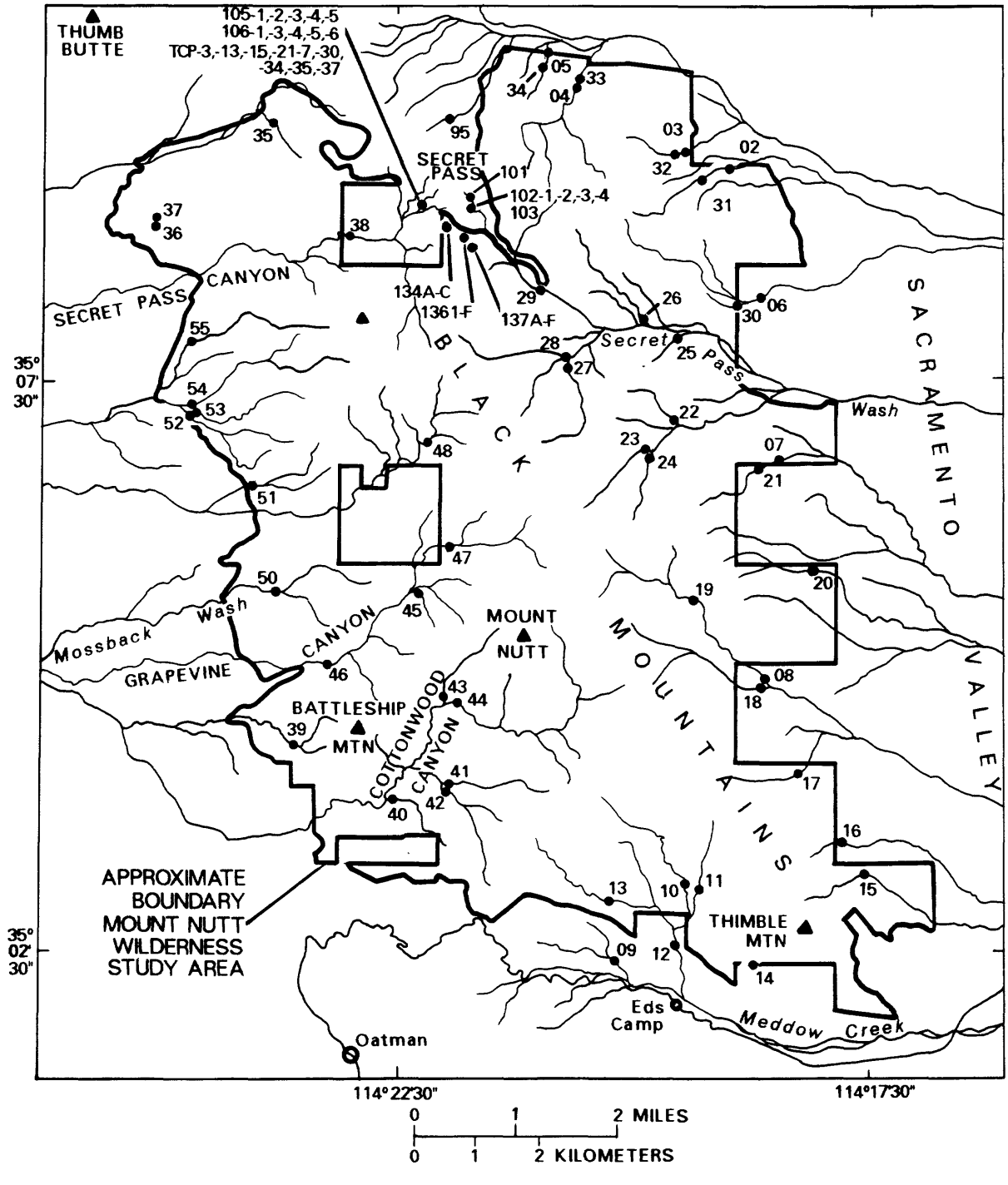

Figure 2. Localities of heavy-mineral-concentrate, stream-sediment, and rock samples from the Mount Nutt Wilderness Study Area, Mohave County, Arizona.

Sample Analysis

Spectrographic method

The stream-sediment, heavy-mineral-concentrate, and rock samples were analyzed for 35 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). Analytical data for samples from the Mount Nutt WSA are listed in tables 3, 4, and 5.

Chemical methods

Rock and stream-sediment samples were also analyzed by atomic absorption spectroscopy (AA) and inductively coupled plasma emission spectroscopy (ICP). Samples were analyzed for arsenic (As), antimony (Sb), bismuth (Bi), cadmium (Cd), and zinc (Zn) using AA and ICP, for gold (Au) using flame AA, and for mercury (Hg) using cold vapor AA. Limits of determination and references are listed in table 2.

Analytical results using these methods for stream-sediment and rock samples are listed in tables 3 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 stream-sediment, heavy-mineral-concentrate, and rock samples, 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 map (fig. 2). Columns in which the element headings show the letter "s" below the element symbol are emission spectrographic analyses; "aa" indicates atomic absorption analyses; "icp" indicates inductively coupled plasma 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 tables 1 and 2. For emission spectrographic analyses and AA analyses of As, Sb, Bi, Cd, and Zn, a "less than" symbol (<) entered in the

tables in front of the lower limit of determination indicates that an element was observed but was below the lowest reporting value. For AA analyses of Au and Hg, an "N" entered in the tables indicates that an element was below the lowest reporting value. 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. The heavy-mineral-concentrate samples were not analyzed for Ga, Ge, Na, and P, so these columns were omitted from table 4.

ACKNOWLEDGMENTS

A number of our colleagues also participated in the collection, preparation, and analyses of these samples: collection, Floyd Gray, Janet Jones, Sigurd Juanarajs, and Tracey Delaney; preparation, Ted Sparks and John Unruh; and analyses, David Fey, Al Love, Bryan Anderson, and Olga Erlich.

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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	
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
Thorium (Th)	100	2,000
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

TABLE 2.--Commonly used chemical methods

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

Element or constituent determined	Sample type	Method	Determination limit (micrograms/ gram or ppm)	Reference
Gold (Au)	rock/str-sed	AA	.1	Modification of Thompson and others, 1968.
Mercury (Hg)	rock/str-sed	AA	0.02	Koirtyohann and Khalil, 1976.
Arsenic (As)	rock/str-sed	AA	10	O'Leary and Viets, 1986.
Antimony (Sb)	rock/str-sed	AA	2	
Zinc (Zn)	rock/str-sed	AA	5	
Bismuth (Bi)	rock/str-sed	AA	1	
Cadmium (Cd)	rock/str-sed	AA	0.1	
Arsenic (As)	rock/str-sed	ICP	5	Crock and others, 1987.
Antimony (Sb)	rock/str-sed	ICP	2	
Zinc (Zn)	rock/str-sed	ICP	2	
Bismuth (Bi)	rock/str-sed	ICP	2	
Cadmium (Cd)	rock/str-sed	ICP	0.1	

TABLE 3.--RESULTS OF ANALYSES OF STREAM-SEDIMENT SAMPLES FROM THE MOUNT NUTT WILDERNESS STUDY AREA, MOHAVE COUNTY, ARIZONA.

