UNITED STATES DEPARTMENT OF THE INTERIOR

GEOLOGICAL SURVEY

Analytical results and sample locality map of stream-sediment and heavy-mineral-concentrate samples from the Little Lake Canyon (CDCA 157) and Owens Peak (CDCA 158) Wilderness Study Areas, Inyo and Kern Counties, California

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STUDIES RELATED TO WILDERNESS

Bureau of Land Management Wilderness Study Areas

The Federal Land Policy and Management Act (Public Law 94-579, October 21, 1976) requires the U.S. Geological Survey and the U.S. Bureau of Mines to conduct mineral surveys on certain areas to determine their mineral values, if any. Results must be made available to the public and be submitted to the President and the Congress. This report presents the results of a mineral survey of the Little Lake Canyon and Owens Peak Wilderness Study Area, California Desert Conservation Area, Inyo and Kern Counties, California.

INTRODUCTION

In the spring of 1982 the U.S. Geological Survey conducted a reconnaissance geochemical survey of the Little Lake Canyon and Owens Peak Wilderness Study Areas, Inyo and Kern Counties, California.

The Little Lake Canyon and Owens Peak Wilderness Study Areas comprise about 95 mi^2 (247 km^2, 61,200 acres) in southeastern California. The study areas are located approximately 20 mi (32 km) northwest of Ridgecrest (fig. 1). Access to the study areas is provided by route 6 to the east, Walker pass (route 178) to the south, and unimproved dirt roads in other directions. The Little Lake Canyon and Owens Peak Wilderness Study Areas are located in the Basin and Range Province. The elevation ranges from 8,400 ft (2560 m) at the summit of Owens Peak down to approximately 3,500 ft (1067 m) in the valley floor. The main portion of the study areas are mountainous which grade into pediments near the basin floor. The climate is arid to semiarid; Cresote bush and associated flora are the dominant vegetation in the study areas.

The predominant rocks in the study areas are granites of Jurassic or Cretaceous age which form the southern part of the eastern flank of the Sierra Nevada Range. These rocks are mainly granodiorite and quartz monzonites and comprise part of the Sierra Nevada Batholith. The oldest exposed rocks in the study areas are a narrow northwest-southeast trend of Pre-Cretaceous metasediments just south of Indian Wells Canyon. There are also Pleistocene non-marine sediments found in the lower reaches of the more prominent canyons.

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 rocks 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.

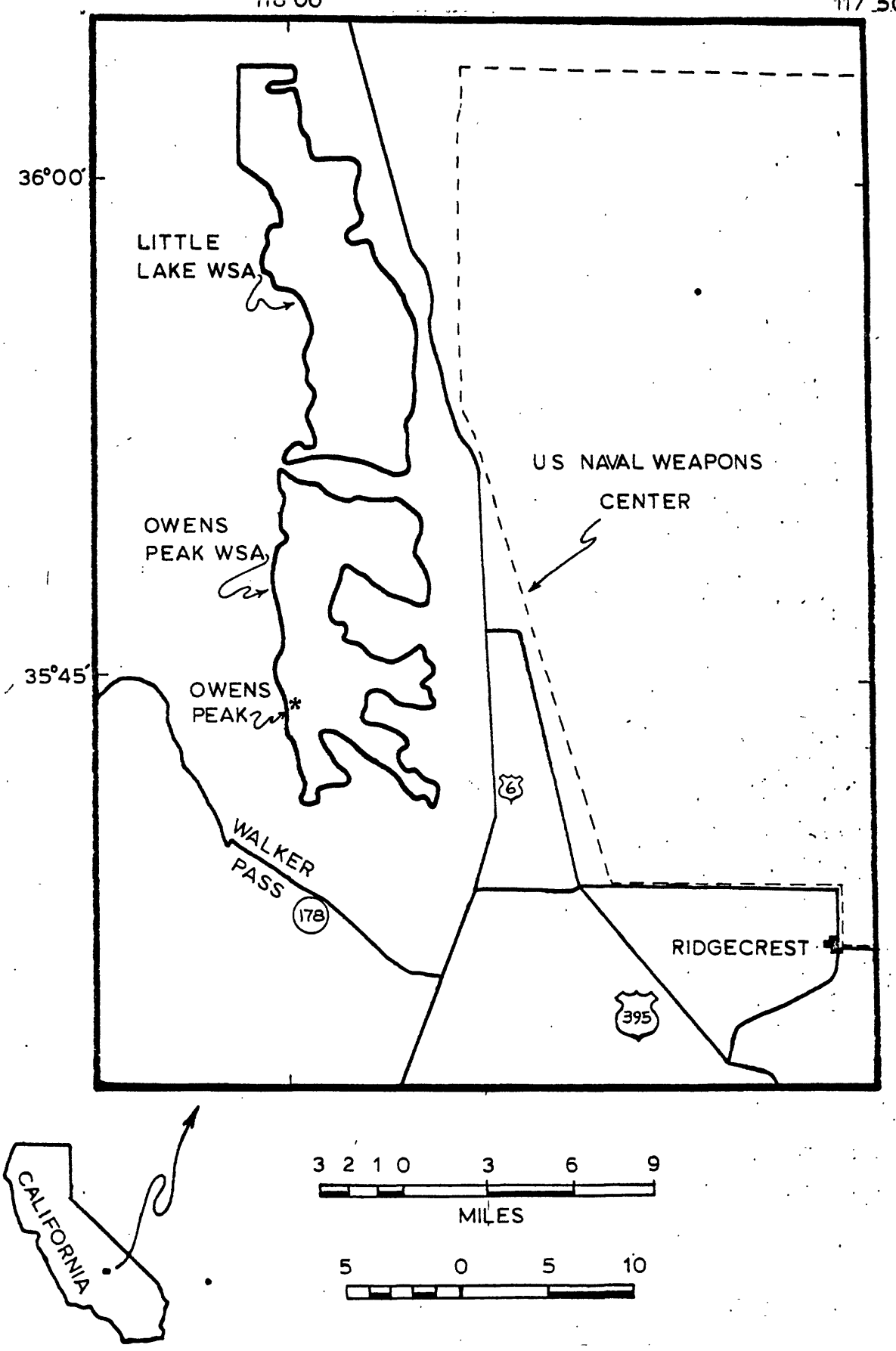

Figure 1. Location map of the Little Lake Canyon and Owens Peak Wilderness Study Areas, Inyo and Kern Counties, California (WSA - Wilderness Study Area).

Sample Collection

Samples were collected at 100 sites (fig. 2). At nearly all of those sites, both a stream-sediment sample and a heavy-mineral-concentrate sample were collected. Sampling density was about 1 sample site per square mile for the stream sediments and heavy-mineral concentrates. The area of the drainage basins sampled ranged from .2 mi^2 to .4 mi^2.

The sampling was conducted on a low-level, unbalanced, hierarchial design utilizing 1-sq-mi cells (fig. 3). The sediment from a randomly selected first-order drainage basin, with an areal extent of approximately 0.2 to 0.4 sq mi (0.5 to 1 sq km) was collected for each cell. The cells represent level 1 of the sampling design, and variance among cells represents the regional variance. Level 2 of the sampling design represents variance between basins within cells. A duplicate basin sample was collected from each of five randomly selected cells in a basin adjacent to the original cell basin. Level 3 of the sampling design represents variance within a basin and is based on sampling of duplicate sites (30 m apart) within the duplicate basins. Level 4 of the sampling design represents duplicate analyses of the duplicate samples. Table 1 lists the duplicate samples collected during the survey.

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 figure 2. Each sample was composited from at least five areas within a length of about 50 ft (17 m) and screened to minus 2mm (10 mesh). Ten to 15 pounds (4.5-7.0 kg) of screened material were collected at each site and hand mixed.

