UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

Chemical analyses for samples of rock, stream sediment, and nonmagnetic heavy-mineral concentrates, Dinkey Lakes Roadless Area, Fresno County, California

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Open-File Report 83-813

1983

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Studies Related to Wilderness

The Wilderness Act (Public Law 88-577, September 3, 1964) and related acts require the U.S. Geological Survey and the U.S. Bureau of Mines to survey certain areas on Federal lands 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 Dinkey Lakes Roadless Area, Forest Service Number 5244, in the Sierra National Forest, Fresno County, California. The Dinkey Lakes Roadless Area was classified as a further planning area during the Second Roadless Area Review and Evaluation (RARE II) by the U.S. Forest Service, January 1979.

INTRODUCTION

Geochemical sampling was conducted in the Dinkey Lakes Roadless Area, Fresno County, Calif. (fig. 1), during the summer of 1980. This report includes a map showing the locations of all sites sampled in this program (pl 1), a tabulation of the lower limits of determination used in the various analytical methods (table 1), and a tabulation of chemical analyses for samples of rock, minus-80-mesh (less than 0.18-mm) stream sediment, and nonmagnetic heavy-mineral concentrates from stream sediment (tables 2-4).

GEOCHEMICAL SAMPLING

Stream sediments and heavy-mineral concentrates were chosen as the primary sample medium for this study because they represent a composite of rock and soil exposed in the drainage basin upstream from the sample site. In general, two samples were collected at each sample site. One sample was sieved to minus 80 mesh (less than 0.18 mm) and the other was panned to produce a heavy-mineral concentrate.

In addition to these samples, some rock samples were taken from areas where mineralization was known to exist. The rock samples were collected to determine mineral suites and trace-element signatures related to mineralization.

Stream-sediment samples

At each sample site, sediment material was composited from active alluvium collected from several locations within an area that may extend as much as 15 meters (50 ft) from the site plotted on the map. The resulting sample was air dried and that portion passing through an 80-mesh (0.18-mm) screen was saved and pulverized for analysis.

Heavy-mineral concentrates

Material was composited in a manner similar to that discussed above for the stream sediments. The bulk sample was passed through a 2.0-mm (10-mesh) screen to remove the coarsest material. The sample passing through the screen was wet panned, air dried, and then sieved to minus-18 mesh (less than 1.00 mm). The remaining light material was removed from the concentrate by allowing the heavier fraction of the sample to settle through bromoform (specific gravity 2.86). Magnetite was then removed with a hand magnet from the heavy concentrate. The remaining heavy-mineral fraction was divided into

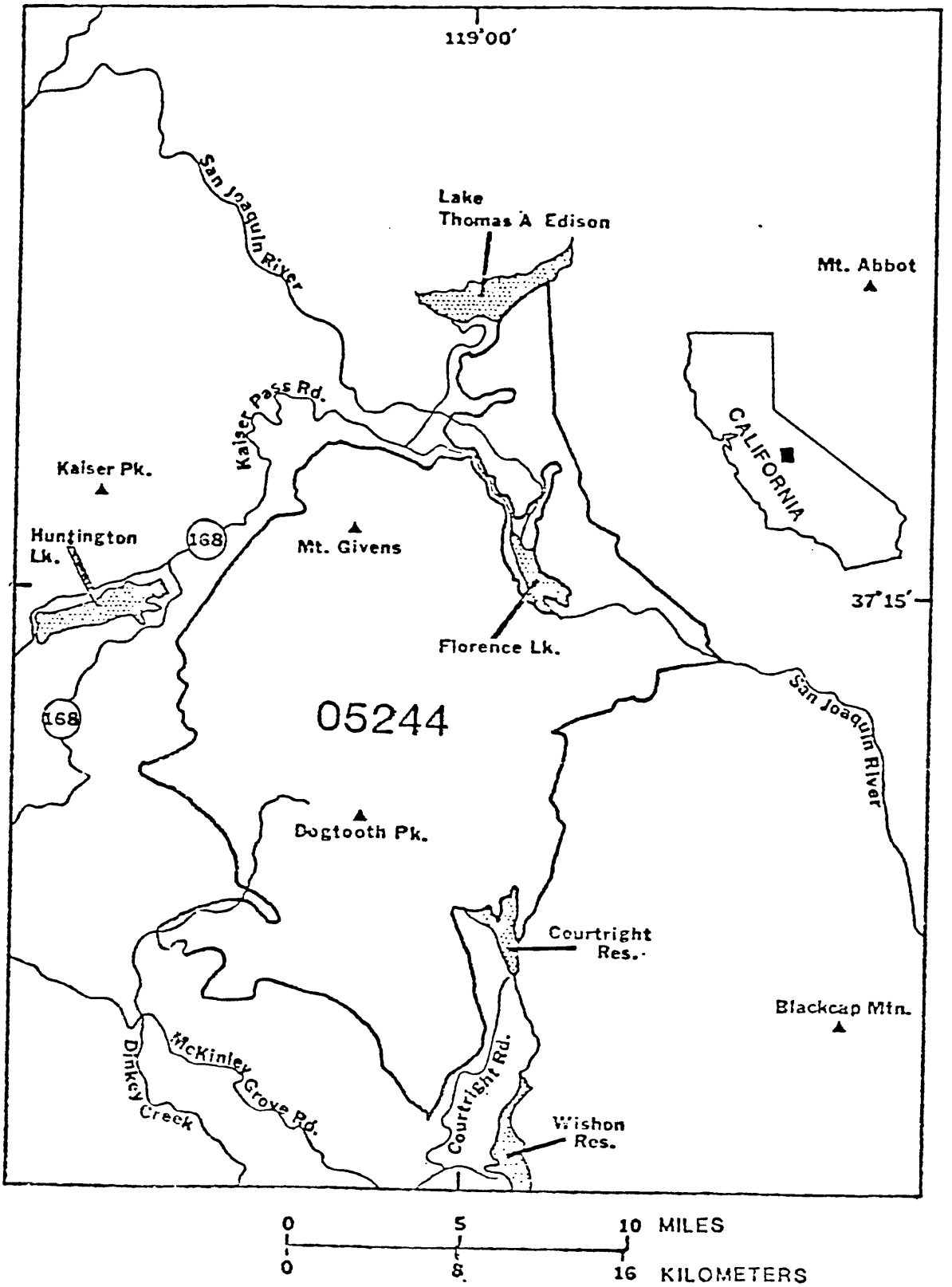

Figure 1.--Index map showing location of study area

subfractions based on magnetic susceptibility using a Frantz Isodynamic Magnetic Separator. The resulting heavy, nonmagnetic subfraction was ground by hand with an agate mortar and pestle prior to analysis.

This subfraction contains the ore-forming sulfide and oxide minerals, sulfates, tungstates, and minerals such as sphene, apatite, fluorite, and zircon. The concentrate sample gives a greatly enhanced anomaly pattern because the more common rock-forming minerals (quartz and feldspar) that tend to dilute the anomalies have been removed.

Rock samples

Table 1B contains descriptions of rocks from Dinkey Lakes Roadless Area, Fresno County, California.

All rock samples shown in table 2 were collected from the Garnet Dike (Rainbow) mine which is located in a tungsten-bearing skarn deposit. All samples were crushed and pulverized to minus 100 mesh (less than 0.15 mm) before analysis.

