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Analytical results and sample locality map for stream-sediment and panned-concentrate samples from the Lime Canyon and Million Hills Wilderness Study Areas, Clark County, Nevada

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 geochemical surveys of the Lime Canyon (NV-050-231) and Million Hills (NV-050-233) Wilderness Study Areas, Clark County, Nevada.

INTRODUCTION

In April 1987, the U.S. Geological Survey conducted reconnaissance geochemical surveys of the Lime Canyon and Million Hills Wilderness Study Areas, Clark County, Nevada. The Lime Canyon and Million Hills Wilderness Study Areas are, respectively, about 45 and 60 mi east of Las Vegas, Nevada (fig. 1). The wilderness study areas are north of Lake Mead and between the Overton Arm of Lake Mead on the west and the Arizona state line on the east.

The Lime Canyon Wilderness Study Area comprises 34,680 acres (54 mi^2) and the Million Hills Wilderness Study Area comprises 9,599 acres (15 mi^2). Access to the wilderness study areas is from Interstate 15 near Mesquite, Nevada, by way of Nevada Route 170 and then over paved, gravel, and dirt roads. The north, east, and south boundaries of the Lime Canyon Wilderness Study Area can generally be reached by dirt roads; the west boundary is generally inaccessible by vehicle. The boundary of Million Hills Wilderness Study Area can be reached by vehicle only on the road that follows Garden Wash; elsewhere around Million Hills Wilderness Study Area, roads are from one-half to several miles away.

Elevations range from about 1,500 ft to about 4,400 ft in the Lime Canyon Wilderness Study Area and from about 1,800 ft to about 4,700 ft in the Million Hills Wilderness Study Area. Vegetation in both wilderness study areas is predominately desert shrubs, creosote, cacti, and yucca. Joshua trees are present in parts of the Lime Canyon Wilderness Study Area. Topography of the two wilderness study areas is similar. Both areas have major north-south-trending ridges with outwash plains sloping toward Lake Mead or toward the stream valleys that are tributary to Lake Mead. In the Lime Canyon Wilderness Study Area, the dominant north-south ridge is Lime Ridge and the outwash plain slopes to the west. In the Million Hills Wilderness Study Area, the dominant ridge is Azure Ridge and the outwash plain slopes east.

Longwell and others (1965) described the geology of Clark County. More recently, geology of the Las Vegas 1° x 2° quadrangle (Bohannon, 1978) and the state of Nevada (Stewart and Carlson, 1978) were compiled; both compilations include the wilderness study areas. A major structural feature near the wilderness study areas is the Gold Butte fault. The two wilderness study areas are on either side of the northeast-trending fault and are separated by about 10 mi along the surface trace of the fault. The Lime Canyon Wilderness Study Area is north of the Gold Butte fault and is west of the Million Hills Wilderness Study Area, which is mostly south of the fault. Bohannon (1979) presents evidence that the Gold Butte fault is a left-lateral strike-slip fault with an offset of about 6 mi.

Geology of the two wilderness study areas is quite similar. Precambrian metamorphic rocks underlie relatively small parts of both areas but the