[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
87MN002S	35 9 21	114 19 1	5.0	2.0	1.0	.7	1,000	N	N	N	30
87MN003S	35 9 29	114 19 27	5.0	2.0	1.0	1.0	1,000	N	N	N	50
87MN004S	35 10 4	114 20 37	5.0	2.0	1.0	1.0	2,000	N	N	N	30
87MN005S	35 10 22	114 20 56	2.0	2.0	1.5	.3	1,500	N	N	N	20
87MN006S	35 8 12	114 18 40	5.0	1.0	.3	1.0	3,000	N	N	N	15
87MN007S	35 5 47	114 18 26	3.0	3.0	1.5	1.0	1,000	N	N	N	20
87MN008S	35 4 53	114 18 36	10.0	2.0	1.0	>1.0	1,000	N	N	N	10
87MN009S	35 3 26	114 20 11	>20.0	5.0	2.0	>1.0	5,000	N	N	N	<10
87MN010S	35 3 4	114 19 28	7.0	7.0	1.5	>1.0	1,500	N	N	N	10
87MN011S	35 3 3	114 19 18	3.0	5.0	.5	.5	500	N	N	N	30
87MN012S	35 2 33	114 19 38	5.0	7.0	1.5	>1.0	1,500	N	N	N	30
87MN013S	35 2 56	114 20 15	7.0	7.0	2.0	>1.0	1,000	N	N	N	20
87MN014S	35 2 22	114 18 48	15.0	5.0	1.5	>1.0	3,000	N	N	N	30
87MN015S	35 3 10	114 17 35	10.0	7.0	2.0	1.0	2,000	N	N	N	20
87MN016S	35 3 27	114 17 48	10.0	3.0	1.0	>1.0	1,500	N	N	N	20
87MN017S	35 4 6	114 18 14	3.0	1.5	1.0	.7	700	N	N	N	50
87MN018S	35 4 48	114 18 38	5.0	2.0	2.0	>1.0	1,500	N	N	N	20
87MN019S	35 5 34	114 19 18	10.0	1.5	1.0	>1.0	1,500	N	N	N	20
87MN020S	35 5 51	114 18 5	5.0	1.5	1.5	1.0	1,000	N	N	N	20
87MN021S	35 6 45	114 18 36	20.0	2.0	1.5	>1.0	3,000	N	N	N	20
87MN022S	35 7 8	114 19 34	5.0	1.5	1.0	1.0	2,000	N	N	N	20
87MN023S	35 6 58	114 19 48	5.0	2.0	1.5	1.0	1,000	N	N	N	20
87MN024S	35 6 50	114 19 47	7.0	2.0	1.5	1.0	1,500	N	N	N	30
87MN025S	35 7 52	114 19 33	7.0	3.0	2.0	1.0	2,000	N	N	N	50
87MN026S	35 8 0	114 19 53	3.0	1.0	1.0	.7	2,000	N	N	N	50
87MN027S	35 7 37	114 20 42	15.0	2.0	1.5	>1.0	3,000	N	N	N	10
87MN028S	35 7 41	114 20 43	10.0	5.0	3.0	>1.0	3,000	N	N	N	10
87MN029S	35 8 18	114 21 0	10.0	5.0	3.0	>1.0	3,000	N	N	N	10
87MN030S	35 8 11	114 18 51	5.0	2.0	1.0	1.0	1,500	N	N	N	30
87MN031S	35 3 16	114 19 31	3.0	1.5	1.0	.5	1,500	N	N	N	20
87MN032S	35 9 29	114 19 16	7.0	1.0	1.0	>1.0	1,500	N	N	N	10
87MN033S	35 10 7	114 20 37	2.0	.7	1.0	.5	700	N	N	N	30
87MN034S	35 10 18	114 20 56	3.0	.7	1.0	.5	700	N	N	N	30
87MN035S	35 9 44	114 23 55	.7	.5	1.0	.1	500	N	<200	N	70
87MN036S	35 8 19	114 25 7	10.0	1.5	1.5	>1.0	1,500	N	N	N	10
87MN037S	35 8 24	114 25 6	7.0	3.0	2.0	1.0	1,000	N	N	N	20
87MN038S	35 8 44	114 23 2	5.0	1.5	1.5	1.0	1,000	N	N	N	20
87MN039S	35 4 17	114 23 35	7.0	2.0	2.0	>1.0	3,000	N	N	N	10
87MN040S	35 3 51	114 22 35	20.0	1.5	1.0	>1.0	2,000	N	N	N	<10
87MN041S	35 3 57	114 22 0	5.0	2.0	1.5	1.0	700	N	N	N	10
87MN042S	35 3 53	114 22 0	7.0	1.5	2.0	>1.0	2,000	N	N	N	20
87MN043S	35 4 44	114 22 0	3.0	1.0	1.0	.7	700	N	N	N	10
87MN044S	35 4 40	114 21 54	7.0	2.0	2.0	>1.0	1,500	N	N	N	50
87MN045S	35 5 38	114 22 18	5.0	1.0	1.0	1.0	1,000	N	N	N	20
87MN046S	35 5 0	114 23 15	15.0	1.5	1.0	>1.0	2,000	N	N	N	10

TABLE 3.--RESULTS OF ANALYSES OF STREAM-SEDIMENT SAMPLES FROM THE MOUNT NUTT WILDERNESS STUDY AREA, MOHAVE COUNTY, ARIZONA.--Continued

Sample	Ba-ppm s	Be-ppm s	Bi-ppm s	Cd-ppm s	Co-ppm s	Cr-ppm s	Cu-ppm s	La-ppm s	Mo-ppm s	Nb-ppm s	Ni-ppm s	Pb-ppm s	Sb-ppm s
87MN002S	1,500	<1.0	N	N	<10	10	20	50	<5	<20	10	20	N
87MN003S	1,500	1.0	N	N	10	20	30	70	N	N	15	20	N
87MN004S	700	1.0	N	N	10	20	15	70	N	<20	15	30	N
87MN005S	3,000	<1.0	N	N	<10	N	70	150	N	N	<5	200	N
87MN006S	1,500	N	N	N	<10	<10	5	150	5	<20	5	20	N
87MN007S	1,000	1.0	N	N	15	50	50	100	N	<20	15	15	N
87MN008S	1,500	N	N	N	20	10	30	100	N	<20	10	30	N
87MN009S	700	N	N	N	70	100	10	150	N	<20	70	20	N
87MN010S	500	N	N	N	30	30	15	<50	N	N	30	<10	N
87MN011S	200	N	N	N	20	10	15	<50	<5	N	20	20	N
87MN012S	1,000	N	N	N	20	70	20	<50	N	<20	20	20	N
87MN013S	700	N	N	N	30	50	30	<50	N	N	30	15	N
87MN014S	500	N	N	N	30	70	50	300	N	20	30	15	N
87MN015S	300	N	N	N	30	70	70	50	N	N	50	10	N
87MN016S	500	N	N	N	30	70	30	150	N	<20	20	20	N
87MN017S	700	1.0	N	N	10	70	30	50	<5	N	20	20	N
87MN018S	2,000	N	N	N	20	50	20	100	N	N	15	30	N
87MN019S	1,500	N	N	N	30	50	20	150	N	N	10	20	N
87MN020S	1,500	N	N	N	20	10	15	100	N	N	10	15	N
87MN021S	1,000	N	N	N	70	100	50	150	N	<20	70	20	N
87MN022S	700	1.0	N	N	10	20	10	50	N	<20	10	20	N
87MN023S	1,000	<1.0	N	N	20	10	15	70	N	N	10	50	N
87MN024S	1,500	N	N	N	20	20	15	100	N	<20	10	30	N
87MN025S	2,000	<1.0	N	N	20	50	15	70	N	N	15	50	N
87MN026S	1,000	1.0	N	N	<10	10	5	70	N	<20	5	20	N
87MN027S	1,000	N	N	N	50	70	10	100	N	20	50	15	N
87MN028S	2,000	N	N	N	30	100	10	200	N	N	50	20	N
87MN029S	1,500	N	N	N	30	150	15	50	N	N	70	20	N
87MN030S	2,000	N	N	N	<10	20	7	100	N	N	15	30	N
87MN031S	1,500	<1.0	N	N	<10	N	5	70	N	N	5	50	N
87MN032S	1,500	<1.0	N	N	20	70	30	150	<5	N	30	30	N
87MN033S	1,000	1.0	N	N	<10	10	10	<50	N	<20	10	50	N
87MN034S	1,000	1.0	N	N	<10	20	10	50	N	N	10	20	N
87MN035S	300	20.0	N	N	N	N	10	<50	N	N	<5	20	N
87MN036S	1,000	N	N	N	50	50	30	70	N	N	70	30	N
87MN037S	500	N	N	N	30	70	50	<50	N	N	30	15	N
87MN038S	1,500	1.0	N	N	10	30	20	100	N	N	20	20	N
87MN039S	1,500	N	N	N	30	100	30	200	N	N	30	30	N
87MN040S	100	N	N	N	70	100	30	100	15	N	100	<10	N
87MN041S	500	<1.0	N	N	20	50	15	70	N	N	20	20	N
87MN042S	1,500	<1.0	N	N	30	70	20	100	<5	N	20	20	N
87MN043S	500	1.0	N	N	<10	10	10	<50	N	20	10	30	N
87MN044S	1,000	1.0	N	N	20	100	30	200	N	30	20	15	N
87MN045S	500	<1.0	N	N	10	20	20	150	N	<20	20	20	N
87MN046S	700	N	N	N	70	100	50	100	N	<20	70	20	N

TABLE 3.--RESULTS OF ANALYSES OF STREAM-SEDIMENT SAMPLES FROM THE MOUNT NUTT WILDERNESS STUDY AREA, MOHAVE COUNTY, ARIZONA.--Continued