Heavy-mineral-concentrate samples

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

Sample Preparation

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

After air drying, bromoform (specific gravity 2.8) was used to remove the remaining quartz and feldspar from the heavy-mineral-concentrate samples that had been panned in the field. The resultant heavy mineral sample was separated into three fractions using a large electromagnet (in this case a modified Frantz Isodynamic Separator). The most magnetic material, primarily magnetite, was not analyzed. The second fraction, largely ferromagnesian silicates and iron oxides, was saved for 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

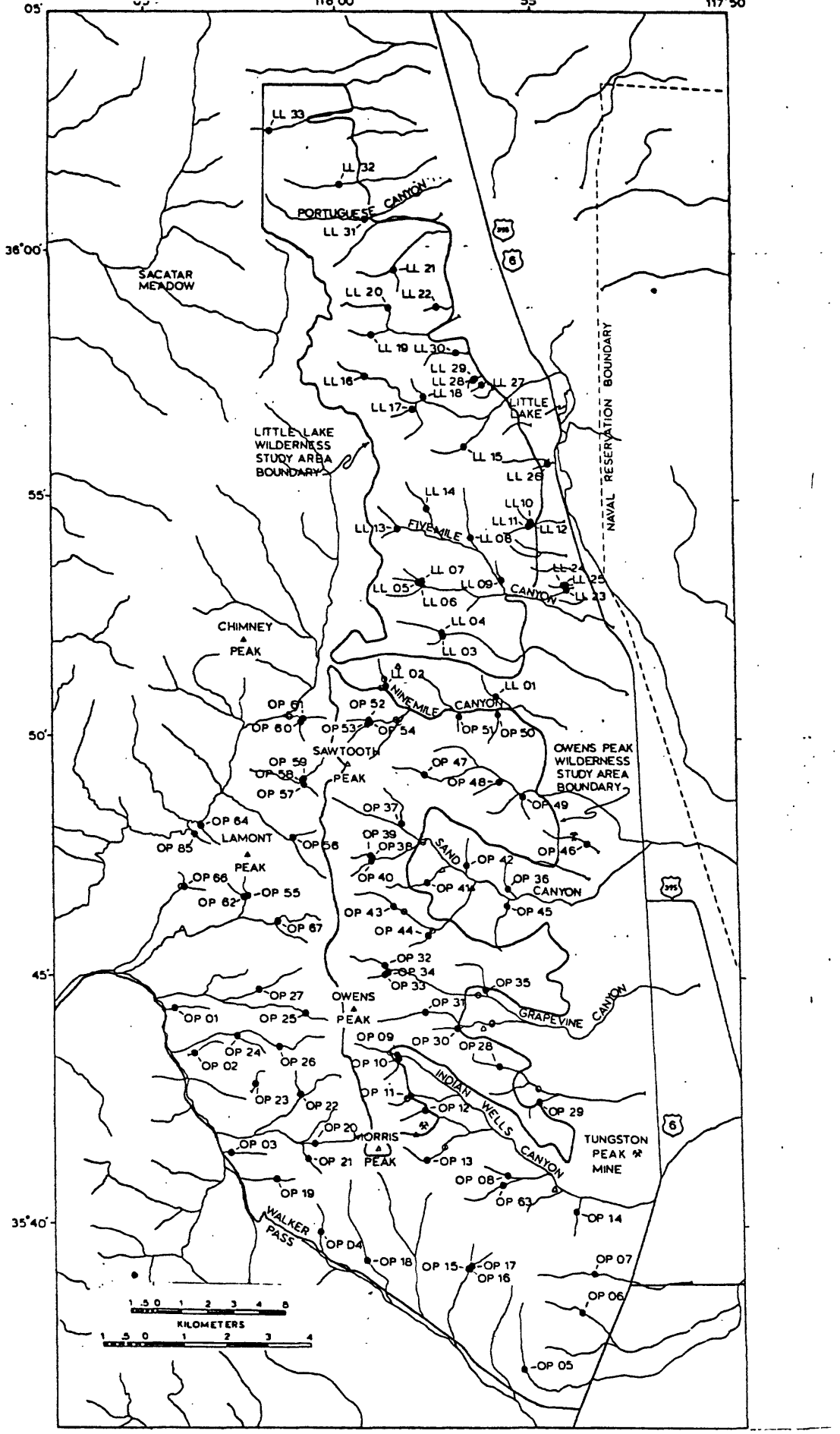

Figure 2. Site location map for the Little Lake Canyon and Owens Peak Wilderness Study Areas, Inyo and Kern Counties, California.

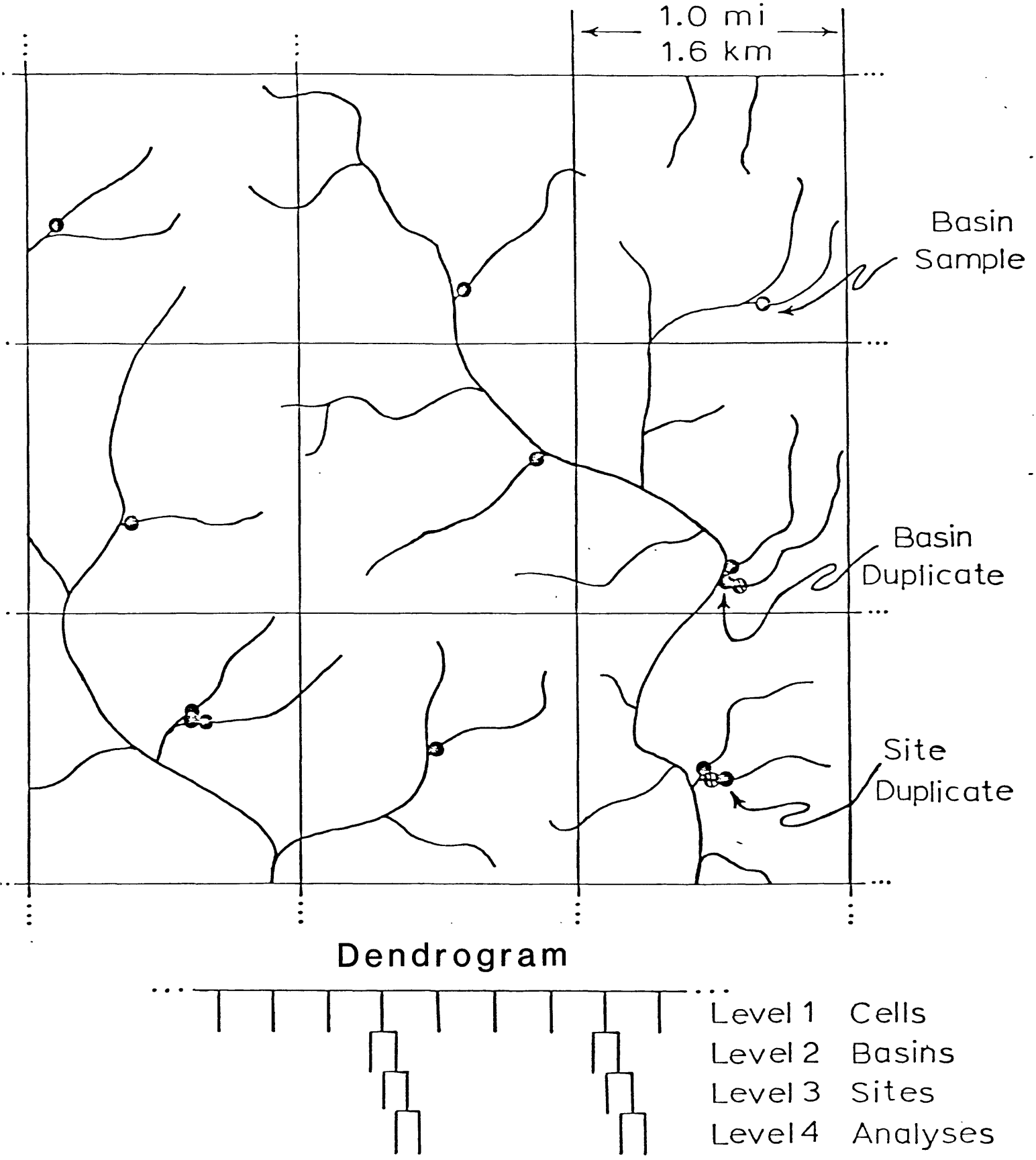

Figure 3.--Graphical representation of the sampling design.