CHEMICAL ANALYSIS

All three types of samples were analyzed for 31 elements (Ag, As, Au, B, Ba, Be, Bi, Ca, Cd, Co, Cr, Cu, Fe, La, Mg, Mn, Mo, Nb, Ni, Pb, Sb, Sc, Sn, Sr, Th, Ti, V, W, Y, Zn, and Zr) using a six-step semiquantitative emission spectrographic method (Grimes and Marranzino, 1968). The stream sediments were also analyzed for U and Th using the delayed neutron method (Millard, 1976).

The spectrographic analytical values are reported as the approximate geometric midpoints (0.15, 0.2, 0.3, 0.5, 0.7, and 1.0 or appropriate powers of ten of these values) of concentration ranges whose respective boundaries are 0.12, 0.18, 0.26, 0.38, 0.56, 0.83, and 1.2 (or appropriate powers of ten of these values). The precision of the method is approximately plus or minus one reporting unit at the 83-percent confidence level and plus or minus two reporting units at the 96-percent confidence level (Motooka and Grimes, 1976). Values determined for the major elements (Mg, Ca, Fe, and Ti) are given in weight percent; all others are given in parts per million (micrograms/gram).

Detection limits for the spectrographic analyses are listed in table 1A. The spectrographic technique was modified for the analyses of nonmagnetic heavy-mineral concentrates because of matrix interference problems. As a result, the lower detection limits for the elements analyzed for this type of sample are all raised two reporting values above the normal lower detection limit (table 1A).

DESCRIPTION OF TABLE 2-4

Tables 2-4 list the chemical analyses for the samples of rock. Minus-80-mesh stream sediment, and nonmagnetic heavy-mineral concentrate, respectively. For the three sample sets the data are arranged so that column 1 contains the USGS assigned sample numbers. These numbers coincide with the numbers on the site location map (pl. 1). In tables 2-4, concentrates are suffixed by C; stream sediments are not suffixed.

Columns 2 and 3 list the latitudes (north) and longitudes (west) for the sample sites in degrees, minutes, and seconds. Columns in which the element heading show the letter "s" below the element symbol are emission spectrographic analyses. Columns in which the element headings are prefixed by "AC" are delayed neutron analyses.

Because of the formatting used in the computer program that produced tables 2-4, some of the elements listed in these tables (Fe, Mg, Ca, Ti, and Be) carry one or more nonsignificant zeros to the right of the significant digits. The analyst did not determine these elements to the accuracy suggested by the nonsignificant zeros.

The elements Au, Cd, and Sb were not detected spectrographically in any of the rock, stream sediment, and concentrate samples. Consequently, these elements were deleted from tables 2-4.

Analytical data for samples from the Dinkey Lakes Wilderness Study Area were entered into the USGS Rock Analysis Storage System (RASS). These data for rocks, stream sediments, and nonmagnetic heavy-mineral concentrates are listed in tables 2-4, respectively.

ACKNOWLEDGMENTS

We wish to thank the following persons who contributed to this study: Dave McKown and the members of the radioactivation project analyzed samples by the delayed neutron method; Mark Woempner, Jim Kilburn, and Dave Huston assisted in all aspects of sample preparation; and Dave Siems and Gordon Day assisted with the spectrographic analyses.

REFERENCES

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.

Millard, H. T., Jr., 1976, Determination of uranium and thorium in U.S. Geological Survey standard rocks by the delayed neutron technique: U.S. Geological Survey Professional Paper 840, p. 61-65.

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

TABLE 1A.--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 two reporting units higher than the limits given for rocks and stream sediments]

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

Table 1B. Description of rocks from Dinkey Lakes Roadless Area, Fresno County, California

Sample No.	Description
DL001R	Fe-oxide stained granite
DL002R	Tactite
DL003R	Tactite
DL004R	Tactite
DL005R	Tactite
DLR2	Granite
DLR22	Granite
DLR14A	Marble
DLR146	Marble

Table 2. Analytical data for rocks from the Dinkey Lakes Roadless Area, Fresno County, California.

[The following qualifiers are used in reporting analytical data: --, no determination made; N, element not detected; <, detected but present at a concentration less than the value reported; and >, element present at a concentration greater than the upper detection limit.]

Sample	Latitude	Longitude	Fe-pct. s	Mg-pct. s	Ca-pct. s	Ti-pct. s	Mn-ppm s	Ag-ppm s	As-ppm s	B-ppm s	Ba-ppm s	Be-ppm s
DL001R	37 17 4	118 56 50	.50	.2	.2	.100	200	N	N	<10	700	2
DL002R	37 6 51	119 4 54	5.00	.7	10.0	.100	1,500	.7	N	10	N	7
DL003R	37 6 51	119 4 54	3.00	2.0	20.0	.030	5,000	N	N	10	N	1
DL004R	37 6 51	119 4 54	5.00	2.0	20.0	.030	5,000	1.0	N	20	N	10
DL005R	37 6 51	119 4 54	15.00	3.0	20.0	.015	5,000	5.0	N	50	N	20
DLR2	37 21 0	118 57 30	5.00	.5	2.0	.700	1,500	1.0	N	50	500	1
DLR22	37 21 0	118 57 30	.50	.1	.1	.070	100	.7	N	20	1,000	2
DLR14A	37 9 0	119 6 12	.15	2.0	20.0	.015	150	1.5	N	N	<20	N
DLR146	37 9 0	119 6 12	.10	.7	15.0	.007	50	1.5	N	N	<20	N

Sample	Bi-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	Sc-ppm s	Sn-ppm s	Sr-ppm s	V-ppm s
DL001R	N	N	N	20	20	5	N	N	20	N	N	100	10
DL002R	20	5	N	300	N	N	N	N	20	5	100	700	200
DL003R	N	15	N	20	N	N	N	20	10	N	30	150	20
DL004R	20	15	50	200	N	N	N	5	30	7	100	700	200
DL005R	N	200	70	1,500	N	N	N	30	20	15	N	100	70
DLR2	<10	10	50	30	<20	N	<20	7	50	20	N	500	200
DLR22	N	N	<10	<5	70	N	<20	<5	15	<5	N	<100	<10
DLR14A	N	N	<10	5	N	N	N	<5	15	N	N	500	<10
DLR146	N	N	<10	<5	N	N	N	<5	10	<5	N	500	<10

Sample	W-ppm s	Y-ppm s	Zn-ppm s	Zr-ppm s
DL001R	N	N	N	100
DL002R	50	30	N	20
DL003R	<50	<10	500	10
DL004R	N	30	<200	30
DL005R	N	<10	300	100
DLR2	N	30	<200	70
DLR22	N	15	N	100
DLR14A	N	10	N	N
DLR146	N	10	N	N

Table 3. Analytical data for stream sediments from the Dinkey Lakes Roadless Area, Fresno County, California.

[The following qualifiers are used in reporting analytical data: --, no determination made; N, element not detected; <, detected but present at a concentration less than the value reported; and >, element present at a concentration greater than the upper detection limit.]