Sample	Sc-ppm s	Sn-ppm s	Sr-ppm s	V-ppm s	W-ppm s	Y-ppm s	Zn-ppm s	Zr-ppm s	Ga-ppm s	Ge-ppm s	Na-ppm s	P-ppm s	Th-ppm s
87MN002S	7	N	200	70	N	20	N	1,000	--	--	--	--	N
87MN003S	7	N	500	100	N	20	N	500	--	--	--	--	N
87MN004S	7	N	300	100	N	30	N	>1,000	--	--	--	--	N
87MN005S	5	N	500	20	N	20	N	200	--	--	--	--	N
87MN006S	7	N	300	70	N	20	N	>1,000	--	--	--	--	N
87MN007S	10	N	1,000	70	N	30	N	300	--	--	--	--	N
87MN008S	7	N	1,500	100	N	50	N	300	--	--	--	--	N
87MN009S	20	N	1,000	300	N	70	N	300	--	--	--	--	N
87MN010S	15	N	700	100	N	20	N	200	--	--	--	--	N
87MN011S	7	N	100	70	N	15	N	200	--	--	--	--	N
87MN012S	15	N	1,000	150	N	20	N	300	--	--	--	--	N
87MN013S	20	N	700	150	N	50	N	300	--	--	--	--	N
87MN014S	20	N	200	200	N	70	N	500	--	--	--	--	N
87MN015S	20	N	200	100	N	50	N	150	--	--	--	--	N
87MN016S	15	N	300	100	N	50	N	700	--	--	--	--	N
87MN017S	15	N	300	100	N	30	N	500	--	--	--	--	N
87MN018S	10	N	1,500	100	N	30	N	300	--	--	--	--	N
87MN019S	10	N	1,000	100	N	30	N	1,000	--	--	--	--	N
87MN020S	7	N	1,500	70	N	20	N	300	--	--	--	--	N
87MN021S	20	N	500	200	N	70	N	1,000	--	--	--	--	N
87MN022S	10	N	300	50	N	50	N	>1,000	--	--	--	--	N
87MN023S	10	N	700	100	N	30	N	500	--	--	--	--	N
87MN024S	7	N	1,000	70	N	50	N	700	--	--	--	--	N
87MN025S	10	N	700	100	N	50	N	500	--	--	--	--	N
87MN026S	5	N	500	50	N	50	N	1,000	--	--	--	--	N
87MN027S	20	N	700	200	N	30	N	500	--	--	--	--	N
87MN028S	20	N	1,000	200	N	30	N	700	--	--	--	--	N
87MN029S	15	N	1,500	200	N	50	N	200	--	--	--	--	N
87MN030S	10	N	300	50	N	20	N	>1,000	--	--	--	--	N
87MN031S	<5	N	700	30	N	15	N	300	--	--	--	--	N
87MN032S	10	N	700	150	N	20	N	500	--	--	--	--	N
87MN033S	5	N	200	70	N	20	N	300	--	--	--	--	N
87MN034S	7	N	150	50	N	20	N	700	--	--	--	--	N
87MN035S	<5	N	100	15	N	10	N	150	--	--	--	--	N
87MN036S	10	N	700	200	N	30	N	700	--	--	--	--	N
87MN037S	20	N	500	100	N	30	N	200	--	--	--	--	N
87MN038S	10	N	700	70	N	50	N	300	--	--	--	--	N
87MN039S	20	N	1,000	200	N	50	N	1,000	--	--	--	--	N
87MN040S	30	N	N	200	N	50	N	700	--	--	--	--	N
87MN041S	10	N	300	100	N	30	N	300	--	--	--	--	N
87MN042S	10	N	700	150	N	30	N	500	--	--	--	--	N
87MN043S	5	N	200	50	N	50	N	300	--	--	--	--	N
87MN044S	20	N	700	70	N	70	N	300	--	--	--	--	N
87MN045S	7	N	300	70	N	50	N	500	--	--	--	--	N
87MN046S	15	N	500	200	N	50	N	300	--	--	--	--	N

TABLE 3.--RESULTS OF ANALYSES OF STREAM-SEDIMENT SAMPLES FROM THE MOUNT NUTT WILDERNESS STUDY AREA, MOHAVE COUNTY, ARIZONA.--Continued

Sample	Au-ppm aa	Hg-ppm aa	As-ppm aa	Bi-ppm aa	Cd-ppm aa	Sb-ppm aa	Zn-ppm aa	As-ppm icp	Bi-ppm icp	Cd-ppm icp	Sb-ppm icp	Zn-ppm icp
87MN002S	N	.02	N	N	.1	N	80	--	--	--	--	--
87MN003S	N	.04	N	N	.1	N	65	--	--	--	--	--
87MN004S	N	.06	N	N	.1	N	70	--	--	--	--	--
87MN005S	N	.12	N	N	.1	N	30	--	--	--	--	--
87MN006S	N	.02	N	N	.2	N	115	--	--	--	--	--
87MN007S	N	.02	N	N	.1	N	40	--	--	--	--	--
87MN008S	N	.02	N	N	.1	N	70	--	--	--	--	--
87MN009S	N	.12	N	N	.1	N	250	--	--	--	--	--
87MN010S	N	.02	N	N	.1	N	50	--	--	--	--	--
87MN011S	N	.06	N	N	.2	N	55	--	--	--	--	--
87MN012S	N	.04	N	N	.2	N	55	--	--	--	--	--
87MN013S	N	.04	N	N	.1	N	60	--	--	--	--	--
87MN014S	N	.02	N	N	N	N	230	--	--	--	--	--
87MN015S	N	.08	N	N	.2	N	95	--	--	--	--	--
87MN016S	N	.04	N	N	N	N	70	--	--	--	--	--
87MN017S	N	.06	N	N	.2	N	60	--	--	--	--	--
87MN018S	N	.02	N	N	.1	N	35	--	--	--	--	--
87MN019S	N	.02	N	N	.1	N	90	--	--	--	--	--
87MN020S	N	.02	N	N	.1	N	45	--	--	--	--	--
87MN021S	N	.02	N	N	.2	N	250	--	--	--	--	--
87MN022S	N	.04	N	N	.2	N	60	--	--	--	--	--
87MN023S	N	.04	N	N	.1	N	65	--	--	--	--	--
87MN024S	N	.02	N	N	.1	N	55	--	--	--	--	--
87MN025S	N	.04	N	N	.1	N	55	--	--	--	--	--
87MN026S	N	.04	N	N	.1	N	45	--	--	--	--	--
87MN027S	N	.04	N	N	.2	N	90	--	--	--	--	--
87MN028S	N	.02	N	N	.2	N	85	--	--	--	--	--
87MN029S	N	.02	N	N	.2	N	85	--	--	--	--	--
87MN030S	N	.02	N	N	.1	N	65	--	--	--	--	--
87MN031S	N	.02	N	N	N	N	40	--	--	--	--	--
87MN032S	N	.02	N	N	.1	4	75	--	--	--	--	--
87MN033S	N	.04	N	N	.1	N	30	--	--	--	--	--
87MN034S	N	.10	N	N	.1	N	55	--	--	--	--	--
87MN035S	.05	.10	N	N	.2	N	25	--	--	--	--	--
87MN036S	N	.16	N	N	.1	N	250	--	--	--	--	--
87MN037S	N	.18	N	N	.2	N	130	--	--	--	--	--
87MN038S	.10	.10	N	N	.1	N	60	--	--	--	--	--
87MN039S	N	.06	N	N	.1	N	90	--	--	--	--	--
87MN040S	N	.20	N	N	.1	N	190	--	--	--	--	--
87MN041S	N	.02	N	N	.1	N	45	--	--	--	--	--
87MN042S	N	.02	N	N	.1	N	40	--	--	--	--	--
87MN043S	N	.04	N	N	.2	N	45	--	--	--	--	--
87MN044S	N	.02	N	N	.2	N	60	--	--	--	--	--
87MN045S	N	.80	N	N	.2	N	60	--	--	--	--	--
87MN046S	N	.22	N	N	.1	N	160	--	--	--	--	--

TABLE 3.--RESULTS OF ANALYSES OF STREAM-SEDIMENT SAMPLES FROM THE MOUNT NUTT WILDERNESS STUDY AREA, MOHAVE COUNTY, ARIZONA.--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
87MN047S	35 6 2	114 22 0	7.0	1.5	1.5	>1.0	1,000	N	N	N	20
87MN048S	35 6 59	114 22 11	7.0	1.5	2.0	>1.0	500	N	N	N	<10
87MN050S	35 5 39	114 23 47	7.0	1.5	1.5	>1.0	700	N	N	N	20
87MN051S	35 6 34	114 24 5	7.0	1.5	2.0	>1.0	1,000	N	N	N	15
87MN052S	35 7 13	114 24 45	10.0	2.0	2.0	>1.0	2,000	N	N	N	<10
87MN053S	35 7 14	114 24 44	7.0	1.5	2.0	1.0	1,500	N	N	N	10
87MN054S	35 7 17	114 24 43	10.0	2.0	2.0	>1.0	2,000	N	N	N	10
87MN055S	35 7 50	114 24 45	15.0	1.5	1.5	>1.0	3,000	N	N	N	<10
87G095	35 9 48	114 22 0	20.0	2.0	.7	.3	700	N	N	N	N
87G101	35 9 3	114 21 45	10.0	1.0	.5	.2	300	N	N	N	<10
87G112	35 5 25	114 24 55	20.0	1.0	.5	.2	500	N	N	N	<10
7M135	35 8 50	114 22 2	10.0	1.5	1.0	.3	1,500	1.0	N	N	10
7M137	35 8 40	114 21 43	20.0	3.0	1.0	.5	1,000	N	N	N	<10

Sample	Ba-ppm s	Be-ppm s	Bi-ppm s	Cd-ppm s	Co-ppm s	Cr-ppm s	Cu-ppm s	La-ppm s	Mo-ppm s	Nb-ppm s	Ni-ppm s	Pb-ppm s	Sb-ppm s
87MN047S	1,000	N	N	N	50	30	30	150	N	<20	20	10	N
87MN048S	700	N	N	N	30	30	20	<50	N	N	30	10	N
87MN050S	1,500	<1.0	N	N	20	20	30	50	N	N	20	20	N
87MN051S	1,000	1.0	N	N	15	20	15	50	N	N	20	10	N
87MN052S	2,000	<1.0	N	N	50	100	30	70	N	N	50	20	N
87MN053S	1,500	<1.0	N	N	20	70	20	50	N	N	30	20	N
87MN054S	2,000	N	N	N	30	100	20	100	N	<20	50	20	N
87MN055S	2,000	N	N	N	30	100	20	70	N	N	50	30	N
87G095	700	1.0	N	N	20	50	30	<50	<5	N	20	20	N
87G101	300	1.5	N	N	<10	20	7	N	10	N	10	30	N
87G112	700	<1.0	N	N	20	70	15	N	N	N	20	30	N
7M135	700	5.0	N	N	15	15	10	70	10	30	15	100	N
7M137	1,000	1.5	N	N	30	150	20	50	N	N	70	15	N