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 0.1 ampere to remove the magnetite and ilmenite, and a current of 1.0 ampere to split the remainder of the sample into paramagnetic and nonmagnetic fractions.

Sample Analysis

Spectrographic method

The stream-sediment, heavy-mineral-concentrate, and rock samples were analyzed for 31 elements using a semiquantitative, direct-current arc emission spectrographic method (Grimes and Marranzino, 1968). The elements analyzed and their lower limits of determination are listed in table 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 the Little Lake Canyon and Owens Peak Wilderness Study Areas are listed in tables 3-6.

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, 1976).

DESCRIPTION OF DATA TABLES

Tables 3-6 list the analyses for the samples of stream sediment and heavy-mineral concentrate. For the four tables, the data are arranged so that column 1 contains the USGS-assigned sample numbers. These numbers correspond to the numbers shown on the site location maps (figure 2). Columns in which the element headings show the letter "s" below the element symbol are emission spectrographic analyses. A letter "N" in the tables indicates that a given element was looked for but not detected at the lower limit of determination shown for that element in table 2. If an element was observed but was below the lowest reporting value, a "less than" symbol (<) was entered in the tables in front of the lower limit of determination. If an element was observed but was above the highest reporting value, a "greater than" symbol (>) was entered in the tables in front of the upper limit of determination. If an element was not looked for in a sample, two dashes (--) are entered in tables 3-6 in place of an analytical value. Because of the formatting used in the computer program that produced tables 3-6, 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 spectrographic determinations for elements not listed in tables 3-6 were all below the lower limits of determinations shown in table 1; consequently, the columns for these elements have been deleted from tables 3, 4, 5, and 6.

REFERENCES CITED

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

Motooka, J. M., and Grimes, D. J., 1976, Analytical precision of one-sixth order semiquantitative spectrographic analyses: U.S. Geological Survey Circular 738, 25 p.

VanTrump, George, Jr., and Miesch, A. T., 1976, The U.S. Geological Survey RASS-STATPAC system for management and statistical reduction of geochemical data: Computers and Geosciences, v. 3, p. 475-488.

TABLE 1.--List of duplicate samples collected in the Little Lake Canyon and Owens Peak Wilderness Study Areas, southeastern California

Cell	Duplicate Cell	Site Duplicate	Analytical Duplicate
LL007	LL006	LL005	LL005D
LL010	LL012	LL011	LL011D
LL023	LL025	LL024	LL024D
LL027	LL029	LL028	LL028D
OP015	OP017	OP016	OP016D
OP032	OP034	OP033	OP033D
OP040	OP038	OP039	OP039D
OP052	OP054	OP053	OP053D
OP057	OP058	OP059	OP059D

TABLE 2.--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 stream sediments]

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

TABLE 3. ANALYTICAL RESULTS FOR THE MINUS-80-MESH STREAM-SEDIMENT SAMPLES FROM THE LITTLE LAKES WILDERNESS STUDY AREA, KERN COUNTY, CALIFORNIA.

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

Sample	Latitude	Longitude	Fe-pct.	Mg-pct.	Ca-pct.	Ti-pct.	Mn-ppm	B-ppm	Ba-ppm	Co-ppm	Cr-ppm
			s	s	s	s	s	s	s	s	s
LL001	35 50 49	117 56 6	15	5	10	>1	2,000	20	700	30	70
LL002	35 51 3	117 58 54	10	2	7	1	2,000	20	700	30	30
LL003	35 52 5	117 57 26	10	5	10	1	1,500	10	1,000	30	70
LL004	35 52 9	117 57 29	20	5	10	>1	3,000	20	700	50	200
LL007	35 53 14	117 57 57	7	3	10	1	2,000	10	1,000	20	30
LL006	35 53 11	117 57 59	20	5	10	>1	2,000	20	1,000	50	100
LL005	35 53 12	117 58 1	10	5	7	>1	2,000	20	1,000	30	50
LL005D	35 53 11	117 57 59	15	7	15	>1	3,000	15	1,500	70	150
LL008	35 54 8	117 56 41	10	2	7	1	1,500	20	1,000	30	70
LL009	35 53 14	117 55 56	15	3	15	1	1,500	15	700	30	100
LL010	35 54 26	117 55 10	10	5	7	>1	2,000	15	700	30	150
LL012	35 54 23	117 55 11	10	3	10	>1	2,000	20	700	30	100
LL011	35 54 22	117 55 12	10	5	10	>1	2,000	20	700	50	150
LL011D	35 54 22	117 55 12	10	5	5	>1	2,000	20	700	50	100
LL013	35 54 18	117 58 34	15	7	15	>1	2,000	20	1,000	50	100
LL014	35 54 45	117 57 49	>20	5	10	>1	1,500	10	700	70	100
LL015	35 56 1	117 56 51	10	3	7	1	1,500	20	1,000	30	50
LL016	35 57 27	117 59 22	10	3	7	>1	2,000	20	500	30	70
LL017	35 56 46	117 58 8	7	2	10	1	2,000	30	700	20	50
LL018	35 57 1	117 57 52	10	5	10	>1	2,000	15	1,000	50	200
LL019	35 58 17	117 59 10	10	7	15	1	2,000	50	1,000	50	200
LL020	35 58 52	117 58 44	10	3	10	1	2,000	20	1,500	30	50
LL021	35 59 39	117 58 36	15	3	15	>1	1,500	10	700	50	70
LL022	35 58 53	117 57 30	15	3	10	>1	2,000	30	700	50	70
LL023	35 53 3	117 54 15	10	3	10	1	2,000	20	1,000	30	50
LL025	35 53 8	117 54 18	10	5	10	>1	2,000	30	1,000	30	50
LL024	35 53 7	117 54 20	10	5	10	>1	2,000	50	1,000	30	50
LL024D	35 53 7	117 54 20	15	5	5	1	2,000	70	700	50	150
LL026	35 55 39	117 54 41	20	7	15	>1	3,000	20	1,000	70	150
LL027	35 57 16	117 56 23	10	2	5	1	2,000	30	1,000	20	30
LL029	35 57 22	117 56 33	15	3	7	>1	2,000	50	1,000	30	70
LL028	35 57 22	117 56 35	10	2	10	>1	2,000	50	1,000	50	70
LL028D	35 57 22	117 56 35	15	3	5	>1	2,000	50	1,000	50	100
LL030	35 57 56	117 57 1	15	5	15	>1	2,000	20	1,500	50	100
LL031	36 0 41	117 59 16	10	5	10	1	1,500	20	1,000	20	50
LL032	36 1 23	117 59 55	15	5	10	>1	2,000	15	1,000	50	100
LL033	36 2 30	118 1 42	7	2	10	1	1,500	20	700	20	50

TABLE 3. ANALYTICAL RESULTS FOR THE MINUS-80-MESH STREAM-SEDIMENT SAMPLES FROM THE LITTLE LAKES WILDERNESS STUDY AREA, KERN COUNTY, CALIFORNIA. --Continued