Sample	Latitude	Longitude	Fe-pct. s	Mg-pct. s	Ca-pct. s	Ti-pct. s	Mn-ppm s	B-ppm s	Ba-ppm s	Be-ppm s	Co-ppm s	Cr-ppm s	Cu-ppm s
DL001	37 18 22	119 56 53	3.0	.20	.7	.20	500	15	700	2.0	5	10	5
DL002	37 17 47	119 58 58	5.0	1.00	1.0	.70	700	20	500	2.0	15	20	7
DL003	37 18 23	119 1 2	7.0	1.00	1.5	.70	1,000	15	500	1.5	15	50	20
DL004	37 21 19	119 59 28	5.0	.30	1.0	.50	700	20	700	2.0	10	30	20
DL005	37 18 36	119 1 36	5.0	.70	1.0	.50	1,000	20	500	2.0	15	50	15
DL006	37 18 51	119 2 27	3.0	1.00	1.0	.70	1,000	20	700	1.5	10	20	5
DL007	37 18 58	119 4 7	7.0	1.00	1.0	.50	1,000	10	500	1.5	15	100	7
DL008 [1/]	37 18 40	119 58 27	3.0	1.00	1.0	.70	1,500	20	700	2.0	10	30	15
DL009	37 18 36	119 58 30	5.0	1.50	1.5	.70	1,000	20	500	1.5	20	30	10
DL010	37 18 46	119 58 26	10.0	.50	1.0	.70	1,500	10	700	1.5	15	50	10
DL011 [2/]	37 8 43	119 6 1	5.0	.50	2.0	.30	2,000	50	500	2.0	10	50	10
DL012	37 8 40	119 5 57	2.0	.70	1.0	.30	1,000	20	700	2.0	10	20	5
DL013 [3/]	37 8 48	119 5 55	7.0	1.00	3.0	.20	2,000	30	300	2.0	15	50	7
DL014	37 13 44	119 8 38	3.0	.70	1.5	.70	1,000	20	700	1.5	10	15	<5
DL015	37 13 40	119 8 40	1.5	.20	1.0	.30	500	15	1,000	1.5	5	15	N
DL016	37 7 19	119 1 46	2.0	.20	1.0	.50	700	20	700	3.0	7	15	<5
DL017	37 7 13	119 1 43	2.0	.20	1.0	.50	700	20	1,000	2.0	7	10	N
DL018	37 4 12	119 2 11	5.0	.50	1.0	.50	700	15	700	2.0	10	20	5
DL019	37 4 9	119 2 5	2.0	.30	1.0	.50	700	20	500	2.0	7	10	<5
DL021	37 12 23	118 59 15	2.0	1.00	1.5	.50	1,000	20	300	2.0	10	10	7
DL022	37 11 28	119 0 59	2.0	.50	1.5	1.00	700	10	500	1.5	7	10	5
DL023	37 3 34	119 0 23	3.0	.70	1.0	1.00	1,500	20	700	1.5	0	10	<5
DL024	37 3 31	119 0 27	1.5	.20	.7	.70	700	30	700	2.0	7	10	<5
DL025	37 2 38	119 0 46	2.0	.30	1.0	.50	700	30	700	2.0	7	10	<5
DL026	37 2 15	119 0 8	2.0	.30	1.0	.50	1,000	50	700	2.0	7	15	<5
DL027	37 7 20	119 0 24	2.0	.20	1.0	.70	1,000	20	700	2.0	5	10	N
DL028	37 7 11	119 0 35	2.0	.20	1.0	.50	700	30	700	2.0	7	10	<5
DL029	37 7 15	119 0 38	2.0	.20	1.0	.50	500	30	700	2.0	7	10	N
DL030	37 5 43	119 3 7	1.5	.50	1.0	.50	700	50	700	2.0	7	15	5
DL031	37 18 53	119 58 17	7.0	.30	1.0	.70	1,500	20	700	1.5	10	15	7
DL033	37 13 53	118 57 0	7.0	1.00	3.0	.70	1,000	20	500	1.5	20	50	7
DL035	37 14 43	118 54 24	10.0	.50	1.0	.70	1,000	20	700	1.5	15	20	5
DL036	37 10 17	118 57 39	2.0	.20	1.0	.70	500	20	500	1.5	15	15	<5
DL037	37 10 18	118 57 32	2.0	.30	1.0	.70	500	20	500	2.0	15	10	10
DL038	37 10 21	118 57 30	3.0	1.00	1.5	.70	700	15	500	2.0	20	15	5
DL039	37 7 59	118 57 53	1.5	.50	1.0	.70	500	15	700	2.0	15	10	5
DL040	37 14 11	119 3 42	2.0	1.00	2.0	.50	700	10	500	1.0	15	20	5
DL041	37 11 32	119 3 30	1.0	.50	2.0	.30	300	10	700	1.0	5	N	5
DL042	37 11 14	119 3 24	2.0	.30	2.0	.70	5,000	10	700	1.0	5	20	5
DL043	37 11 17	119 3 16	3.0	.30	2.0	.70	1,000	10	700	1.0	5	20	10
DL044	37 10 5	119 2 8	1.0	.30	1.0	.20	1,000	<10	500	2.0	5	10	5
DL045	37 10 8	119 2 7	3.0	.50	1.0	.50	1,500	10	500	1.0	10	10	10
DL047 [4/]	37 14 5	118 56 1	3.0	1.00	2.0	.70	1,000	15	700	1.0	15	50	10
DL048	37 7 22	118 58 43	10.0	.15	.7	1.00	5,000	20	300	N	15	70	30
DL049	37 13 59	119 2 42	2.0	.70	2.0	.50	1,000	10	700	1.0	15	20	10

See footnotes at end of table.

Table 3. Analytical data for stream sediments from the Dinkey Lakes Roadless Area, Fresno County, California. (continued)