TABLE 3.--RESULTS OF ANALYSES OF STREAM-SEDIMENT SAMPLES FROM THE MOUNT NUTT WILDERNESS STUDY AREA, MOHAVE COUNTY, ARIZONA.--Continued

Sample	Sc-ppm s	Sn-ppm s	Sr-ppm s	V-ppm s	W-ppm s	Y-ppm s	Zn-ppm s	Zr-ppm s	Ga-ppm s	Ge-ppm s	Na-ppm s	P-ppm s	Th-ppm s
87MN047S	15	N	700	100	N	50	N	200	--	--	--	--	N
87MN048S	10	N	1,000	100	N	20	N	200	--	--	--	--	N
87MN050S	10	N	1,000	100	N	30	N	500	--	--	--	--	N
87MN051S	10	N	500	150	N	30	N	300	--	--	--	--	N
87MN052S	10	N	700	300	N	30	N	200	--	--	--	--	N
87MN053S	7	N	700	200	N	20	N	150	--	--	--	--	N
87MN054S	15	N	1,000	200	N	100	N	1,000	--	--	--	--	N
87MN055S	15	N	500	300	N	30	N	>1,000	--	--	--	--	N
87G095	7	N	<100	100	N	50	N	300	70	N	2	.2	N
87G101	5	N	N	70	N	20	N	200	50	N	2	N	N
87G112	<5	N	<100	100	N	<10	<200	100	200	N	2	N	N
7M135	5	N	<100	70	N	20	N	200	100	N	3	N	N
7M137	10	N	100	150	N	20	<200	300	70	N	2	N	N

Sample	Au-ppm aa	Hg-ppm aa	As-ppm aa	Bi-ppm aa	Cd-ppm aa	Sb-ppm aa	Zn-ppm aa	As-ppm icp	Bi-ppm icp	Cd-ppm icp	Sb-ppm icp	Zn-ppm icp
87MN047S	N	.04	N	N	.1	N	65	--	--	--	--	--
87MN048S	N	.04	N	N	.1	N	45	--	--	--	--	--
87MN050S	N	.24	N	N	.1	N	50	--	--	--	--	--
87MN051S	N	.16	N	N	.1	N	65	--	--	--	--	--
87MN052S	N	.12	N	N	.2	N	155	--	--	--	--	--
87MN053S	N	.26	N	N	.2	N	80	--	--	--	--	--
87MN054S	N	.60	N	N	.2	N	80	--	--	--	--	--
87MN055S	N	.12	N	N	.2	N	145	--	--	--	--	--
87G095	N	.02	--	--	--	--	--	6	<2	1.3	<2	97
87G101	1.15	.42	--	--	--	--	--	18	<2	.8	<2	70
87G112	.05	.74	--	--	--	--	--	<5	<2	1.8	<2	110
7M135	.08	.12	--	--	--	--	--	10	<2	.7	<2	72
7M137	N	.02	--	--	--	--	--	9	<2	1.6	<2	150

TABLE 4.--RESULTS OF ANALYSES OF HEAVY-MINERAL-CONCENTRATE SAMPLES FROM THE MOUNT NUTT WILDERNESS STUDY AREA, MOHAVE COUNTY, ARIZONA.

[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
87MN002C	35 9 21	114 19 1	2.0	.70	1.0	2.0	1,500	N	N	N
87MN003C	25 9 29	114 19 27	5.0	7.00	5.0	1.5	2,000	N	N	N
87MN004C	35 10 4	114 20 37	7.0	.70	2.0	>2.0	2,000	N	N	N
87MN006C	35 8 12	114 18 40	1.5	.50	1.5	2.0	1,500	N	N	N
87MN007C	35 5 47	114 18 26	2.0	3.00	5.0	2.0	1,000	N	N	N
87MN008C	35 4 53	114 18 36	3.0	.30	5.0	>2.0	300	N	N	N
87MN009C	35 2 26	114 20 11	1.5	.50	1.5	1.5	200	N	N	N
87MN010C	35 3 4	114 19 28	5.0	7.00	10.0	2.0	1,000	N	N	N
87MN011C	35 3 3	114 19 18	2.0	1.00	5.0	2.0	500	N	N	N
87MN012C	35 2 33	114 19 38	3.0	2.00	7.0	>2.0	700	N	N	N
87MN013C	35 2 56	114 20 15	.7	.30	1.5	.5	50	<1	N	N
87MN014C	35 2 22	114 18 48	.7	.20	1.0	.3	70	<1	N	N
87MN015C	35 3 10	114 17 35	1.5	.70	2.0	.5	200	<1	N	N
87MN016C	35 3 27	114 17 48	.5	.15	1.5	.2	100	<1	N	N
87MN018C	35 4 48	114 18 38	1.0	.20	15.0	1.5	300	N	N	N
87MN019C	35 5 34	114 19 18	1.0	.10	2.0	.3	150	N	N	N
87MN020C	35 5 51	114 18 5	1.5	.50	15.0	2.0	500	N	N	N
87MN021C	35 6 45	114 18 36	1.0	.20	2.0	.7	150	<1	N	N
87MN022C	35 7 8	114 19 34	1.5	.50	3.0	>2.0	300	N	N	N
87MN023C	35 6 52	114 19 48	1.0	.20	5.0	2.0	300	<1	N	N
87MN024C	35 6 50	114 19 47	.7	.15	3.0	.7	200	N	N	N
87MN025C	35 7 52	114 19 33	2.0	.70	5.0	2.0	500	<1	N	N
87MN027C	35 7 37	114 20 42	1.5	.20	3.0	.2	100	<1	N	N
87MN028C	35 7 41	114 20 43	1.5	.70	15.0	.3	200	N	N	N
87MN029C	38 8 18	114 21 0	1.5	.50	20.0	.2	150	<1	N	N
87MN032C	35 9 29	114 19 16	.7	.20	1.0	2.0	500	<1	N	N
87MN033C	35 10 7	114 20 37	7.0	2.00	5.0	>2.0	3,000	N	N	N
87MN034C	35 10 18	114 20 56	5.0	.50	5.0	>2.0	1,500	<1	N	N
87MN035C	35 9 44	114 23 55	1.0	.15	20.0	.7	300	N	N	N
87MN036C	35 8 19	114 25 7	1.0	.15	7.0	.1	200	1	N	N
87MN037C	35 8 24	114 25 6	1.5	.20	10.0	.3	500	<1	N	N
87MN038C	35 8 44	114 23 2	1.5	.20	30.0	.5	500	2	N	N
87MN039C	35 4 17	114 23 35	.2	.10	1.0	.5	70	<1	N	N
87MN040C	35 3 51	114 22 35	1.0	.50	1.5	.5	100	N	N	N
87MN041C	35 3 57	114 22 0	.3	.10	1.5	1.5	70	N	N	N
87MN042C	35 3 53	114 22 0	1.5	.50	3.0	1.5	150	N	N	N
87MN043C	35 4 44	114 22 0	.2	.05	1.0	1.0	100	N	N	N
87MN044C	35 4 44	114 21 54	1.0	.15	5.0	>2.0	300	N	N	N
87MN045C	35 5 38	114 22 18	2.0	.50	5.0	2.0	500	<1	N	N
87MN046C	35 5 0	114 23 15	.7	.20	2.0	.5	100	N	N	N
87MN047C	35 6 2	114 22 0	1.0	.50	7.0	1.0	200	<1	N	N
87MN048C	35 6 59	114 22 11	.5	.15	20.0	.3	150	1	N	N
87MN050C	35 5 39	114 26 47	.5	.10	20.0	>2.0	100	N	N	N
87MN051C	35 6 34	114 24 5	2.0	1.00	20.0	1.0	500	<1	N	N
87MN052C	35 7 13	114 24 45	1.0	.50	20.0	.5	500	<1	N	N