Sample	Cu-ppm s	La-ppm s	Mo-ppm s	Nb-ppm s	Ni-ppm s	Pb-ppm s	Sr-ppm s	V-ppm s	Y-ppm s	Zn-ppm s
LL001	50	100	N	N	20	30.0	700	200	100	N
LL002	50	100	N	20	30	20.0	700	200	100	N
LL003	50	100	N	N	20	30.0	700	200	50	N
LL004	50	100	N	N	30	30.0	500	500	100	N
LL007	50	70	N	N	15	30.0	1,000	150	50	N
LL006	70	150	N	<20	30	50.0	700	300	100	N
LL005	100	50	N	N	30	30.0	500	300	50	N
LL005D	300	70	N	N	30	70.0	700	300	50	N
LL008	50	100	5	<20	20	50.0	1,000	200	70	N
LL009	50	100	N	<20	20	50.0	500	200	70	N
LL010	50	100	N	<20	30	50.0	500	300	70	N
LL012	70	150	N	20	50	30.0	500	200	70	N
LL011	100	150	5	N	50	50.0	500	300	100	N
LL011D	300	150	N	N	30	50.0	500	300	70	N
LL013	100	70	N	20	70	50.0	1,000	500	100	<200
LL014	70	100	N	N	30	30.0	500	500	70	N
LL015	50	100	N	<20	20	30.0	700	200	70	<200
LL016	50	100	N	N	20	30.0	500	200	70	N
LL017	70	50	5	N	15	30.0	700	150	50	N
LL018	70	150	N	20	50	30.0	700	300	100	N
LL019	100	50	N	<20	70	30.0	700	300	70	N
LL020	70	100	N	N	20	50.0	700	150	70	N
LL021	50	100	N	<20	20	30.0	1,000	200	100	N
LL022	70	100	N	<20	30	30.0	1,000	200	100	N
LL023	50	70	N	N	20	30.0	700	200	70	N
LL025	70	70	N	<20	20	50.0	1,000	200	70	N
LL024	70	150	N	N	20	30.0	700	200	70	N
LL024D	150	100	N	N	30	30.0	500	200	50	N
LL026	70	150	N	N	50	30.0	700	300	100	N
LL027	70	150	5	20	20	50.0	500	150	70	N
LL029	70	200	N	<20	30	70.0	700	200	70	<200
LL028	50	150	<5	20	30	50.0	700	200	100	N
LL028D	150	150	N	<20	20	70.7	700	300	70	N
LL030	70	150	N	N	30	50.0	700	200	70	200
LL031	70	100	N	N	20	50.0	700	200	50	N
LL032	50	150	N	N	50	30.0	700	300	70	N
LL033	50	100	N	N	20	20.0	500	200	50	N

TABLE 4. ANALYTICAL RESULTS FOR THE NONMAGNETIC HEAVY-MINERAL-CONCENTRATE SAMPLES FROM THE LITTLE LAKES WILDERNESS STUDY AREA, KERN COUNTY, CALIFORNIA.

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

Sample	Latitude	Longitude	Fe0.1%	Mg0.05%	Ca0.1%	Mn20ppm	B20ppm	Ba50ppm	Co10ppm	Cr20ppm	Cu10ppm	La50ppm
			%	%	%	%	%	%	%	%	%	%
LL001	35 50 49	117 56 6	2.0	.50	15	1,000	20	>10,000	10	<20	30	1,500
LL002	35 51 3	117 58 54	3.0	.50	15	1,000	<20	700	N	30	10	1,500
LL003	35 52 5	117 57 26	3.0	.70	15	1,000	20	500	<10	20	50	1,000
LL004	35 52 9	117 57 29	3.0	.50	10	1,000	20	300	N	<20	N	1,500
LL007	35 53 14	117 57 57	5.0	1.00	15	1,000	<20	300	N	20	<10	1,000
LL006	35 53 11	117 57 59	3.0	.50	20	1,000	20	200	N	20	20	1,000
LL005	35 53 12	117 58 1	7.0	1.50	20	1,500	30	300	N	50	10	1,000
LL005D	35 53 12	117 58 1	5.0	.50	7	700	20	150	N	30	10	500
LL008	35 54 8	117 56 41	3.0	.20	10	1,000	20	50	N	<20	10	2,000
LL009	35 53 14	117 55 56	3.0	.20	10	700	20	500	N	20	10	2,000
LL010	35 54 26	117 55 10	2.0	.20	10	1,000	20	50	N	<20	N	2,000
LL012	35 54 23	117 55 11	2.0	.20	10	1,000	<20	<50	10	20	N	1,000
LL011	35 54 22	117 55 12	2.0	.20	15	1,000	20	50	N	50	N	2,000
LL011D	35 54 22	117 55 12	1.5	.05	7	500	<20	N	N	50	N	1,000
LL013	35 54 18	117 58 34	2.0	.30	15	700	20	300	N	<20	N	2,000
LL014	35 54 45	117 57 49	2.0	.30	5	500	20	500	N	N	N	300
LL015	35 56 1	117 56 51	7.0	.50	15	1,500	20	500	N	30	10	2,000
LL016	35 57 27	117 59 22	2.0	.20	15	700	<20	<50	N	<20	N	2,000
LL017	35 56 46	117 58 8	3.0	.30	10	1,000	20	<50	10	<20	<10	1,500
LL018	35 57 1	117 57 52	3.0	.30	10	1,000	20	50	N	30	N	1,500
LL019	35 58 17	117 59 10	2.0	.50	10	700	20	150	N	50	10	500
LL020	35 58 52	117 58 44	2.0	.20	10	1,000	<20	50	N	20	N	1,500
LL021	35 59 39	117 58 36	3.0	.50	15	1,000	20	200	N	20	20	2,000
LL022	35 58 53	117 57 30	2.0	.30	10	700	20	200	N	<20	N	700
LL023	35 53 3	117 54 15	5.0	.70	15	1,000	30	300	15	30	20	700
LL025	35 53 8	117 54 18	5.0	1.00	15	1,000	500	500	<10	50	<10	700
LL024	35 53 7	117 54 20	5.0	.70	10	1,000	500	200	20	50	N	500
LL024D	35 53 7	117 54 20	3.0	.30	10	500	300	200	30	30	20	300
LL026	35 55 39	117 54 41	2.0	.20	10	700	20	150	N	20	N	1,000
LL027	35 57 16	117 56 23	3.0	.20	15	1,000	70	200	N	20	N	2,000
LL029	35 57 22	117 56 53	1.5	.20	10	700	<20	200	N	20	N	1,000
LL028	35 57 22	117 56 35	3.0	.50	15	1,500	200	70	N	<20	<10	2,000
LL028D	35 57 22	117 56 35	2.0	.15	10	1,000	150	50	N	30	N	1,000
LL030	35 57 56	117 57 1	2.0	.20	15	700	20	200	N	20	N	1,000
LL031	36 0 41	117 59 16	3.0	.50	20	1,500	30	100	20	<20	<10	2,000
LL032	36 1 23	117 59 55	2.0	.20	10	1,000	20	70	N	<20	N	2,000
LL033	36 2 30	118 1 42	2.0	.20	15	1,000	30	50	N	20	N	2,000

TABLE 4. ANALYTICAL RESULTS FOR THE NONMAGNETIC HEAVY-MINERAL-CONCENTRATE SAMPLES FROM THE LITTLE LAKES WILDERNESS STUDY AREA, KERN COUNTY, CALIFORNIA. --Continued