Sample	La-ppm s	Mo-ppm s	Nb-ppm s	Ni-ppm s	Pb-ppm s	Sc-ppm s	Sn-ppm s	Sr-ppm s	V-ppm s	Y-ppm s	Zr-ppm s	Th-ppm s	AC-TH	AC-U
DL001	30	N	<20	<5	20	7	N	200	100	20	150	N	33.4	8.85
DL002	30	N	20	5	30	20	N	300	150	50	700	<100	134.0	30.30
DL003	50	N	30	5	50	30	10	300	200	100	1,000	100	258.0	49.50
DL004	50	5	20	7	50	7	N	300	200	30	200	N	28.9	8.60
DL005	50	N	<20	10	100	15	N	200	200	50	500	N	128.0	51.20
DL006	30	N	20	7	50	20	N	200	150	70	1,000	N	95.0	21.70
DL007	50	N	20	5	50	20	N	200	300	70	>1,000	200	177.0	41.90
DL008	100	10	20	10	50	15	N	200	150	70	300	N	50.5	23.50
DL009	50	N	20	7	50	30	N	200	200	70	700	100	207.0	33.10
DL010	100	N	30	5	20	15	N	200	300	100	700	<100	146.0	29.60
DL011	50	N	20	15	50	10	20	100	70	70	150	N	27.5	9.01
DL012	70	N	<20	10	30	10	N	150	70	30	150	N	22.3	6.37
DL013	50	5	<20	15	20	10	50	100	100	30	200	N	22.6	9.32
DL014	50	7	20	5	50	15	N	300	150	50	300	<100	88.1	19.00
DL015	30	N	<20	5	50	7	N	500	50	20	100	N	15.4	4.70
DL016	50	N	20	<5	50	10	<10	200	70	30	500	N	33.6	9.42
DL017	50	<5	20	<5	50	7	<10	500	50	20	150	N	26.0	8.95
DL018	70	N	20	5	30	10	N	300	100	50	700	N	74.5	24.00
DL019	30	N	<20	<5	30	10	N	200	70	30	150	N	33.6	18.70
DL021	50	N	<20	7	30	15	N	500	100	20	200	N	64.0	10.10
DL022	100	5	30	5	30	10	10	300	100	50	150	N	88.8	19.80
DL023	70	N	50	5	30	15	N	300	150	70	1,000	N	93.3	35.70
DL024	100	N	20	5	50	5	N	300	50	30	200	N	47.7	12.80
DL025	70	N	20	5	50	10	N	300	70	30	100	N	35.6	14.10
DL026	50	N	20	5	70	10	N	200	70	30	200	N	48.2	14.00
DL027	150	N	20	<5	30	10	N	200	100	50	500	N	48.7	11.90
DL028	50	N	20	5	50	5	N	300	100	20	150	N	29.0	9.81
DL029	50	N	20	5	50	5	N	300	70	20	150	N	24.4	8.86
DL030	30	7	<20	5	50	7	N	200	50	20	100	N	13.0	11.00
DL031	70	5	30	5	20	10	N	150	200	50	700	N	68.0	14.70
DL033	70	N	20	7	30	30	N	200	200	70	1,000	N	175.0	49.10
DL035	70	5	20	5	15	15	N	200	200	50	700	N	97.3	22.50
DL036	50	N	20	<5	20	7	N	300	100	30	150	N	67.3	22.00
DL037	50	5	20	<5	30	7	N	300	100	30	200	100	82.2	23.50
DL038	50	5	20	5	20	15	N	300	150	50	300	N	45.7	15.80
DL039	30	5	<20	5	30	10	N	300	70	20	70	N	27.0	12.30
DL040	20	N	20	<5	30	20	N	300	100	50	200	N	42.6	10.60
DL041	20	N	N	<5	50	10	N	500	50	30	100	N	18.3	6.04
DL042	50	N	30	N	30	20	N	300	70	150	500	N	85.7	19.40
DL043	50	N	30	N	50	10	N	500	100	70	500	N	162.0	30.60
DL044	20	N	<20	N	30	10	N	200	50	30	150	N	14.9	8.92
DL045	20	N	<20	N	50	15	N	200	100	50	200	N	38.3	10.30
DL047	30	10	<20	N	30	20	N	300	150	70	1,000	N	293.0	52.50
DL048	100	N	50	N	20	15	N	200	200	150	1,000	150	338.0	89.30
DL049	20	N	<20	N	30	15	N	300	100	30	500	N	103.0	21.70

See footnotes at end of table.

Table 3. Analytical data for stream sediments from the Dinkey Lakes Roadless Area, Fresno County, California. (continued)

Sample	Latitude	Longitude	Fe-pct. s	Mg-pct. s	Ca-pct. s	Ti-pct. s	Mn-ppm s	B-ppm s	Ba-ppm s	Be-ppm s	Co-ppm s	Cr-ppm s	Cu-ppm s
DL051	37 12 3	119 2 19	1.5	.50	2.0	.50	700	10	700	1.0	5	N	5
DL052	37 11 59	119 2 22	1.0	.50	2.0	.30	700	10	700	1.0	5	10	5
DL053	37 8 41	118 59 52	2.0	.20	1.0	.70	1,000	10	700	2.0	5	10	10
DL054	37 8 58	119 0 38	2.0	.20	1.0	.50	700	10	700	2.0	5	N	10
DL055	37 8 47	119 0 8	1.5	.30	1.0	.20	700	10	700	1.0	5	10	5
DL056	37 10 38	119 7 6	2.0	.50	1.0	.50	1,500	10	700	1.0	5	10	5
DL057	37 10 42	119 7 8	1.0	.30	1.0	.50	700	10	1,000	1.0	5	30	5
DL058	37 13 28	119 4 24	2.0	.70	2.0	.50	700	10	700	1.0	7	20	5
DL061	37 9 8	119 0 51	1.0	.30	2.0	.70	1,500	10	700	1.0	5	10	5
DL062	37 9 6	119 0 56	5.0	.30	1.0	.70	5,000	10	500	N	10	20	15
DL063	37 8 9	119 4 22	2.0	.20	1.0	.30	700	10	700	2.0	N	10	5
DL064	37 13 57	119 6 30	2.0	.50	1.0	.30	700	10	700	1.0	5	10	5
DL067	37 13 43	119 6 20	2.0	.20	1.0	.70	700	10	700	1.0	5	10	5
DL068	37 13 48	119 6 19	2.0	.70	2.0	.50	700	10	700	1.0	10	15	5
DL069	37 5 24	119 7 52	2.0	.30	1.0	.20	1,000	10	500	3.0	5	10	5
DL073	37 15 50	119 6 26	2.0	.50	2.0	.50	700	10	700	1.0	7 10	10 30	5 10
DL074	37 15 57	119 6 19	3.0	.70	2.0	.50	700	10	500	1.0	N	50	5
DL082	37 13 14	119 7 57	1.0	.20	2.0	.70	700	10	700	1.0	10	20	5
DL083	37 4 11	119 4 8	5.0	.50	2.0	.70	2,000	10	700	1.0	10	20	5
DL084	37 4 5	119 4 8	3.0	.70	2.0	.50	1,000	10	700	1.0			
DL087	37 4 20	119 6 10	2.0	1.00	2.0	.50	1,500	10	500	2.0	10	30	5
DL091	37 6 5	119 3 30	2.0	.50	1.0	.20	700	10	700	1.0	5	10	7
DL092	37 6 8	119 3 28	1.5	.50	1.0	.20	300	20	700	1.0	5	50	10
DL093	37 6 11	119 3 39	1.5	.30	1.0	.30	700	10	700	1.0	5	N	5
DL094[5/]	37 6 30	119 4 54	3.0	1.00	2.0	.30	1,000	10	500	2.0	10	30	70
DL095	37 6 24	119 4 50	1.0	.30	1.0	.20	500	10	700	2.0	5	10	10
DL096	37 6 40	119 5 42	2.0	.10	1.0	.50	1,000	15	700	2.0	15	30	15
DL097[6/]	37 6 35	119 5 44	3.0	.50	3.0	.70	1,000	15	700	1.0	10	30	15
DL098	37 7 30	119 6 9	5.0	.30	2.0	.70	1,500	30	700	1.0	10	70	10
DL099	37 7 35	119 6 18	2.0	.30	1.0	.50	2,000	20	700	2.0	5	20	7
DL100	37 6 59	119 7 33	1.0	.10	.2	.15	1,000	10	200	2.0	N	10	5
DL101	37 7 3	119 7 30	2.0	.30	1.0	.50	700	10	700	1.0	5	20	5
DL102	37 13 59	118 53 3	3.0	1.00	2.0	.50	1,000	20	700	1.0	10	30	10

See footnotes at end of table.