TABLE 4.--RESULTS OF ANALYSES OF HEAVY-MINERAL-CONCENTRATE SAMPLES FROM THE MOUNT NUTT WILDERNESS STUDY AREA, MOHAVE COUNTY, ARIZONA.--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
87MN002C	150	1,000	15	N	N	N	150	N	>2,000	N	N
87MN003C	30	1,500	5	N	N	30	200	20	1,000	N	<50
87MN004C	70	500	15	N	N	N	100	15	>2,000	<10	70
87MN006C	100	200	15	N	N	N	70	N	1,000	N	N
87MN007C	20	1,000	7	N	N	<20	200	N	300	N	50
87MN008C	N	150	2	N	N	N	<20	N	1,500	<10	100
87MN009C	<20	300	<2	N	N	N	50	N	200	N	50
87MN010C	20	500	<2	N	N	50	500	30	300	N	70
87MN011C	20	150	<2	N	N	<20	100	15	200	N	<50
87MN012C	20	300	2	N	N	<20	200	500	500	N	100
87MN013C	N	200	3	N	N	N	20	N	<100	N	N
87MN014C	<20	300	2	N	N	N	N	N	<100	N	N
87MN015C	<20	500	<2	N	N	N	70	N	<100	N	N
87MN016C	N	300	<2	N	N	N	<20	N	150	N	N
87MN018C	N	200	15	N	N	N	N	20	1,000	N	N
87MN019C	N	700	10	N	N	N	N	N	150	N	N
87MN020C	N	200	15	N	N	N	<20	N	1,500	N	N
87MN021C	N	300	10	N	N	N	20	N	<100	N	N
87MN022C	70	300	7	N	N	N	70	<10	300	N	N
87MN023C	N	500	3	N	N	N	20	N	500	N	<50
87MN024C	N	200	30	N	N	N	N	N	200	N	N
87MN025C	50	200	3	N	N	<20	70	N	300	N	<50
87MN027C	N	700	<2	N	N	N	N	N	100	N	N
87MN028C	20	2,000	<2	N	N	N	30	N	300	N	N
87MN029C	N	300	N	N	N	N	30	10	500	N	N
87MN032C	20	700	15	N	N	N	<20	N	150	N	N
87MN033C	200	3,000	30	N	N	N	100	N	2,000	N	70
87MN034C	200	700	20	N	N	N	30	N	1,000	N	50
87MN035C	N	1,000	10	N	N	N	N	N	300	N	<50
87MN036C	N	>10,000	<2	N	N	N	N	10	<100	N	N
87MN037C	N	10,000	2	N	N	N	N	<10	300	N	N
87MN038C	50	5,000	5	N	N	N	N	N	500	N	N
87MN039C	N	7,000	15	N	N	N	N	N	100	N	N
87MN040C	N	300	<2	N	N	N	30	N	<100	N	N
87MN041C	N	300	10	N	N	N	<20	N	150	N	N
87MN042C	300	700	<2	N	N	N	20	N	100	N	<50
87MN043C	N	200	50	N	N	N	N	N	150	N	N
87MN044C	N	500	20	N	N	N	N	N	500	N	50
87MN045C	20	2,000	10	N	N	N	20	N	1,000	N	70
87MN046C	N	1,000	<2	N	N	N	N	N	200	N	N
87MN047C	<20	700	2	N	N	N	<20	N	300	N	50
87MN048C	<20	200	<2	N	N	N	N	N	1,000	N	N
87MN050C	N	>10,000	<2	N	N	N	N	15	200	N	50
87MN051C	20	1,500	2	N	N	N	20	10	500	N	<50
87MN052C	<20	>10,000	N	500	N	N	<20	10	200	N	N

TABLE 4.--RESULTS OF ANALYSES OF HEAVY-MINERAL-CONCENTRATE SAMPLES FROM THE MOUNT NUTT WILDERNESS STUDY AREA, MOHAVE COUNTY, ARIZONA.--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
87MN002C	10	200	N	70	<20	200	100	N	2,000	N	>2,000	200
87MN003C	100	50	N	50	N	500	150	N	1,000	N	>2,000	<200
87MN004C	10	2,000	N	30	700	<200	100	N	3,000	N	>2,000	<200
87MN006C	<10	70	N	100	N	<200	100	N	2,000	N	>2,000	N
87MN007C	70	70	N	15	<20	300	70	N	1,000	N	>2,000	N
87MN008C	N	<20	N	10	30	<200	150	N	2,000	N	>2,000	N
87MN009C	<10	20	N	10	<20	200	50	N	1,500	N	>2,000	N
87MN010C	100	<20	N	100	<20	200	300	N	1,000	N	>2,000	N
87MN011C	15	<20	N	20	N	200	100	N	700	N	>2,000	N
87MN012C	20	150	N	30	70	300	200	N	1,500	N	>2,000	N
87MN013C	N	<20	N	<10	N	300	30	N	500	N	>2,000	N
87MN014C	N	<20	N	N	N	300	<20	N	300	N	>2,000	N
87MN015C	<10	20	N	20	N	300	50	N	700	N	>2,000	N
87MN016C	N	70	N	10	N	300	20	N	700	N	>2,000	300
87MN018C	N	<20	N	10	N	200	50	N	700	N	>2,000	N
87MN019C	N	20	N	10	N	500	<20	N	200	N	>2,000	N
87MN020C	N	150	N	50	N	500	70	N	1,000	N	>2,000	N
87MN021C	N	100	N	20	N	500	30	N	500	N	>2,000	N
87MN022C	N	50	N	70	50	200	100	N	1,000	N	>2,000	N
87MN023C	N	<20	N	20	N	300	70	N	700	N	>2,000	N
87MN024C	N	<20	N	50	N	300	20	N	1,000	N	>2,000	N
87MN025C	10	30	N	20	N	200	100	N	700	N	>2,000	N
87MN027C	N	30	N	N	N	700	<20	N	70	N	>2,000	N
87MN028C	<10	20	N	<10	N	1,000	50	N	200	N	>2,000	N
87MN029C	<10	N	N	N	N	1,500	30	N	200	N	>2,000	N
87MN032C	<10	200	N	100	N	500	30	N	1,000	N	>2,000	N
87MN033C	20	700	N	70	50	200	200	N	1,500	N	>2,000	N
87MN034C	10	1,000	N	50	<20	300	150	N	1,000	N	>2,000	N
87MN035C	N	30	N	N	N	500	20	N	200	N	>2,000	N
87MN036C	<10	70	N	N	N	1,500	<20	N	30	N	>2,000	N
87MN037C	N	20	N	<10	N	1,000	20	N	100	N	>2,000	N
87MN038C	N	5,000	N	15	N	500	50	N	20	N	>2,000	N
87MN039C	<10	500	N	10	N	200	30	N	700	N	>2,000	N
87MN040C	<10	<20	N	<10	N	500	30	N	100	N	>2,000	N
87MN041C	N	<20	N	20	N	<200	30	N	1,000	N	>2,000	N
87MN042C	<10	50	N	<10	<20	700	50	N	500	N	>2,000	N
87MN043C	N	70	N	20	300	<200	50	N	1,500	N	>2,000	N
87MN044C	N	30	N	50	<20	200	70	N	1,500	N	>2,000	N
87MN045C	<10	50	N	10	50	300	30	N	700	N	>2,000	N
87MN046C	N	<20	N	N	N	700	<20	N	200	N	>2,000	N
87MN047C	<10	<20	N	<10	N	1,000	30	N	200	N	>2,000	N
87MN048C	N	N	N	<10	N	1,000	20	N	300	N	>2,000	N
87MN050C	<10	70	N	<10	N	2,000	70	N	200	N	>2,000	N
87MN051C	10	20	N	<10	N	1,000	50	N	150	N	>2,000	N
87MN052C	10	30	N	N	N	7,000	30	N	70	N	>2,000	N

TABLE 4.--RESULTS OF ANALYSES OF HEAVY-MINERAL-CONCENTRATE SAMPLES FROM THE MOUNT NUTT WILDERNESS STUDY AREA, MOHAVE COUNTY, ARIZONA.--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
87MN053C	35 7 14	114 24 44	1.0	.20	7.0	.3	200	<1	N	N
87MN054C	35 7 17	114 24 43	.7	.30	5.0	.5	200	N	N	N
87MN055C	35 7 50	114 24 45	1.0	.50	3.0	.3	300	N	N	N

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
87MN053C	<20	>10,000	N	N	N	N	N	<10	100	N	N
87MN054C	<20	10,000	2	N	N	N	30	N	200	N	N
87MN055C	<20	>10,000	2	N	N	N	N	<10	<100	N	N

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
87MN053C	10	N	N	N	N	5,000	20	N	20	N	700	N
87MN054C	10	N	N	10	N	1,000	20	N	100	N	>2,000	N
87MN055C	10	N	N	15	N	1,500	20	N	70	N	>2,000	N