Sample	Mo10ppm s	Nb50ppm s	Ni10ppm s	Pb20ppm s	Sn20ppm s	Sr200ppm s	V20ppm s	W100ppm s	Y20ppm s	Zr20ppm s	Th200ppm s
LL001	70	200	<10	30	100	200	500	N	1,500	>2,000	200
LL002	100	200	20	20	100	200	300	N	2,000	700	200
LL003	70	150	10	20	50	500	500	N	1,000	1,500	<200
LL004	70	200	15	300	50	700	200	200	1,000	>2,000	200
LL007	100	200	15	50	70	1,000	300	N	1,500	>2,000	500
LL006	70	200	10	50	100	500	300	500	1,500	>2,000	500
LL006	50	150	20	50	50	1,000	300	N	700	200	<200
LL005D	70	200	10	N	<20	700	700	N	700	1,500	<200
LL008	150	500	10	20	100	N	300	<100	1,500	2,000	300
LL009	70	100	<10	30	50	500	300	N	1,000	>2,000	700
LL010	100	300	10	<20	70	N	300	N	2,000	>2,000	300
LL012	70	200	10	20	70	N	200	N	1,000	2,000	300
LL011	100	200	10	20	70	N	300	N	3,000	1,000	200
LL011D	150	500	N	N	70	N	700	N	1,500	>2,000	500
LL013	50	70	10	20	50	300	300	N	1,500	>2,000	300
LL014	30	150	15	20	N	500	150	N	700	>2,000	500
LL015	100	200	10	30	100	1,000	300	N	1,500	>2,000	300
LL016	100	300	10	20	100	N	300	N	2,000	>2,000	700
LL017	100	300	10	30	100	200	500	N	1,000	>2,000	700
LL018	100	500	10	30	70	300	300	200	3,000	>2,000	1,000
LL019	50	150	10	20	50	500	200	N	500	>2,000	<200
LL020	70	200	10	<20	70	N	300	N	1,000	1,000	300
LL021	70	200	10	50	100	500	500	N	1,000	>2,000	500
LL022	70	200	10	20	50	500	200	N	500	>2,000	500
LL023	20	50	<10	30	50	500	300	N	1,000	>2,000	<200
LL025	50	200	15	30	70	700	300	N	700	>2,000	200
LL024	30	100	15	20	30	700	200	N	500	>2,000	N
LL024D	70	200	N	N	<20	500	500	N	700	>2,000	N
LL026	50	100	10	<20	50	300	200	N	1,000	2,000	200
LL027	100	300	10	50	100	N	300	200	1,500	>2,000	1,000
LL029	20	50	10	<20	30	500	200	N	700	>2,000	N
LL028	100	200	15	50	100	200	500	N	1,500	>2,000	500
LL028D	200	700	N	N	70	N	700	N	2,000	>2,000	700
LL030	70	200	<10	20	70	300	200	N	1,000	>2,000	500
LL031	50	200	10	30	150	200	500	N	1,500	200	200
LL032	100	200	<10	<20	50	N	500	N	2,000	>2,000	300
LL033	100	200	<10	20	100	N	500	N	1,000	1,000	200

TABLE 5. ANALYTICAL RESULTS FOR THE MINUS-80-MESH STREAM-SEDIMENT SAMPLES FROM THE OWENS PEAK WILDERNESS STUDY AREA, INYO AND KERN COUNTIES, CALIFORNIA.

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

Sample	Latitude	Longitude	Fe-pct. s	Mg-pct. s	Ca-pct. s	Ti-pct. s	Mn-ppm s	Ag-ppm s	B-ppm s	Ba-ppm s	Be-ppm s	Co-ppm s
OP001	35 44 20	118 4 19	15	2.0	10	1.0	5,000	N	20	2,000	N	20
OP002	35 43 23	118 3 48	10	5.0	10	.7	3,000	N	15	1,500	N	20
OP003	35 41 21	118 2 55	10	3.0	10	1.0	5,000	N	20	1,000	N	20
OP004	35 39 46	118 0 41	10	2.0	15	.7	2,000	N	20	2,000	N	15
OP005	35 36 56	117 55 39	10	2.0	10	1.0	1,500	5.0	15	1,500	N	15
OP006	35 38 6	117 54 6	10	5.0	3	>1.0	2,000	N	15	2,000	<5.0	20
OP007	35 38 53	117 53 46	10	3.0	5	>1.0	1,500	N	10	2,000	N	15
OP008	35 40 53	117 55 58	10	5.0	5	>1.0	2,000	N	20	2,000	N	20
OP009	35 43 21	117 58 42	15	7.0	15	>1.0	2,000	N	20	1,500	N	30
OP010	35 43 16	117 58 41	10	5.0	10	>1.0	2,000	N	10	1,000	N	30
OP011	35 42 32	117 58 24	10	5.0	10	1.0	1,500	N	15	1,500	N	20
OP012	35 42 13	117 58 2	15	7.0	15	>1.0	1,500	N	20	1,000	N	30
OP013	35 41 13	117 58 0	15	7.0	15	1.0	2,000	N	20	1,500	N	30
OP014	35 40 9	117 54 13	10	5.0	3	>1.0	1,500	N	10	1,500	N	15
OP015	35 38 59	117 57 0	15	3.0	10	>1.0	5,000	N	10	1,500	N	20
OP017	35 38 58	117 56 57	7	5.0	10	>1.0	2,000	N	10	2,000	N	20
OP016	35 38 57	117 56 58	10	3.0	5	1.0	2,000	N	10	1,000	N	20
OP016D	35 38 57	117 56 58	10	1.5	3	1.0	2,000	N	10	1,000	1.5	15
OP018	35 39 11	117 59 32	10	3.0	10	1.0	5,000	N	10	2,000	N	30
OP019	35 40 50	118 1 46	15	7.0	10	>1.0	>5,000	N	20	2,000	N	30
OP020	35 41 33	118 0 50	10	10.0	10	>1.0	>5,000	N	15	1,500	N	50
OP021	35 41 14	118 0 59	20	10.0	15	>1.0	5,000	N	15	1,500	N	70
OP022	35 42 33	118 1 9	15	5.0	15	>1.0	5,000	N	10	2,000	N	50
OP023	35 42 46	118 2 17	10	5.0	15	1.0	5,000	N	20	1,500	N	30
OP024	35 43 45	118 2 44	15	5.0	15	>1.0	>5,000	N	20	2,000	N	20
OP025	35 44 14	118 1 2	15	7.0	15	>1.0	5,000	N	70	1,500	N	50
OP026	35 43 32	118 1 39	20	7.0	15	>1.0	3,000	N	20	700	N	50
OP027	35 44 44	118 2 10	20	7.0	15	>1.0	>5,000	N	150	1,000	N	50
OP028	35 43 7	117 56 7	>20	.7	2	>1.0	>5,000	N	10	1,500	N	20
OP029	35 42 23	117 55 7	>20	1.0	3	>1.0	>5,000	N	10	2,000	N	15
OP030	35 43 54	117 57 11	7	2.0	10	>1.0	1,500	N	10	1,000	<5.0	10
OP031	35 44 16	117 58 0	15	3.0	10	>1.0	1,500	N	10	1,000	N	20
OP032	35 45 13	117 59 0	3	1.5	20	.5	1,000	N	30	700	N	10
OP034	35 45 4	117 58 56	10	7.0	10	>1.0	2,000	N	10	1,000	N	50
OP033	35 45 4	117 58 57	10	7.0	10	>1.0	2,000	N	10	1,000	<5.0	50
OP035D	35 45 4	117 58 57	20	5.0	7	>1.0	2,000	N	<10	700	2.0	50
OP035	35 44 43	117 56 28	15	5.0	10	>1.0	2,000	N	10	2,000	N	30
OP036	35 46 48	117 55 50	15	7.0	15	>1.0	2,000	N	70	1,000	<5.0	70
OP037	35 48 11	117 58 32	10	3.0	10	>1.0	2,000	N	50	1,000	N	30
OP040	35 47 23	117 59 17	10	5.0	5	>1.0	2,000	N	50	2,000	N	30
OP038	35 47 28	117 59 17	10	3.0	10	>1.0	2,000	N	20	2,000	N	30
OP039	35 47 29	117 59 18	15	5.0	15	1.0	2,000	N	30	2,000	N	50
OP039D	35 47 29	117 59 18	15	5.0	7	>1.0	3,000	N	50	2,000	1.5	50
OP041	35 46 56	117 57 53	20	3.0	7	>1.0	1,500	N	20	1,500	N	20
OP042	35 47 19	117 56 54	10	7.0	20	.3	3,000	N	20	1,000	N	20

TABLE 5. ANALYTICAL RESULTS FOR THE MINUS-80-MESH STREAM-SEDIMENT SAMPLES FROM THE OWENS PEAK WILDERNESS STUDY AREA, INYO AND KERN COUNTIES, CALIFORNIA. --Continued