Table 3. Analytical data for stream sediments from the Dinkey Lakes Roadless Area, Fresno County, California. (continued)

Sample	La-ppm s	Mo-ppm s	Nb-ppm s	Ni-ppm s	Pb-ppm s	Sc-ppm s	Sn-ppm s	Sr-ppm s	V-ppm s	Y-ppm s	Zr-ppm s	Th-ppm s	AC-TH	AC-U
DL051	20	N	20	N	30	15	N	300	50	50	200	N	44.9	15.50
DL052	20	N	<20	N	30	15	N	500	50	30	500	N	57.0	12.90
DL053	100	N	30	N	50	5	N	300	50	50	500	N	173.0	27.10
DL054	70	30	20	N	30	5	N	300	50	30	150	N	76.1	52.80
DL055	30	5	N	N	50	5	N	300	50	20	150	N	54.1	40.50
DL056	50	N	20	N	50	15	N	300	50	30	200	N	33.1	10.30
DL057	50	N	20	<5	30	5	N	500	50	30	150	N	22.3	6.09
DL058	30	N	20	N	50	15	N	300	100	50	200	N	104.0	20.00
DL061	70	N	30	N	50	10	N	500	50	30	200	N	103.0	60.20
DL062	70	N	70	N	30	15	N	150	100	150	700	N	245.0	89.50
DL063	150	N	20	N	20	20	15	200	50	100	700	N	89.9	15.90
DL064	30	N	<20	N	20	10	N	300	70	30	200	N	41.4	9.62
DL067	70	N	20	N	15	7	N	300	70	100	200	N	66.4	13.60
DL068	30	N	<20	N	20	15	N	500	70	50	200	N	40.7	10.40
DL069	50	N	20	N	20	10	10	200	30	50	200	N	42.2	13.50
DL073	30	N	<20	N	20	15	N	300	70	30	200	N	35.2	8.08
DL074	30	N	<20	N	15	15	N	300	150	30	500	N	82.6	15.40
DL082	50	N	20	N	20	5	N	500	30	30	150	N	41.1	9.15
DL083	70	N	20	N	15	50	15	200	70	150	1,000	N	68.1	15.40
DL084	70	N	<20	N	20	30	10	200	70	70	1,000	N	36.4	10.60
DL087	70	N	<20	N	20	20	N	200	100	70	500	N	55.3	14.00
DL091	20	N	<20	N	70	10	N	300	50	20	150	N	26.7	11.40
DL092	50	7	<20	5	70	10	N	200	50	20	100	N	30.5	12.60
DL093	50	N	20	N	30	15	N	200	50	50	200	N	36.7	9.19
DL094	<20	N	N	5	30	10	30	200	100	20	100	N	17.4	7.91
DL095	20	N	N	<5	50	10	N	300	50	20	100	N	11.0	4.75
DL096	30	N	N	5	50	10	N	200	50	20	150	N	16.5	5.71
DL097	20	N	<20	N	50	15	N	500	100	50	200	N	48.9	11.30
DL098	150	N	30	N	30	15	10	200	100	100	500	N	158.0	33.30
DL099	50	N	20	5	20	10	N	150	50	30	150	N	32.8	11.80
DL100	50	N	N	<5	30	5	N	100	30	50	100	N	37.2	9.36
DL101	20	N	N	<5	30	5	N	200	50	30	150	N	23.7	6.61
DL102	20	N	N	N	50	15	N	300	150	30	200	N	46.0	18.80

Footnotes

1/ Contains 50 ppm W, less than 200 ppm Zn.

2/ Contains less than 50 ppm W, less than 200 ppm Zn.

3/ Contains 50 ppm W, 200 ppm Zn.

4/ Contains 50 ppm W.

5/ Contains 10 ppm Bi, 50 ppm W.

6/ Contains less than 50 ppm W.

Table 4. Analytical data for heavy-mineral concentrates from the Oinkey Lakes Roadless Area, Fresno County, California.

[The following qualifiers are used in reporting analytical data: --, no determination made; N, element not detected; <, detected but present at a concentration less than the value reported; and >, element present at a concentration greater than the upper detection limit.]

Sample	Latitude	Longitude	Fe-pct. s	Mg-pct. s	Ca-pct. s	Ti-pct. s	Mn-ppm s	Ag-ppm s	As-ppm s	B-ppm s	Ba-ppm s	Be-ppm s	Bi-ppm s	Co-ppm s
DL001C	37 18 22	119 56 53	.20	.15	7.0	>2.0	1,500	N	N	<20	200	N	N	20
DL002C	37 17 47	119 58 58	.20	.05	7.0	>2.0	700	N	N	<20	100	N	N	20
DL003C	37 18 23	119 1 2	.15	<.05	5.0	>2.0	500	N	N	<20	100	N	N	15
DL004C	37 21 19	119 59 28	.15	.05	7.0	>2.0	700	N	N	150	100	N	N	20
DL005C	37 18 36	119 1 36	.20	.05	7.0	>2.0	700	N	N	20	50	N	N	15
DL006C	37 18 51	119 2 27	.30	<.05	7.0	>2.0	500	N	N	20	50	N	N	20
DL007C	37 18 58	119 4 7	.15	.05	7.0	>2.0	500	N	N	<20	50	N	N	15
DL008C	37 18 40	119 58 27	.20	.07	7.0	>2.0	700	N	N	20	50	N	N	15
DL009C	37 18 36	119 58 30	.15	<.05	7.0	>2.0	500	N	N	<20	50	N	N	15
DL010C	37 18 46	119 58 26	.20	.05	7.0	>2.0	700	N	N	20	50	N	N	20
DL011C	37 8 43	119 6 1	2.00	2.00	3.0	1.5	500	N	N	100	50	3	N	15
DL012C	37 8 40	119 5 57	2.00	2.00	10.0	2.0	1,000	3	N	150	200	7	20	10
DL013C	37 8 48	119 5 55	2.00	2.00	10.0	1.0	1,500	10	N	150	50	10	100	10
DL014C	37 13 44	119 8 38	.30	.05	7.0	>2.0	700	N	N	20	N	N	N	20
DL015C	37 13 40	119 8 40	.50	.10	7.0	>2.0	700	N	N	20	50	N	N	20
DL016C	37 7 19	119 1 46	.50	.05	7.0	>2.0	700	N	N	20	50	N	N	20
DL017C	37 7 13	119 1 43	.30	.05	5.0	>2.0	500	N	N	20	50	N	N	20
DL018C	37 4 12	119 2 11	.50	.05	7.0	>2.0	500	N	N	20	100	N	N	20
DL019C	37 4 9	119 2 5	.70	.07	7.0	>2.0	500	N	N	20	70	N	N	20
DL020C	37 3 10	119 1 57	.30	.05	7.0	>2.0	500	N	N	70	50	N	N	15
DL021C	37 12 23	118 59 15	.50	.05	7.0	>2.0	700	N	N	20	50	N	N	20
DL022C	37 11 28	119 0 59	.50	.05	7.0	>2.0	700	N	N	30	70	N	N	20
DL023C	37 3 34	119 0 23	.50	.05	7.0	>2.0	700	N	N	20	50	N	N	20
DL024C	37 3 31	119 0 27	.50	.05	10.0	>2.0	700	N	N	30	50	N	N	15
DL025C	37 2 38	119 0 46	.30	.05	7.0	>2.0	500	N	N	50	50	N	N	15
DL026C	37 2 15	119 0 8	.50	<.05	10.0	>2.0	700	N	N	20	50	N	N	20
DL027C	37 7 20	119 0 24	.30	.05	7.0	>2.0	500	N	N	<20	50	N	N	20
DL028C	37 7 11	119 0 35	.50	<.05	10.0	>2.0	500	N	N	20	50	N	N	20
DL029C	37 7 15	119 0 38	.30	.05	10.0	>2.0	500	N	N	<20	50	N	N	15
DL030C	37 5 43	119 3 7	.50	.50	7.0	>2.0	300	N	N	70	100	N	N	15
DL031C	37 18 53	119 58 17	.30	.07	10.0	>2.0	700	N	N	20	50	N	70	20
DL032C	37 14 6	118 56 8	.50	.10	7.0	>2.0	200	N	N	20	70	N	N	20
DL033C	37 13 53	118 57 0	.15	<.05	5.0	>2.0	300	N	N	<20	50	N	<20	10
DL034C	37 13 49	118 56 57	.20	<.05	7.0	>2.0	300	N	N	<20	50	N	20	20
DL035C	37 14 43	118 54 24	.30	.10	5.0	>2.0	700	N	N	30	<50	N	N	20
DL036C	37 10 17	118 57 39	.30	.05	7.0	>2.0	700	N	N	20	<50	N	N	20
DL037C	37 10 18	118 57 32	.50	<.05	7.0	>2.0	700	N	N	20	50	N	N	20
DL038C	37 10 21	118 57 30	.20	<.05	7.0	>2.0	700	N	N	20	<50	N	N	20
DL039C	37 7 59	118 57 53	.50	.05	7.0	>2.0	700	N	N	20	<50	N	N	20
DL040C	37 14 11	119 3 42	.20	<.05	7.0	>2.0	500	N	N	20	50	N	N	10
DL041C	37 11 32	119 3 30	.30	.10	7.0	>2.0	700	N	N	50	50	N	N	15
DL042C	37 11 14	119 3 24	.20	<.05	7.0	>2.0	700	N	N	<20	70	N	N	15
DL043C	37 11 17	119 3 16	.30	<.05	7.0	>2.0	700	N	N	20	50	N	N	20
DL044C	37 10 5	119 2 8	.20	.05	7.0	>2.0	700	N	N	20	50	N	N	20
DL045C	37 10 8	119 2 7	.20	.10	7.0	>2.0	700	N	N	20	50	N	N	20