TABLE 5.--RESULTS OF ANALYSES OF ROCK SAMPLES FROM THE MOUNT NUTT WILDERNESS STUDY AREA, MOHAVE COUNTY, ARIZONA.
[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
87MN01R	35 2 44	114 22 47	5.0	5.00	.70	>1.00	700	1.5	N	N	<10
87MN02R	35 9 21	114 19 1	3.0	.70	1.00	.50	500	N	N	N	20
87MN03R1	35 9 29	114 19 27	5.0	.70	1.00	.70	3,000	N	N	N	15
87MN05R	35 10 22	114 20 56	1.0	.50	1.00	.20	700	1.5	N	N	10
87MN06R	35 8 12	114 18 40	1.5	.50	.70	.15	300	N	N	N	10
87MN07R	35 5 47	114 18 26	7.0	3.00	2.00	>1.00	1,000	N	N	N	10
87MN15R	35 3 10	114 17 35	5.0	1.50	1.50	.70	500	N	N	N	<10
87MN21R1	35 6 45	114 18 36	7.0	1.00	.20	>1.00	300	N	N	N	15
87MN21R2	35 6 45	114 18 36	7.0	2.00	2.00	>1.00	1,000	N	N	N	15
87MN22R	35 7 8	114 19 34	.7	.50	1.50	.20	1,000	N	N	N	10
87MN25R	35 7 52	114 19 33	.5	.70	1.50	.10	1,000	N	N	N	20
87MN26R	35 8 0	114 19 53	2.0	.70	.70	.30	300	N	N	N	15
87MN27R	35 7 37	114 20 42	15.0	10.00	3.00	>1.00	5,000	N	N	N	<10
87MN28R	35 7 41	114 20 43	7.0	2.00	2.00	>1.00	1,000	N	N	N	10
87MN29R	35 8 18	114 21 0	1.5	1.00	2.00	.50	500	N	N	N	N
87MN31R	35 9 16	114 19 31	2.0	1.00	1.50	.70	500	N	N	N	N
87MN32R	35 9 29	114 19 16	7.0	2.00	3.00	>1.00	1,000	N	N	N	10
87MN37R	35 8 24	114 25 6	7.0	3.00	3.00	>1.00	700	N	N	N	10
87MN42R	35 3 53	114 22 0	1.0	.05	.15	.70	200	N	N	N	20
87MN47R	35 6 2	114 22 0	7.0	5.00	5.00	>1.00	1,000	N	N	N	<10
87MN50R1	35 5 39	114 23 47	3.0	1.50	.30	>1.00	50	N	N	N	100
87MN50R2	35 5 39	114 23 47	5.0	.03	.10	>1.00	10	N	N	N	20
87MN51R	35 6 34	114 24 5	7.0	2.00	3.00	>1.00	2,000	N	N	N	10
87MN52R	35 7 13	114 24 45	20.0	1.50	>20.00	.10	>5,000	N	N	N	<10
87MN53R	35 7 14	114 24 44	3.0	.10	.20	>1.00	50	N	N	N	10
87MN54R	35 7 17	114 24 43	10.0	2.00	.50	>1.00	100	N	N	N	<10
87MN55R	35 7 50	114 24 45	15.0	5.00	10.00	>1.00	2,000	N	N	N	10
7M135A	35 8 50	114 22 2	20.0	1.50	.50	.30	300	N	N	N	N
7M135B	35 8 50	114 22 2	>20.0	7.00	5.00	>1.00	1,500	<.5	N	N	<10
7M135C	35 8 50	114 22 2	>20.0	2.00	.50	1.00	300	<.5	N	N	N
7M136A	35 8 45	114 21 50	20.0	1.50	.30	.50	500	.7	N	N	15
7M136B	35 8 45	114 21 50	>20.0	5.00	10.00	.70	1,500	N	N	N	<10
7M136C	35 8 45	114 21 50	10.0	2.00	5.00	.30	500	1.0	N	N	10
7M136D	35 8 45	114 21 50	20.0	3.00	1.00	.70	500	<.5	N	N	N
7M136E	35 8 45	114 21 50	--	--	--	--	--	--	--	--	--
7M136F	35 8 45	114 21 50	>20.0	5.00	15.00	.50	2,000	N	N	N	<10
7M137A	35 8 40	114 21 43	3.0	.70	10.00	.07	50	.5	N	N	N
7M137B	35 8 40	114 21 43	>20.0	7.00	5.00	>1.00	1,000	<.5	N	N	20
7M137C	35 8 40	114 21 43	20.0	3.00	.70	.50	500	5.0	N	N	10
7M137D	35 8 40	114 21 43	3.0	.30	>20.00	.02	>5,000	N	N	N	N
7M137E	35 8 40	114 21 43	10.0	2.00	15.00	.15	5,000	2.0	N	N	15
7M137F	35 8 40	114 21 50	20.0	.50	.10	.10	70	1.5	N	N	10
TCP-3	35 9 2	114 22 20	15.0	1.50	15.00	.20	200	1.5	N	N	20
TCP-13	35 9 2	114 22 20	15.0	1.50	5.00	.15	200	1.0	N	N	10
TCP-15	35 9 2	114 22 20	20.0	1.00	.15	.30	50	1.5	N	N	N

TABLE 5.--RESULTS OF ANALYSES OF ROCK SAMPLES FROM THE MOUNT NUTT WILDERNESS STUDY AREA, MOHAVE COUNTY, ARIZONA.--Continued

Sample	Ba-ppm s	Be-ppm s	Bi-ppm s	Cd-ppm s	Co-ppm s	Cr-ppm s	Cu-ppm s	La-ppm s	Mo-ppm s	Nb-ppm s	Ni-ppm s	Pb-ppm s	Sb-ppm s
87MN01R	5,000	N	N	N	15	70	50	70	N	N	20	10	N
87MN02R	3,000	1.5	N	N	N	N	<5	150	<5	<20	<5	50	N
87MN03R1	3,000	1.5	N	N	<10	<10	5	150	N	N	5	30	N
87MN05R	2,000	1.0	N	N	N	N	N	200	N	N	N	50	N
87MN06R	1,500	<1.0	N	N	N	N	N	100	N	N	N	50	N
87MN07R	2,000	2.0	N	N	20	N	7	70	N	N	15	15	N
87MN15R	1,000	1.0	N	N	<10	<10	10	50	N	N	10	10	N
87MN21R1	700	1.5	N	N	10	50	15	<50	N	N	20	15	N
87MN21R2	1,000	N	N	N	20	10	20	70	<5	<20	15	20	N
87MN22R	70	5.0	N	N	N	N	N	<50	N	50	N	70	N
87MN25R	100	10.0	N	N	N	N	N	<50	5	50	N	50	N
87MN26R	5,000	1.0	N	N	N	N	N	100	<5	<20	N	30	N
87MN27R	300	N	N	N	50	1,000	50	<50	N	N	100	<10	N
87MN28R	1,500	N	N	N	20	50	30	70	N	N	30	15	N
87MN29R	2,000	3.0	N	N	N	N	N	70	N	70	N	70	N
87MN31R	>5,000	1.0	N	N	N	N	<5	200	N	N	N	50	N
87MN32R	3,000	N	N	N	30	50	70	150	<5	<20	50	20	N
87MN37R	2,000	N	N	N	20	<10	20	100	N	N	15	30	N
87MN42R	70	7.0	N	N	N	N	N	<50	5	70	N	50	N
87MN47R	5,000	N	N	N	30	<10	30	100	N	<20	20	20	N
87MN50R1	3,000	<1.0	N	N	N	N	20	150	<5	<20	N	50	N
87MN50R2	500	1.0	N	N	N	<10	5	70	<5	N	15	N	N
87MN51R	3,000	<1.0	N	N	20	10	10	100	<5	N	15	10	N
87MN52R	5,000	N	N	N	10	N	<5	50	N	N	30	N	N
87MN53R	>5,000	<1.0	N	N	N	N	20	70	<5	<20	<5	15	N
87MN54R	>5,000	N	N	N	<10	10	7	150	N	N	7	30	N
87MN55R	>5,000	<1.0	N	N	30	<10	10	150	N	N	15	30	N
7M135A	1,500	3.0	N	N	15	50	10	<50	<5	N	15	50	N
7M135B	1,000	<1.0	N	N	70	2,000	20	<50	N	20	200	<10	N
7M135C	1,000	1.0	N	N	15	30	10	N	20	20	20	<10	N
7M136A	1,000	N	N	N	15	20	5	N	15	<20	20	<10	N
7M136B	300	N	N	N	50	1,000	15	N	N	<20	150	N	N
7M136C	1,000	1.5	N	N	15	20	15	N	7	N	15	<10	N
7M136D	1,500	1.5	N	N	20	200	20	N	10	N	50	20	N
7M136E	--	--	--	--	--	--	--	--	--	--	--	--	--
7M136F	300	N	N	N	50	1,500	20	N	N	N	200	<10	N
7M137A	2,000	<1.0	N	N	N	<10	N	N	N	N	N	50	N
7M137B	700	7.0	N	N	70	2,000	70	50	<5	30	200	10	N
7M137C	500	<1.0	N	N	10	30	10	<50	20	20	15	N	N
7M137D	500	10.0	N	N	N	<10	N	N	N	N	<5	50	N
7M137E	700	10.0	N	N	10	70	N	N	15	N	15	20	N
7M137F	200	<1.0	N	N	N	<10	N	N	N	<20	<5	N	N
TCP-3	1,000	5.0	N	N	<10	20	10	50	N	N	5	30	N
TCP-13	700	5.0	N	N	<10	15	7	50	<5	N	15	50	N
TCP-15	1,000	1.5	N	N	<10	20	15	<50	N	N	7	20	N

TABLE 5.--RESULTS OF ANALYSES OF ROCK SAMPLES FROM THE MOUNT NUTT WILDERNESS STUDY AREA, MOHAVE COUNTY, ARIZONA.--Continued