Sample	Cr-ppm s	Cu-ppm s	La-ppm s	Mo-ppm s	Nb-ppm s	Ni-ppm s	Pb-ppm s	Sr-ppm s	V-ppm s	Y-ppm s	Zn-ppm s
OP001	50	30	50	N	N	10	20	1,000	300	50	N
OP002	50	50	50	N	N	10	30	1,000	300	50	N
OP003	70	70	50	N	N	10	30	1,000	200	50	N
OP004	20	50	50	N	N	10	50	1,000	200	50	N
OP005	20	30	150	N	N	5	50	700	100	70	N
OP006	50	20	150	N	20	20	50	700	200	50	N
OP007	50	20	200	N	20	20	30	700	200	70	N
OP008	70	20	200	N	20	20	20	700	200	100	N
OP009	100	70	100	N	N	30	50	700	200	70	N
OP010	70	50	100	N	N	20	20	500	300	50	N
OP011	50	70	70	N	N	15	50	1,000	200	50	N
OP012	70	50	150	N	<20	20	30	1,000	200	70	N
OP013	70	70	N	N	N	15	30	1,000	300	50	N
OP014	50	70	150	N	N	15	30	700	150	70	N
OP015	30	50	50	N	<20	10	20	1,000	300	50	N
OP017	50	30	50	N	<20	10	30	700	200	50	N
OP016	30	20	70	N	N	15	30	700	200	50	N
OP016D	30	50	50	N	N	10	30	500	200	30	N
OP018	20	70	50	N	N	10	30	1,000	200	50	N
OP019	30	50	50	10	N	10	20	1,500	300	70	N
OP020	20	100	50	N	N	15	30	1,000	200	50	N
OP021	50	100	50	N	N	20	20	1,000	300	50	200
OP022	50	70	50	N	N	10	20	1,500	200	50	<200
OP023	20	100	20	N	N	10	30	1,000	200	50	N
OP024	20	70	50	N	N	10	30	1,000	200	70	<200
OP025	70	150	70	N	N	20	20	700	300	50	N
OP026	150	70	50	N	N	20	30	700	300	100	200
OP027	70	100	20	N	N	30	30	1,000	300	100	N
OP028	50	20	300	N	50	10	30	500	300	70	<200
OP029	50	20	200	N	50	10	50	500	300	50	N
OP030	20	10	200	N	30	10	30	1,000	150	70	N
OP031	50	30	150	N	20	10	20	700	200	70	N
OP032	30	20	50	N	N	15	20	700	100	30	N
OP034	200	50	100	N	N	30	10	500	300	50	200
OP033	150	50	100	N	N	30	20	700	300	50	<200
OP033D	200	150	100	N	N	50	10	700	300	50	<200
OP035	70	30	200	N	<20	20	50	1,500	200	70	200
OP036	100	100	70	N	<20	50	30	700	300	100	<200
OP037	30	50	100	15	20	20	50	700	150	70	N
OP040	100	50	150	N	<20	50	50	700	200	50	N
OP038	70	50	50	N	<20	50	30	700	200	50	N
OP039	150	50	70	N	N	50	50	700	200	70	N
OP039D	100	100	70	N	N	30	20	500	300	50	N
OP041	50	20	200	N	20	20	50	1,000	200	70	N
OP042	50	100	50	N	N	10	50	500	200	30	N

TABLE 5 . ANALYTICAL RESULTS FOR THE MINUS-80-MESH STREAM-SEDIMENT SAMPLES FROM THE OWENS PEAK WILDERNESS STUDY AREA, INYO AND KERN COUNTIES, CALIFORNIA. --Continued

Sample	Latitude	Longitude	Fe-pct. s	Mg-pct. s	Ca-pct. s	Ti-pct. s	Mn-ppm s	Ag-ppm s	B-ppm s	Ba-ppm s	Be-ppm s	Co-ppm s
OP043	35 46 27	117 58 45	15	3.0	7	>1.0	1,500	N	20	1,500	N	30
OP044	35 45 51	117 57 53	15	3.0	10	>1.0	2,000	N	20	1,500	N	30
OP045	35 46 28	117 55 53	20	2.0	7	>1.0	1,500	N	20	1,000	N	30
OP046	35 47 44	117 53 49	20	7.0	10	>1.0	2,000	N	20	1,000	N	70
OP047	35 49 12	117 57 57	15	10.0	10	>1.0	3,000	1.0	30	1,000	N	30
OP048	35 49 3	117 56 4	20	3.0	5	>1.0	1,500	N	10	700	N	50
OP049	35 48 44	117 55 26	>20	5.0	7	>1.0	3,000	N	15	1,000	N	50
OP050	35 50 28	117 56 4	10	5.0	7	1.0	2,000	N	15	1,000	N	30
OP051	35 50 27	117 57 3	10	5.0	10	1.0	2,000	N	10	1,000	N	50
OP052	35 50 21	117 59 20	10	3.0	10	>1.0	2,000	N	20	1,000	N	50
OP054	35 50 16	117 59 18	15	5.0	15	1.0	2,000	N	50	1,000	N	30
OP053	35 50 16	117 59 20	15	5.0	15	>1.0	2,000	N	30	1,000	N	50
OP056	35 50 16	117 59 20	7	2.0	10	>1.0	2,000	N	20	1,000	2.0	30
OP055	35 46 40	118 2 26	7	1.5	10	1.0	3,000	N	50	1,500	<5.0	20
OP056	35 47 52	118 1 19	10	5.0	7	>1.0	2,000	N	30	1,000	<5.0	50
OP057	35 48 59	118 1 0	20	1.0	5	>1.0	1,500	N	20	1,500	<5.0	20
OP058	35 49 7	118 1 1	10	1.0	20	>1.0	1,500	N	50	1,000	<5.0	15
OP059	35 49 5	118 1 3	10	3.0	15	>1.0	1,500	N	70	1,000	N	20
OP059D	35 49 5	118 1 3	10	3.0	10	>1.0	2,000	N	100	1,000	2.0	15
OP060	35 50 19	118 1 4	15	1.5	3	>1.0	1,500	N	10	2,000	N	10
OP061	35 50 24	118 0 57	5	1.0	5	1.0	1,000	N	10	1,500	N	10
OP062	35 46 37	118 2 30	10	5.0	10	>1.0	2,000	N	30	1,500	<5.0	50

TABLE 5 . ANALYTICAL RESULTS FOR THE MINUS-80-MESH STREAM-SEDIMENT SAMPLES FROM THE OWENS PEAK WILDERNESS STUDY AREA, INYO AND KERN COUNTIES, CALIFORNIA. --Continued

Sample	Cr-ppm s	Cu-ppm s	La-ppm s	Mo-ppm s	Nb-ppm s	Ni-ppm s	Pb-ppm s	Sr-ppm s	V-ppm s	Y-ppm s	Zn-ppm s
OP043	70	30	300	N	20	30	50	1,000	300	70	<200
OP044	100	30	500	N	50	20	50	1,000	200	100	<200
OP045	100	50	150	N	<20	15	30	500	500	70	N
OP046	100	70	100	N	30	50	70	500	1,500	150	200
OP047	50	70	70	N	<20	30	50	700	300	100	N
OP048	100	70	50	10	<20	20	30	500	500	100	N
OP049	70	70	50	N	N	50	50	500	1,000	150	N
OP050	70	70	100	N	20	20	30	700	200	100	N
OP051	20	100	50	15	N	30	30	700	300	70	N
OP052	20	70	70	N	<20	10	50	1,000	200	70	N
OP054	50	70	50	N	<20	15	50	700	300	100	N
OP053	30	70	50	5	20	20	50	700	200	70	N
OP056	30	100	50	N	N	10	20	500	200	100	N
OP055	70	30	100	7	N	50	70	1,000	200	50	N
OP056	50	50	100	N	<20	20	50	700	200	50	N
OP057	30	30	150	N	20	10	50	1,000	200	50	N
OP058	20	30	100	N	<20	10	30	1,000	200	50	N
OP059	20	50	100	N	<20	10	50	1,000	200	70	N
OP059D	30	70	100	N	<20	7	50	1,000	200	50	N
OP060	20	30	200	N	N	5	50	1,000	200	30	N
OP061	10	30	150	N	<20	5	70	1,000	100	20	N
OP062	500	70	100	N	<20	150	70	500	200	50	N

TABLE 6. ANALYTICAL RESULTS FOR THE NONMAGNETIC HEAVY-MINERAL-CONCENTRATE SAMPLES FROM THE OWENS PEAK WILDERNESS STUDY AREA, INYO AND KERNS COUNTIES, CALIFORNIA.