Table 4. Analytical data for heavy-mineral concentrates from the Dinkey Lakes Roadless Area, Fresno County, California. (continued)

Sample	Cr-ppm s	Cu-ppm s	La-ppm s	Mo-ppm s	Nb-ppm s	Ni-ppm s	Pb-ppm s	Sc-ppm s	Sn-ppm s	Sr-ppm s	V-ppm s	W-ppm s	Y-ppm s	Zr-ppm s	Th-ppm s
DL001C	20	30	700	30	150	10	100	30	150	N	200	N	1,500	1,500	700
DL002C	50	N	700	30	100	N	20	10	100	N	300	N	1,500	1,500	500
DL003C	30	N	700	30	150	<10	20	10	100	N	300	N	1,000	300	N
DL004C	20	500	1,000	30	150	<10	500	10	70	N	300	<100	700	2,000	500
DL005C	30	<10	1,000	20	70	<10	30	10	100	N	200	N	1,000	2,000	300
DL006C	50	50	1,000	50	100	<10	30	15	100	N	300	N	1,500	>2,000	500
DL007C	30	10	1,000	30	100	<10	30	10	100	N	200	N	1,000	>2,000	<200
DL008C	30	<10	1,000	30	70	10	30	20	100	N	200	<100	1,000	1,000	200
DL009C	30	N	700	30	150	<10	30	<10	100	N	200	N	1,000	1,000	<200
DL010C	20	N	1,000	30	100	<10	50	10	100	N	200	<100	1,000	1,500	300
DL011C	300	20	200	20	<50	20	30	N	N	200	150	300	200	>2,000	N
DL012C	100	10	300	15	50	15	30	10	50	200	150	300	300	>2,000	<200
DL013C	50	<10	300	20	N	10	30	N	30	<200	70	500	100	1,500	N
DL014C	30	N	1,000	30	150	N	30	10	150	N	500	N	1,500	1,000	<200
DL015C	70	10	700	30	100	<10	20	15	100	N	300	N	1,500	300	N
DL016C	20	10	700	30	100	<10	30	10	150	N	300	N	1,500	2,000	N
DL017C	20	N	500	30	100	N	30	10	100	N	200	N	2,000	1,000	N
DL018C	30	N	700	30	150	<10	20	20	100	N	300	N	2,000	>2,000	N
DL019C	50	N	700	50	200	<10	20	20	200	N	300	N	2,000	>2,000	N
DL020C	50	N	700	20	100	<10	30	10	100	N	300	N	1,000	2,000	200
DL021C	50	N	1,000	30	70	<10	20	20	100	N	300	N	1,000	200	N
DL022C	30	<10	1,000	30	150	<10	30	20	150	N	300	N	1,500	300	N
DL023C	20	N	700	20	100	<10	30	10	150	N	200	N	1,500	700	N
DL024C	30	N	700	30	200	<10	50	10	150	N	200	N	2,000	500	N
DL025C	20	N	500	30	200	<10	50	10	150	N	200	N	1,500	2,000	N
DL026C	30	N	300	30	200	<10	50	10	200	N	300	N	1,000	700	N
DL027C	30	N	500	30	200	10	20	15	100	N	200	N	1,500	2,000	<200
DL028C	20	N	500	30	100	<10	30	10	100	N	200	N	1,500	150	N
DL029C	20	N	500	30	150	10	30	10	150	N	200	N	1,500	200	N
DL030C	70	10	300	20	70	10	50	10	100	<200	200	N	1,500	2,000	N
DL031C	20	15	700	20	100	<10	30	30	100	N	200	N	1,500	>2,000	300
DL032C	30	<10	500	30	100	<10	30	15	70	N	500	<100	1,500	>2,000	N
DL033C	20	N	500	20	200	<10	30	10	100	N	200	N	1,000	500	N
DL034C	30	N	500	30	100	<10	20	20	100	N	300	N	1,500	1,500	<200
DL035C	20	<10	1,000	30	150	<10	20	30	100	N	200	N	1,500	>2,000	500
DL036C	20	N	1,000	50	150	10	30	15	70	N	300	150	1,000	700	500
DL037C	20	N	1,500	50	100	<10	20	10	100	N	300	N	1,000	500	N
DL038C	30	N	700	50	100	<10	30	10	100	N	300	<100	1,000	2,000	N
DL039C	20	N	1,000	50	100	<10	30	10	70	N	300	N	1,000	1,500	500
DL040C	30	N	500	50	200	<10	20	10	100	N	300	N	1,500	300	<200
DL041C	30	N	500	30	150	<10	<20	10	100	<200	200	N	1,000	1,500	200
DL042C	20	N	700	30	150	10	<20	15	100	N	200	N	1,500	1,500	N
DL043C	20	N	1,000	30	200	<10	20	15	100	N	300	N	1,500	500	<200
DL044C	20	N	700	30	150	10	20	15	70	N	200	N	1,500	>2,000	<200
DL045C	20	N	700	50	150	<10	50	20	70	N	300	N	1,500	>2,000	200