Sample	Sc-ppm s	Sn-ppm s	Sr-ppm s	V-ppm s	W-ppm s	Y-ppm s	Zn-ppm s	Zr-ppm s	Ga-ppm s	Ge-ppm s	Na-ppm s	P-ppm s	Th-ppm s
87MN01R	10	N	500	50	N	30	N	300	--	--	--	--	N
87MN02R	7	N	1,000	15	N	20	N	500	--	--	--	--	N
87MN03R1	7	N	700	20	N	20	N	500	--	--	--	--	N
87MN05R	5	N	500	<10	N	20	N	300	--	--	--	--	N
87MN06R	<5	N	300	<10	N	10	N	300	--	--	--	--	N
87MN07R	15	N	1,000	100	N	30	N	300	--	--	--	--	N
87MN15R	5	N	700	20	N	15	N	100	--	--	--	--	N
87MN21R1	10	N	100	50	N	10	N	70	--	--	--	--	N
87MN21R2	20	N	1,000	150	N	30	N	500	--	--	--	--	N
87MN22R	<5	N	500	10	N	20	N	150	--	--	--	--	N
87MN25R	<5	N	700	<10	N	15	N	200	--	--	--	--	N
87MN26R	5	N	700	10	N	15	N	500	--	--	--	--	N
87MN27R	30	N	500	300	N	20	N	50	--	--	--	--	N
87MN28R	10	N	1,000	150	N	20	N	300	--	--	--	--	N
87MN29R	<5	N	1,500	<10	N	50	N	300	--	--	--	--	N
87MN31R	5	N	1,000	10	N	20	N	500	--	--	--	--	N
87MN32R	15	N	2,000	100	N	30	N	700	--	--	--	--	N
87MN37R	15	N	1,500	100	N	30	N	500	--	--	--	--	N
87MN42R	N	N	N	<10	N	20	N	300	--	--	--	--	N
87MN47R	20	N	1,500	200	N	50	N	300	--	--	--	--	N
87MN50R1	15	N	2,000	150	N	50	N	700	--	--	--	--	N
87MN50R2	7	N	300	20	N	20	N	700	--	--	--	--	N
87MN51R	10	N	700	150	N	30	N	500	--	--	--	--	N
87MN52R	5	N	700	200	N	10	N	15	--	--	--	--	N
87MN53R	7	N	1,000	70	N	10	N	700	--	--	--	--	N
87MN54R	20	N	1,000	150	N	50	N	700	--	--	--	--	N
87MN55R	20	N	1,000	200	N	50	N	1,000	--	--	--	--	N
7M135A	5	N	<100	150	N	20	N	100	150	N	3.0	N	N
7M135B	30	N	300	200	N	20	<200	100	150	N	2.0	N	N
7M135C	15	N	<100	150	N	20	N	300	150	N	1.5	<.2	N
7M136A	10	N	N	150	<20	20	N	200	150	N	1.5	N	N
7M136B	15	N	150	100	N	15	N	70	30	N	3.0	N	N
7M136C	15	N	N	150	20	50	N	200	70	N	1.5	<.2	N
7M136D	10	N	<100	150	N	30	N	200	150	N	2.0	N	N
7M136E	--	--	--	--	--	--	--	--	--	--	--	--	--
7M136F	20	N	150	100	N	20	N	70	50	N	3.0	N	N
7M137A	N	N	<100	50	N	70	N	15	50	N	2.0	N	N
7M137B	50	N	150	200	N	50	<200	200	100	N	2.0	N	N
7M137C	10	N	N	200	N	30	<200	150	100	N	1.5	<.2	N
7M137D	N	N	150	50	N	20	N	10	10	N	N	N	N
7M137E	10	N	<100	150	N	30	N	100	70	N	<.2	N	N
7M137F	<5	N	N	100	N	N	N	70	20	N	<.2	.2	N
TCP-3	5	N	<100	150	N	30	N	100	100	N	.2	<.2	N
TCP-13	5	N	<100	70	N	10	N	100	70	N	.3	N	N
TCP-15	5	N	100	70	N	10	N	100	150	N	5.0	N	N

TABLE 5.--RESULTS OF ANALYSES OF ROCK SAMPLES FROM THE MOUNT NUTT WILDERNESS STUDY AREA, MOHAVE COUNTY, ARIZONA.--Continued

Sample	Au-ppm aa	Hg-ppm aa	As-ppm aa	Bi-ppm aa	Cd-ppm aa	Sb-ppm aa	Zn-ppm aa	As-ppm icp	Bi-ppm icp	Cd-ppm icp	Sb-ppm icp	Zn-ppm icp
87MN01R	.13	.42	20	N	N	4	65	--	--	--	--	--
87MN02R	N	.02	N	N	N	N	45	--	--	--	--	--
87MN03R1	N	.02	N	N	N	4	25	--	--	--	--	--
87MN05R	N	.16	20	N	N	N	25	--	--	--	--	--
87MN06R	N	N	N	N	N	N	15	--	--	--	--	--
87MN07R	N	N	N	N	N	N	45	--	--	--	--	--
87MN15R	N	.04	N	N	N	N	20	--	--	--	--	--
87MN21R1	N	.02	N	N	N	N	50	--	--	--	--	--
87MN21R2	N	.04	N	N	N	N	50	--	--	--	--	--
87MN22R	N	.04	N	N	N	N	10	--	--	--	--	--
87MN25R	N	.04	N	N	N	4	30	--	--	--	--	--
87MN26R	N	.02	N	N	N	N	35	--	--	--	--	--
87MN27R	N	.02	N	N	N	N	60	--	--	--	--	--
87MN28R	N	.04	N	N	N	N	55	--	--	--	--	--
87MN29R	N	.04	N	N	N	N	35	--	--	--	--	--
87MN31R	N	.02	N	N	N	N	40	--	--	--	--	--
87MN32R	N	.04	N	N	N	N	65	--	--	--	--	--
87MN37R	N	.06	N	N	N	N	35	--	--	--	--	--
87MN42R	N	.02	N	N	N	N	5	--	--	--	--	--
87MN47R	N	.04	N	N	N	N	55	--	--	--	--	--
87MN50R1	N	.04	N	N	N	N	N	--	--	--	--	--
87MN50R2	N	.28	20	N	N	N	N	--	--	--	--	--
87MN51R	N	.06	N	N	N	N	50	--	--	--	--	--
87MN52R	N	.02	N	N	.4	N	135	--	--	--	--	--
87MN53R	N	.02	N	3	N	N	10	--	--	--	--	--
87MN54R	N	.38	N	N	N	N	15	--	--	--	--	--
87MN55R	N	.14	N	N	N	N	80	--	--	--	--	--
7M135A	N	N	--	--	--	--	--	28	<2	.5	<2	33
7M135B	N	N	--	--	--	--	--	73	<2	1.5	2	51
7M135C	N	N	--	--	--	--	--	14	<2	.6	<2	53
7M136A	.40	.80	--	--	--	--	--	39	<2	.4	<2	42
7M136B	N	N	--	--	--	--	--	120	<2	1.8	<2	31
7M136C	.10	1.10	--	--	--	--	--	21	<2	.7	<2	36
7M136D	.10	.12	--	--	--	--	--	72	<2	.9	<2	64
7M136E	--	--	--	--	--	--	--	95	<2	1.9	<2	26
7M136F	N	N	--	--	--	--	--	<5	<2	.2	<2	11
7M137A	.45	.04	--	--	--	--	--	96	<2	1.9	4	87
7M137B	N	.38	--	--	--	--	--	27	<2	.7	<2	31
7M137C	6.55	.08	--	--	--	--	--	9	<2	.7	2	<2
7M137D	N	.04	--	--	--	--	--	16	<2	.7	<2	12
7M137E	.10	.06	--	--	--	--	--	8	<2	.1	<2	7
7M137F	.05	.72	--	--	--	--	--	12	<2	.7	<2	31
TCP-3	3.10	72.00	--	--	--	--	--	12	<2	.7	<2	24
TCP-13	5.45	28.00	--	--	--	--	--	33	<2	.6	<2	54
TCP-15	1.60	.06	--	--	--	--	--	27	<2	.8	<2	39

TABLE 5.--RESULTS OF ANALYSES OF ROCK SAMPLES FROM THE MOUNT NUTT WILDERNESS STUDY AREA, MOHAVE COUNTY, ARIZONA.--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
TCP-21-7	35 9 2	114 22 20	20.0	2.00	2.00	.30	200	.5	N	N	20
TCP-30	35 9 2	114 22 20	20.0	2.00	.70	.30	500	2.0	N	N	10
TCP-34	35 9 2	114 22 20	20.0	1.50	.50	.30	300	10.0	N	N	<10
TCP-35	35 9 2	114 22 20	20.0	1.00	.20	.30	70	.5	N	N	<10
TCP-37	35 9 2	114 22 20	15.0	2.00	.20	.30	200	2.0	N	N	N
102-1	35 9 0	114 21 45	7.0	.50	5.00	.10	1,000	5.0	N	N	N
102-2	35 9 0	114 21 45	2.0	.10	<.05	.03	150	20.0	N	N	N
102-3	35 9 0	114 21 45	5.0	.07	.05	.07	200	1.5	N	N	N
102-4	35 9 0	114 21 45	.7	.05	N	.03	100	5.0	N	N	N
87G103	35 9 0	114 21 45	1.0	.07	<.05	.03	20	30.0	N	20	N
87G106-1	35 9 2	114 22 20	5.0	.50	1.50	.15	150	10.0	N	<10	<10
87G106-3	35 9 2	114 22 20	15.0	2.00	.30	.30	200	.7	N	N	<10
87G106-4	35 9 2	114 22 20	10.0	1.00	.10	.20	50	15.0	N	N	N
87G106-5	35 9 2	114 22 20	7.0	.50	.07	.15	100	<.5	N	N	N
87G106-6	35 9 2	114 22 20	15.0	1.00	.15	.30	100	1.0	N	N	<10
105-1	35 9 2	114 22 20	7.0	1.00	7.00	.10	150	.7	N	N	10
105-2	35 9 2	114 22 20	1.5	.10	.05	.05	100	1.0	N	N	<10
105-3	35 9 2	114 22 20	7.0	1.00	.30	.30	50	1.0	N	N	N
105-4	35 9 2	114 22 20	7.0	1.00	.20	.20	70	N	N	N	N
105-5	35 9 2	114 22 20	15.0	2.00	2.00	.30	700	N	N	N	N