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

Sample	Latitude	Longitude	Fe0.1%	Mg0.05%	Ca0.1%	Ti0.005%	Mn20ppm	B20ppm	Ba50ppm	Be2ppm	Bi20ppm	Cr20ppm	Cu10ppm
			%	%	%	%	%	%	%	%	%	%	%
OP001	35 44 20	118 4 19	1.0	.07	10.0	>2	700	<20	100	N	N	<20	10
OP002	35 43 23	118 3 48	1.0	.10	10.0	>2	1,000	<20	50	N	N	<20	N
OP003	35 41 21	118 2 55	1.5	.05	10.0	>2	1,000	<20	100	N	N	20	N
OP004	35 39 46	118 0 41	1.5	<.05	10.0	>2	1,000	<20	<50	N	N	<20	N
OP005	35 36 56	117 55 39	1.5	.07	10.0	>2	1,000	<20	50	N	N	20	N
OP006	35 38 6	117 54 6	3.0	.50	50.0	>2	1,000	30	50	N	70	30	<10
OP007	35 38 53	117 53 46	2.0	.10	15.0	>2	1,000	N	70	N	20	20	N
OP008	35 40 53	117 55 58	3.0	.30	15.0	>2	1,500	70	100	2	N	30	N
OP009	35 43 21	117 58 42	1.5	.20	10.0	>2	1,000	20	50	N	N	30	10
OP010	35 43 16	117 58 41	5.0	.50	50.0	>2	1,000	<20	700	N	1,000	50	200
OP011	35 42 32	117 58 24	3.0	.70	50.0	>2	1,500	30	150	N	<20	50	N
OP012	35 55 39	117 54 41	3.0	.70	20.0	>2	1,500	200	500	N	20	50	<10
OP013	35 41 13	117 58 0	1.0	.20	10.0	>2	700	<20	300	N	N	20	20
OP014	35 40 9	117 54 13	3.0	.15	30.0	>2	2,000	20	100	N	50	20	<10
OP015	35 38 59	117 57 0	2.0	.30	>50.0	>2	2,000	20	500	N	N	20	30
OP017	35 38 58	117 56 57	2.0	.50	>50.0	>2	1,500	<20	2,000	N	100	20	<10
OP016	35 38 57	117 56 58	1.0	.10	10.0	>2	1,000	<20	50	N	N	<20	N
OP016D	35 38 57	117 56 58	1.0	<.05	15.0	>2	700	<20	50	N	N	N	N
OP018	35 39 11	117 59 32	2.0	.10	20.0	>2	2,000	<20	50	N	N	N	20
OP019	35 40 50	118 1 46	2.0	.50	50.0	>2	2,000	<20	500	N	N	<20	10
OP020	35 41 33	118 0 50	1.5	.20	7.0	2	500	20	300	2	150	<20	10
OP021	35 41 14	118 0 59	1.0	.50	50.0	>2	1,000	<20	200	N	N	20	10
OP022	35 42 33	118 1 9	1.5	.20	>50.0	>2	1,000	<20	700	N	N	30	10
OP023	35 42 46	118 2 17	3.0	.50	>50.0	>2	2,000	<20	<50	N	N	<20	<10
OP024	35 43 45	118 2 44	2.0	.10	>50.0	>2	2,000	<20	200	N	N	<20	15
OP025	35 44 14	118 1 2	.5	.15	7.0	>2	500	<20	50	N	N	30	N
OP026	35 43 32	118 1 39	1.5	.20	1.5	2	500	<20	300	2	200	<20	15
OP027	35 44 44	118 2 10	1.0	.70	7.0	>2	500	<20	100	<2	N	<20	15
OP028	35 43 7	117 56 7	2.0	.10	10.0	>2	500	<20	1,500	N	N	20	N
OP029	35 42 23	117 55 7	1.0	.05	3.0	>2	500	<20	200	3	1,000	20	15
OP030	35 43 54	117 57 11	1.0	.07	10.0	>2	700	N	<50	N	N	20	N
OP031	35 44 16	117 58 0	2.0	.50	>50.0	>2	700	<20	2,000	N	N	20	50
OP032	35 45 13	117 59 0	2.0	2.00	15.0	>2	1,000	50	<50	N	N	30	N
OP034	35 45 4	117 58 56	1.5	.20	10.0	>2	500	<20	50	N	N	50	N
OP033	35 45 4	117 58 57	1.0	.10	10.0	>2	1,000	<20	100	N	N	<20	N
OP035D	35 45 4	117 58 57	.7	<.05	10.0	>2	500	<20	200	N	N	N	N
OP035	35 44 43	117 56 28	1.5	.07	10.0	>2	1,000	N	70	N	20	20	N
OP036	35 46 48	117 55 50	3.0	.70	30.0	>2	1,000	20	2,000	N	N	20	50
OP037	35 48 11	117 58 32	3.0	.50	>50.0	>2	1,000	<20	500	N	N	20	30
OP040	35 47 23	117 59 17	10.0	5.00	>50.0	>2	2,000	200	5,000	N	N	50	20
OP038	35 47 28	117 59 17	2.0	.70	10.0	>2	700	100	10,000	N	N	30	N
OP039	35 47 29	117 59 18	3.0	3.00	50.0	>2	700	200	>10,000	N	N	50	50
OP039D	35 47 29	117 59 18	.7	.20	7.0	>2	200	150	>10,000	N	N	<20	N
OP041	35 46 56	117 57 53	1.0	.10	5.0	>2	500	<20	200	2	N	<20	N
OP042	35 47 19	117 56 54	1.5	.20	2.0	2	200	<20	700	2	N	<20	15

TABLE 6. ANALYTICAL RESULTS FOR THE NONMAGNETIC HEAVY-MINERAL-CONCENTRATE SAMPLES FROM THE OWENS PEAK WILDERNESS STUDY AREA, INYO AND KERNS COUNTIES, CALIFORNIA --Continued