Table 4. Analytical data for heavy-mineral concentrates from the Dinkey Lakes Roadless Area, Fresno County, California. (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	B-ppm s	Ba-ppm s	Be-ppm s	Bi-ppm s	Co-ppm s
DL046C	37 18 58	119 57 44	.20	.15	7.0	>2.0	1,000	N	N	20	100	N	N	15
DL047C	37 14 5	118 56 1	.20	.07	7.0	>2.0	700	N	N	20	<50	N	N	20
DL048C	37 7 22	118 58 43	.20	.05	7.0	>2.0	1,000	N	N	30	50	N	N	20
DL049C	37 13 59	119 2 42	.20	.05	7.0	>2.0	700	N	N	<20	50	N	N	15
DL050C	37 13 53	119 2 43	.20	.05	7.0	>2.0	500	N	N	50	50	N	N	20
DL051C	37 12 3	119 2 19	.20	.07	7.0	>2.0	500	N	N	70	50	N	N	20
DL052C	37 11 59	119 2 22	.20	.07	7.0	>2.0	500	N	N	20	200	N	N	20
DL053C	37 8 41	118 59 52	.20	<.05	7.0	>2.0	700	N	N	50	50	N	N	20
DL054C	37 8 58	119 0 38	.15	<.05	10.0	>2.0	700	N	N	20	50	N	N	20
DL055C	37 8 47	119 0 8	.30	.05	5.0	>2.0	500	5	1,500	30	200	N	N	15
DL056C	37 10 38	119 7 6	.20	<.05	7.0	>2.0	500	1	N	20	100	N	N	20
DL057C	37 10 42	119 7 8	.30	.05	7.0	>2.0	500	N	N	30	<50	N	N	20
DL058C	37 13 28	119 4 24	.20	<.05	7.0	>2.0	500	N	N	20	<50	N	N	15
DL059C	37 13 3	119 4 28	.20	<.05	7.0	>2.0	700	N	N	30	<50	N	N	20
DL060C	37 13 2	119 4 22	.20	<.05	10.0	>2.0	700	N	N	20	<50	N	N	20
DL061C	37 9 8	119 0 51	.20	<.05	10.0	>2.0	700	N	N	<20	<50	N	N	20
DL062C	37 9 6	119 0 56	.15	<.05	7.0	>2.0	700	N	N	20	<50	N	N	20
DL063C	37 8 9	119 4 22	.50	.15	7.0	>2.0	700	N	N	30	100	2	N	15
DL064C	37 13 57	119 6 30	.20	<.05	7.0	>2.0	700	N	N	20	<50	N	N	20
DL065C	37 9 46	119 5 22	.30	.07	3.0	>2.0	700	N	N	20	200	N	N	10
DL066C	37 9 40	119 5 24	1.00	.15	7.0	>2.0	3,000	N	N	50	300	5	20	20
DL067C	37 13 43	119 6 20	.50	.05	10.0	>2.0	500	N	N	20	50	N	N	20
DL068C	37 13 48	119 6 19	.50	.10	10.0	>2.0	700	N	N	20	50	N	N	20
DL069C	37 5 24	119 7 52	1.50	.20	1.5	1.5	700	N	N	300	50	7	100	10
DL070C	37 5 17	119 7 50	.70	.10	5.0	1.5	1,000	N	<500	30	100	3	N	10
DL071C	37 10 59	119 9 12	.30	.05	7.0	>2.0	700	N	N	20	<50	N	N	15
DL072C	37 10 55	119 9 9	.50	.07	10.0	>2.0	700	N	N	20	<50	N	N	20
DL073C	37 15 50	119 6 26	.30	.05	10.0	>2.0	700	N	N	20	50	N	N	20
DL074C	37 15 57	119 6 19	.20	.07	5.0	>2.0	500	N	N	20	<50	N	50	20
DL075C	37 16 42	118 57 50	.30	.07	5.0	>2.0	500	N	N	20	<50	N	N	20
DL076C	37 9 32	119 5 6	.70	.20	5.0	>2.0	1,500	N	N	30	100	N	N	15
DL077C	37 9 48	119 3 51	1.00	.05	3.0	>2.0	1,500	N	N	20	50	N	N	10
DL078C	37 9 19	119 4 8	.50	.10	7.0	>2.0	700	N	N	100	200	N	N	15
DL079C	37 9 8	119 3 57	.50	.15	5.0	>2.0	700	N	N	100	200	2	100	10
DL080C	37 4 47	119 8 19	2.00	.15	2.0	>2.0	500	N	N	200	200	10	1,000	20
DL081C	37 13 13	119 8 4	.50	.05	7.0	>2.0	500	N	N	<20	50	N	N	20
DL082C	37 13 14	119 7 57	.50	.20	7.0	>2.0	500	N	N	20	50	N	N	20
DL083C	37 4 11	119 4 8	.50	<.05	5.0	>2.0	300	N	N	30	50	N	N	10
DL084C	37 4 5	119 4 8	.70	.07	5.0	>2.0	500	N	N	50	100	<2	30	15
DL085C	37 5 3	119 5 3	.70	.30	5.0	>2.0	500	N	N	30	100	20	N	10
DL086C	37 4 19	119 6 55	.50	.05	3.0	>2.0	200	N	N	50	200	N	N	15
DL087C	37 4 20	119 6 10	.70	.07	3.0	>2.0	300	N	N	50	100	N	N	15
DL088C	37 7 48	119 8 20	1.50	.20	.7	2.0	500	N	N	150	50	N	N	15
DL089C	37 7 50	119 8 8	1.50	.30	1.0	2.0	500	N	N	100	100	N	N	15
DL090C	37 6 34	119 8 48	1.50	.50	5.0	>2.0	700	N	N	200	200	2	N	20

Table 4. Analytical data for heavy-mineral concentrates from the Dinkey Lakes Roadless Area, Fresno County, California. (continued)