Sample	Ba-ppm s	Be-ppm s	Bi-ppm s	Cd-ppm s	Co-ppm s	Cr-ppm s	Cu-ppm s	La-ppm s	Mo-ppm s	Nb-ppm s	Ni-ppm s	Pb-ppm s	Sb-ppm s
TCP-21-7	1,500	3.0	N	N	<10	20	7	70	<5	<20	10	20	N
TCP-30	700	7.0	N	N	20	30	10	50	N	<20	30	50	N
TCP-34	1,000	2.0	N	N	20	50	100	<50	N	N	15	70	N
TCP-35	1,500	2.0	N	N	10	20	10	<50	<5	<20	15	30	N
TCP-37	1,500	7.0	N	N	<10	10	5	N	N	N	5	50	N
102-1	500	5.0	N	N	<10	10	15	50	100	N	5	100	N
102-2	150	N	N	N	N	N	5	N	50	<20	N	10	N
102-3	100	<1.0	N	N	N	N	N	<50	20	20	N	100	N
102-4	<20	N	N	N	N	N	N	N	<5	20	N	10	N
87G103	30	N	N	N	N	N	<5	N	100	<20	N	50	N
87G106-1	700	2.0	N	N	<10	10	10	<50	<5	N	5	20	N
87G106-3	700	5.0	N	N	15	20	5	<50	N	<20	15	30	N
87G106-4	500	1.5	N	N	N	<10	200	N	N	N	<5	50	N
87G106-5	1,000	<1.0	N	N	<10	<10	7	<50	N	N	<5	20	N
87G106-6	1,500	5.0	N	N	10	30	<5	N	N	N	15	30	N
105-1	700	3.0	N	N	<10	10	7	<50	N	N	5	50	N
105-2	300	<1.0	N	N	N	N	N	<50	<5	20	N	20	N
105-3	1,000	2.0	N	N	N	10	5	50	N	<20	<5	15	N
105-4	1,000	1.0	N	N	N	10	5	<50	N	N	<5	15	N
105-5	2,000	2.0	N	N	20	15	20	70	N	<20	20	30	N

TABLE 5.--RESULTS OF ANALYSES OF ROCK SAMPLES FROM THE MOUNT NUTT WILDERNESS STUDY AREA, MOHAVE COUNTY, ARIZONA.--Continued

Sample	Sc-ppm s	Sn-ppm s	Sr-ppm s	V-ppm s	W-ppm s	Y-ppm s	Zn-ppm s	Zr-ppm s	Ga-ppm s	Ge-ppm s	Na-ppm s	P-ppm s	Th-ppm s
TCP-21-7	7	N	100	150	N	10	N	200	150	N	2.0	<.2	N
TCP-30	10	N	100	150	N	20	<200	150	150	N	3.0	<.2	N
TCP-34	20	N	150	100	N	15	<200	150	200	N	3.0	N	N
TCP-35	5	N	100	200	N	10	N	150	200	N	3.0	N	N
TCP-37	5	N	<100	100	N	10	N	100	150	N	3.0	N	N
102-1	5	N	<100	70	N	20	N	100	100	N	.7	N	N
102-2	N	N	N	100	N	N	N	50	100	N	1.0	<.2	N
102-3	N	N	N	30	N	10	N	100	100	N	2.0	N	N
102-4	N	N	N	30	N	<10	N	70	50	N	2.0	N	N
87G103	N	N	N	30	N	<10	N	50	70	N	3.0	N	N
87G106-1	<5	N	N	100	N	<10	N	100	100	N	.5	N	N
87G106-3	7	N	<100	100	N	15	N	200	150	N	3.0	N	N
87G106-4	5	N	N	70	N	<10	N	70	150	N	3.0	N	N
87G106-5	N	N	N	50	N	<10	N	70	100	N	2.0	N	N
87G106-6	5	N	N	70	N	10	N	100	150	N	5.0	N	N
105-1	<5	N	N	50	N	10	N	70	100	N	.5	N	N
105-2	N	N	N	30	N	<10	N	100	50	N	.7	<.2	N
105-3	5	N	100	100	N	10	N	200	100	N	3.0	.2	N
105-4	5	N	N	70	N	<10	N	150	100	N	3.0	<.2	N
105-5	10	N	300	100	N	20	N	300	100	N	3.0	<.2	N

Sample	Au-ppm aa	Hg-ppm aa	As-ppm aa	Bi-ppm aa	Cd-ppm aa	Sb-ppm aa	Zn-ppm aa	As-ppm icp	Bi-ppm icp	Cd-ppm icp	Sb-ppm icp	Zn-ppm icp
TCP-21-7	.60	.52	--	--	--	--	--	50	<2	1.2	<2	62
TCP-30	.40	.02	--	--	--	--	--	48	<2	.6	<2	38
TCP-34	.15	.12	--	--	--	--	--	65	<2	.6	2	40
TCP-35	.75	.02	--	--	--	--	--	70	<2	.5	<2	48
TCP-37	.05	.06	--	--	--	--	--	45	<2	.2	15	36
102-1	2.10	2.90	--	--	--	--	--	38	<2	.8	<2	100
102-2	2.30	9.20	--	--	--	--	--	<5	<2	<.1	<2	5
102-3	1.10	.48	--	--	--	--	--	19	<2	.1	<2	92
102-4	10.00	1.20	--	--	--	--	--	8	<2	<.1	<2	6
87G103	.70	.12	--	--	--	--	--	10	<2	<.1	<2	7
87G106-1	4.30	84.00	--	--	--	--	--	11	<2	.4	<2	39
87G106-3	.40	.12	--	--	--	--	--	47	<2	1.2	<2	63
87G106-4	2.30	.06	--	--	--	--	--	44	<2	.7	<2	55
87G106-5	1.65	.02	--	--	--	--	--	44	<2	.4	<2	47
87G106-6	.25	.08	--	--	--	--	--	57	<2	.5	<2	53
105-1	.55	24.00	--	--	--	--	--	10	<2	.7	<2	26
105-2	.25	.96	--	--	--	--	--	<5	<2	.1	<2	14
105-3	3.35	.02	--	--	--	--	--	21	<2	.1	<2	24
105-4	.20	.20	--	--	--	--	--	39	<2	.2	<2	27
105-5	N	N	--	--	--	--	--	<5	<2	.8	<2	71

Table 6.--Description of rock samples

87MN01R	breccia	7M136D	volcanic rock
87MN02R	rhyolite	7M136E	volcanic rock
87MN03R1	brecciated rhyolite	7M136F	volcanic rock
87MN05R	rhyolite	7M137A	volcanic rock
87MN06R	latite	7M137B	volcanic rock
87MN07R	rhyodacite	7M137C	volcanic rock
87MN15R	diorite breccia	7M137D	volcanic rock
87MN21R1	chloritized andesite	7M137E	volcanic rock
87MN21R2	chloritized latite	7M137F	volcanic rock
87MN22R	volcanic rock	TCP-3	volcanic rock
87MN25R	tuff	TCP-13	volcanic rock
87MN26R	latite	TCP-15	volcanic rock
87MN27R	latite	TCP-21-7	volcanic rock
87MN28R	volcanic rock	TCP-30	volcanic rock
87MN29R	volcanic rock	TCP-34	volcanic rock
87MN31R	welded tuff	TCP-35	volcanic rock
87NB32R	volcanic rock	TCP-37	volcanic rock
87MN37R	andesite	102-1	volcanic rock
87MN42R	volcanic rock	102-2	volcanic rock
87MN47R	andesite	102-3	volcanic rock
87MN50R1	tuff	102-4	volcanic rock
87MN50R2	tuff	87G103	volcanic rock
87MN51R	latite	87G106-1	volcanic rock
87MN52R	ash tuff	87G106-3	volcanic rock
87MN53R	ash tuff	87G106-4	volcanic rock
87MN54R	latite	87G106-5	volcanic rock
87MN55R	latite	87G106-6	volcanic rock
7M135A	volcanic rock	105-1	volcanic rock
7M135B	volcanic rock	105-2	volcanic rock
7M135C	volcanic rock	105-3	volcanic rock
7M136A	volcanic rock	105-4	volcanic rock
7M136B	volcanic rock	105-5	volcanic rock
7M136C	volcanic rock		