Sample	La50ppm s	Mo10ppm s	Nb50ppm s	Ni10ppm s	Pb20ppm s	Sn20ppm s	Sr200ppm s	V20ppm s	W100ppm s	Y20ppm s	Zr20ppm s	Th200ppm s
OP001	300	10	70	<10	N	30	200	200	N	500	>2,000	N
OP002	500	20	200	<10	N	20	<200	200	N	500	>2,000	N
OP003	300	30	300	<10	N	50	N	200	N	500	>2,000	<200
OP004	700	50	200	10	20	50	<200	300	N	700	>2,000	<200
OP005	500	15	300	<10	100	100	N	200	N	1,500	>2,000	700
OP006	2,000	15	100	10	100	200	200	200	N	2,000	2,000	500
OP007	1,500	20	300	10	20	100	200	200	<100	1,000	>2,000	500
OP008	2,000	30	150	10	N	150	200	200	<100	1,000	2,000	<200
OP009	1,000	50	200	<10	20	70	200	200	100	700	>2,000	1,000
OP010	>2,000	30	70	<10	50	150	500	300	N	1,000	>2,000	<200
OP011	>2,000	15	70	10	30	200	200	200	N	2,000	2,000	500
OP012	2,000	10	100	10	20	200	500	200	<100	1,000	>2,000	200
OP013	700	30	70	10	20	<20	500	200	N	700	>2,000	<200
OP014	1,500	30	100	10	<20	100	300	200	N	1,500	>2,000	200
OP015	1,500	30	50	<10	50	100	500	200	N	1,000	>2,000	<200
OP017	1,000	30	100	20	70	150	300	200	N	1,000	>2,000	<200
OP016	100	30	200	10	<20	50	<200	200	N	700	>2,000	200
OP016D	700	70	300	N	N	N	N	500	N	1,000	>2,000	<200
OP018	1,500	50	100	10	30	50	<200	300	N	1,500	>2,000	<200
OP019	1,000	50	70	N	30	100	1,000	300	N	1,500	>2,000	N
OP020	100	20	100	<10	20	20	500	150	200	500	>2,000	500
OP021	500	30	50	N	20	50	1,000	200	N	700	>2,000	<200
OP022	1,000	30	50	10	20	100	1,000	200	N	1,500	>2,000	N
OP023	>2,000	50	50	10	50	200	200	200	N	1,500	2,000	N
OP024	1,500	50	70	10	30	100	200	200	N	2,000	200	N
OP025	1,000	<10	70	10	N	N	200	200	N	500	>2,000	<200
OP026	100	N	100	<10	70	N	500	100	N	100	2,000	5,000
OP027	50	30	100	10	<20	N	500	100	N	300	>2,000	N
OP028	>2,000	<10	100	10	100	70	500	100	<100	500	2,000	1,000
OP029	500	N	200	10	200	50	300	150	100	500	>2,000	1,500
OP030	1,000	10	300	<10	N	70	N	200	N	500	>2,000	300
OP031	1,000	15	50	15	70	300	300	200	N	2,000	200	300
OP032	500	10	200	<10	N	70	N	300	N	700	>2,000	200
OP034	500	30	200	10	N	50	200	500	N	300	2,000	200
OP033	300	30	100	<10	N	30	300	200	N	700	>2,000	N
OP033D	500	50	150	N	N	<20	N	200	N	700	>2,000	N
OP035	1,000	30	200	10	<20	70	200	200	100	700	2,000	200
OP036	500	30	100	<10	100	200	1,000	200	<100	1,500	2,000	1,000
OP037	2,000	50	100	10	150	500	300	200	N	3,000	700	1,000
OP040	2,000	30	50	30	50	300	200	200	N	1,000	2,000	300
OP038	300	15	150	<10	<20	50	300	200	N	500	>2,000	200
OP039	500	70	70	10	30	150	2,000	200	500	1,000	>2,000	200
OP039D	300	70	200	N	N	<20	200	300	300	700	>2,000	<200
OP041	300	20	100	10	<20	50	700	100	N	200	2,000	N
OP042	50	N	100	10	20	N	500	70	500	150	>2,000	700

TABLE 6. ANALYTICAL RESULTS FOR THE NONMAGNETIC HEAVY-MINERAL-CONCENTRATE SAMPLES FROM THE OWENS PEAK WILDERNESS STUDY AREA, INYO AND KERNS COUNTIES, CALIFORNIA. --Continued

Sample	Latitude	Longitude	Fe0.1%	Mg0.05%	Ca0.1%	Ti0.005%	Mn20ppm	B20ppm	Ba50ppm	Be2ppm	Bi20ppm	Cr20ppm	Cu10ppm
			%	%	%	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm
OP043	35 46 27	117 58 45	3.0	.70	30.0	>2	2,000	<20	700	N	N	20	N
OP044	35 45 51	117 57 53	1.0	.10	15.0	>2	700	N	150	N	N	30	N
OP045	35 46 28	117 55 53	2.0	2.00	30.0	>2	1,000	20	1,000	N	>2,000	30	30
OP046	35 47 44	117 53 49	1.5	.20	5.0	2	500	<20	300	3	500	<20	50
OP047	35 49 12	117 57 57	2.0	.50	3.0	2	500	20	700	2	N	<20	15
OP048	35 49 3	117 56 4	2.0	.10	10.0	>2	500	20	<50	N	N	50	N
OP049	35 48 44	117 55 26	1.0	.20	3.0	2	500	<20	200	2	N	20	15
OP050	35 57 22	117 56 33	3.0	2.00	20.0	>2	1,000	20	200	N	50	50	<10
OP051	35 50 27	117 57 3	3.0	.20	>50.0	>2	1,000	20	500	N	N	20	15
OP052	35 50 21	117 59 20	2.0	.20	15.0	>2	700	20	200	N	N	<20	10
OP053	35 50 16	117 59 18	2.0	1.00	7.0	>2	700	70	100	N	N	30	10
OP053	35 50 16	117 59 20	2.0	1.00	>50.0	>2	700	<20	3,000	N	N	20	50
OP056	35 47 52	118 1 19	1.0	.05	7.0	>2	200	<20	200	N	N	N	<10
OP055	35 46 40	118 2 26	3.0	1.50	20.0	>2	1,500	20	200	3	N	50	N
OP056	35 47 52	118 1 19	2.0	.50	15.0	>2	700	<20	200	N	N	20	10
OP057	35 48 59	118 1 0	2.0	.50	10.0	>2	1,000	20	2,000	2	N	N	10
OP058	35 49 7	118 1 1	3.0	.50	50.0	>2	1,000	<20	700	N	N	20	30
OP059	35 49 5	118 1 3	1.0	.10	5.0	>2	300	<20	100	<2	N	<20	10
OP059D	35 49 5	118 1 3	.5	.05	10.0	>2	150	<20	100	N	N	N	N
OP060	35 50 19	118 1 4	1.5	.20	15.0	>2	500	<20	2,000	2	N	<20	N
OP061	35 50 24	118 0 57	1.5	.20	10.0	>2	500	20	2,000	2	700	N	10
OP062	35 46 37	118 2 30	3.0	1.00	10.0	>2	1,000	100	100	20	N	70	<10

TABLE 6. ANALYTICAL RESULTS FOR THE NONMAGNETIC HEAVY-MINERAL-CONCENTRATE SAMPLES FROM THE OWENS PEAK WILDERNESS STUDY AREA, INYO AND KERNS COUNTIES, CALIFORNIA. --Continued

Sample	La50ppm	Mo10ppm	Nb50ppm	Ni10ppm	Pb20ppm	Sn20ppm	Sr200ppm	V20ppm	W100ppm	Y20ppm	Zr20ppm	Th200ppm
OP043	>2,000	10	<50	N	20	100	200	500	N	2,000	>2,000	<200
OP044	1,000	10	200	10	N	70	300	200	N	500	>2,000	300
OP045	1,000	10	50	15	300	100	1,000	150	N	1,000	>2,000	500
OP046	150	20	200	10	100	50	500	100	500	500	>2,000	2,000
OP047	100	10	100	10	20	N	500	70	100	200	100	300
OP048	1,000	30	200	10	N	50	200	500	N	500	2,000	<200
OP049	200	<10	100	10	20	N	500	70	500	200	2,000	500
OP050	700	50	150	10	50	100	200	200	N	2,000	>2,000	300
OP051	500	30	70	10	50	200	1,000	200	N	2,000	1,000	200
OP052	300	50	150	10	30	100	500	200	N	1,000	2,000	500
OP054	500	50	300	10	20	70	300	300	100	1,000	>2,000	700
OP053	>2,000	50	150	20	200	200	200	200	N	1,500	150	700
OP056	300	70	700	N	N	30	N	300	N	700	1,000	1,500
OP055	1,000	10	100	15	30	150	500	300	N	500	1,500	300
OP056	1,000	20	70	<10	50	70	700	200	N	700	>2,000	200
OP057	300	10	50	10	30	50	700	100	N	500	2,000	200
OP058	1,500	30	70	10	200	300	200	200	N	2,000	500	1,500
OP059	100	10	100	<10	N	N	500	200	N	100	>2,000	N
OP059D	150	<10	50	N	N	N	300	200	N	200	>2,000	N
OP060	200	N	50	<10	50	20	1,000	70	N	700	1,000	N
OP061	1,000	30	<50	10	300	30	1,500	70	500	300	1,500	1,000
OP062	300	N	50	20	20	<20	300	100	N	100	1,000	300