Sample	Cr-ppm s	Cu-ppm s	La-ppm s	Mo-ppm s	Nb-ppm s	Ni-ppm s	Pb-ppm s	Sc-ppm s	Sn-ppm s	Sr-ppm s	V-ppm s	W-ppm s	Y-ppm s	Zr-ppm s	Th-ppm s
DL046C	20	N	500	30	150	<10	<20	10	100	N	200	100	1,000	1,500	N
DL047C	50	N	700	50	150	<10	30	10	100	N	300	N	1,500	2,000	300
DL048C	30	N	1,000	50	150	<10	50	15	100	N	200	N	1,500	2,000	700
DL049C	50	N	700	30	150	<10	30	10	100	N	300	N	1,500	1,500	N
DL050C	30	N	500	30	100	<10	30	<10	100	N	300	N	1,000	>2,000	200
DL051C	20	N	500	50	200	<10	30	10	150	N	300	N	2,000	2,000	200
DL052C	20	<10	500	30	150	<10	20	<10	100	N	200	N	1,500	>2,000	<200
DL053C	20	10	700	30	150	<10	30	30	100	<200	200	100	1,000	2,000	700
DL054C	20	N	700	30	200	<10	30	20	70	<200	200	N	1,000	2,000	1,000
DL055C	<20	<10	500	30	150	<10	1,000	<10	150	200	150	N	500	2,000	200
DL056C	20	N	700	50	100	<10	200	10	70	N	200	N	700	1,500	N
DL057C	50	N	1,000	30	100	10	100	15	70	N	200	N	1,000	300	N
DL058C	30	N	1,000	50	100	10	150	10	150	N	200	N	1,000	2,000	300
DL059C	30	N	1,000	50	100	<10	20	15	100	N	300	N	1,000	500	200
DL060C	30	<10	1,000	30	100	<10	20	10	100	N	200	N	1,000	1,500	N
DL061C	20	N	1,000	20	100	<10	20	15	100	N	200	N	1,000	1,000	500
DL062C	20	N	1,000	50	150	10	20	10	100	N	300	N	1,000	200	500
DL063C	70	N	300	10	100	10	300	20	100	<200	200	<100	1,000	>2,000	500
DL064C	30	N	700	50	150	10	30	10	150	N	300	N	1,000	1,500	N
DL065C	30	10	500	10	70	15	50	10	<20	<200	150	N	300	>2,000	<200
DL066C	50	10	>2,000	N	N	<10	100	70	50	<200	200	N	2,000	>2,000	500
DL067C	50	N	1,500	50	100	<10	50	10	100	N	300	N	1,500	1,000	N
DL068C	30	<10	1,000	50	100	<10	20	10	150	N	300	N	1,500	1,500	<200
DL069C	500	15	500	N	50	15	<20	<10	30	N	200	100	500	>2,000	<200
DL070C	70	10	700	N	50	10	200	<10	20	<200	100	N	700	>2,000	200
DL071C	30	N	700	30	150	<10	20	15	150	N	200	N	1,000	300	N
DL072C	30	N	700	50	150	<10	20	10	150	N	300	N	1,000	1,500	N
DL073C	20	N	500	50	150	<10	30	10	100	N	300	N	1,000	1,000	N
DL074C	20	N	700	50	100	<10	20	15	100	N	300	N	1,000	>2,000	300
DL075C	20	N	1,000	50	150	<10	20	20	100	N	300	100	1,000	>2,000	300
DL076C	50	<10	1,000	20	100	10	70	20	70	<200	200	100	1,000	>2,000	500
DL077C	20	N	500	15	200	<10	50	30	30	N	70	N	700	>2,000	300
DL078C	30	N	1,500	20	70	<10	50	30	50	<200	200	N	1,000	>2,000	200
DL079C	20	N	1,500	300	70	<10	30	30	50	<200	150	N	1,000	>2,000	500
DL080C	200	10	500	20	70	50	200	20	30	<200	300	<100	500	>2,000	200
DL081C	70	N	700	30	150	20	30	20	100	N	300	N	1,000	500	N
DL082C	150	N	1,000	50	150	30	20	10	70	N	300	N	1,000	700	N
DL083C	50	<10	300	N	100	20	20	20	100	N	150	N	1,000	>2,000	N
DL084C	100	70	300	20	70	20	50	10	100	<200	200	200	1,000	>2,000	N
DL085C	50	<10	700	20	200	15	30	10	100	<200	200	N	1,000	>2,000	<200
DL086C	100	<10	300	20	100	15	50	15	70	<200	300	N	700	>2,000	700
DL087C	200	N	700	N	70	20	30	10	50	<200	300	N	700	>2,000	N
DL088C	500	10	200	N	70	30	20	30	20	N	200	N	200	>2,000	N
DL089C	500	20	200	10	100	50	20	10	20	<200	200	N	200	>2,000	N
DL090C	200	10	200	30	150	20	70	10	50	<200	200	500	1,000	>2,000	200

Table 4. Analytical data for heavy-mineral concentrates from the Dinkey Lakes Roadless Area, Fresno County, California. (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	B-ppm s	Ba-ppm s	Be-ppm s	Bi-ppm s	Co-ppm s
DL091C	37 6 5	119 3 30	.50	.15	7.0	>2.0	500	N	N	20	50	N	N	20
DL092C	37 6 8	119 3 28	.50	.10	7.0	>2.0	700	N	N	20	50	N	N	20
DL093C	37 6 11	119 3 39	.50	.10	7.0	>2.0	500	N	N	30	50	N	N	20
DL094C	37 6 30	119 4 54	1.00	.50	10.0	>2.0	700	N	N	50	50	5	<20	20
DL095C	37 6 24	119 4 50	.50	.20	7.0	>2.0	700	N	N	30	50	N	N	20
DL096C	37 6 40	119 5 42	2.00	.50	10.0	>2.0	1,000	N	N	150	150	5	N	15
DL097C	37 6 35	119 5 44	.70	.15	5.0	>2.0	700	N	N	20	50	N	N	20
DL098C	37 7 30	119 6 9	3.00	.50	10.0	2.0	1,500	N	N	200	100	7	N	20
DL099C	37 7 35	119 6 18	2.00	1.00	7.0	1.5	1,000	N	N	150	1,000	3	N	15
DL100C	37 6 59	119 7 33	2.00	.07	.3	1.0	700	N	N	200	150	10	N	10
DL101C	37 7 3	119 7 30	1.50	1.00	10.0	>2.0	700	N	N	200	700	3	N	15
DL102C	37 13 59	119 53 3	.50	.10	10.0	>2.0	500	N	N	50	50	N	N	20

Sample	Cr-ppm s	Cu-ppm s	La-ppm s	Mo-ppm s	Nb-ppm s	Ni-ppm s	Pb-ppm s	Sc-ppm s	Sn-ppm s	Sr-ppm s	V-ppm s	W-ppm s	Y-ppm s	Zr-ppm s	Th-ppm s
DL091C	20	N	500	50	300	10	30	10	100	<200	300	N	1,500	1,500	N
DL092C	20	N	500	100	200	10	30	10	150	<200	200	1,000	1,500	1,000	N
DL093C	30	N	500	70	700	10	30	15	200	N	300	N	2,000	1,500	N
DL094C	50	700	300	200	100	15	300	10	70	200	200	5,000	1,000	>2,000	N
DL095C	30	N	500	50	500	15	30	10	150	<200	300	N	1,500	1,000	N
DL096C	70	<10	200	30	150	20	30	10	50	300	200	300	700	2,000	<200
DL097C	20	10	500	30	200	10	20	15	100	<200	300	100	1,500	1,000	N
DL098C	100	<10	100	20	100	20	30	15	50	200	100	700	500	>2,000	700
DL099C	200	<10	200	30	50	20	<20	10	20	200	150	2,000	100	1,500	200
DL100C	150	<10	200	N	70	15	30	10	20	N	100	N	150	>2,000	<200
DL101C	150	<10	500	20	200	15	20	20	70	200	200	300	1,000	>2,000	<200
DL102C	20	N	700	50	150	10	30	20	70	N	500	300	1,000	>2,000	200