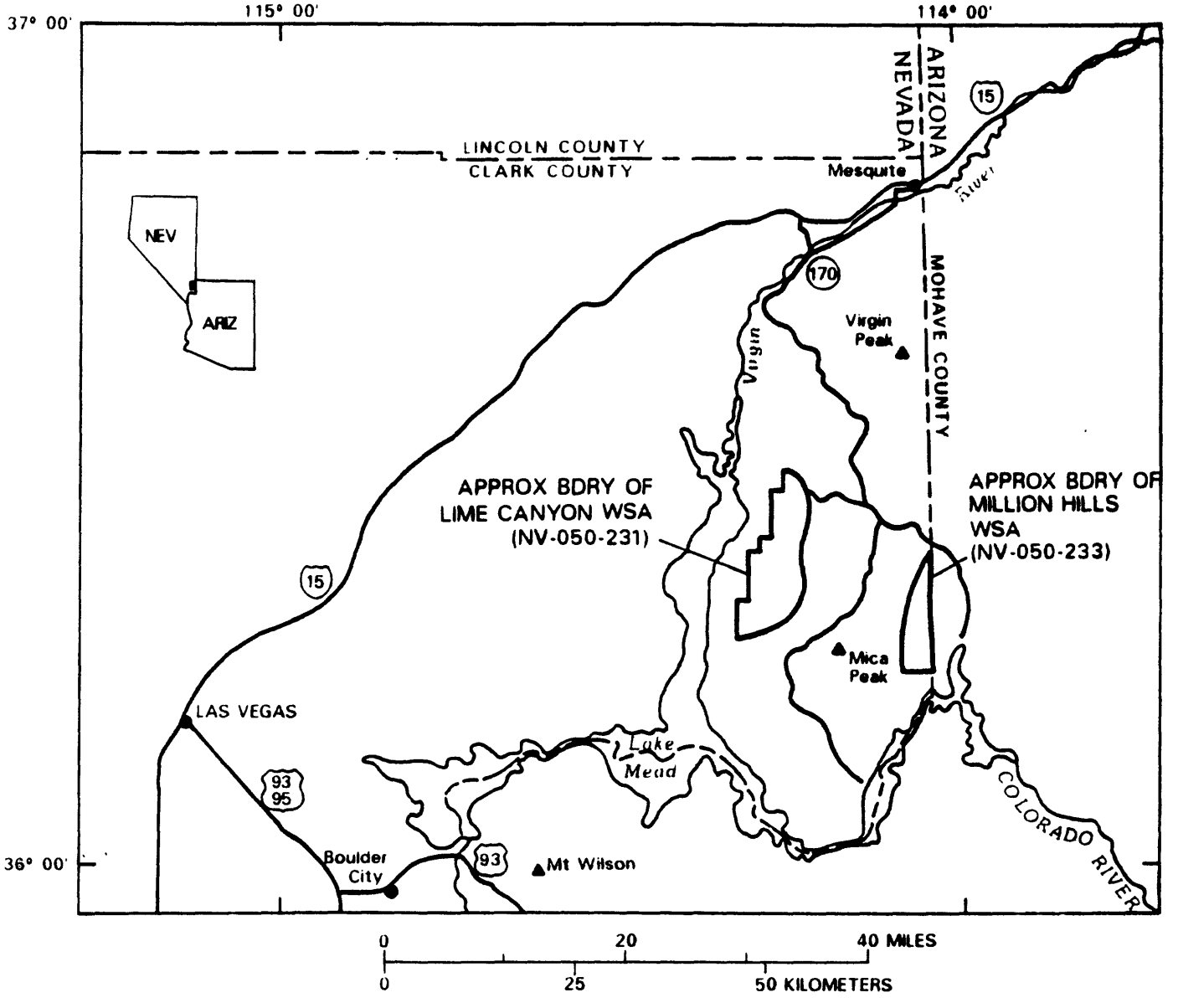

Figure 1. Index map of the Lime Canyon and Million Hills Wilderness Study Areas, Clark County, Nevada.

wilderness study areas are on the margins of extensive areas of these rocks. The major north-south-trending ridges are composed mostly of Paleozoic carbonate rocks. Paleozoic or Mesozoic sandstones and shales also underlie extensive parts of both areas. Tertiary volcanic rocks are present in both areas and Quaternary gravels blanket the outwash plains.

Mineral deposits of Clark County were described by Longwell and others (1965). The Lime Canyon Wilderness Study Area is within the Gold Butte mining district. Mineral deposits and mining activity within and near the Lime Canyon Wilderness Study Area are described by Winters (1988); occurrences within 2 mi include minor concentrations of gold, silver, copper, lead, and zinc in bedrock and dumps, minor placer gold, patented gypsum claims, and numerous uranium exploration trenches.

The Million Hills Wilderness Study Area is on the east edge of the Gold Butte mining district. Causey (1988) describes mines, prospects, and mineralized areas in and within 0.5 mi of the wilderness study area. The Azure Ridge mine produced several carloads of zinc or copper ore and probably a few thousands of pounds of lead. The Azure Ridge mine is in Cambrian(?) dolomite. Causey (1988) found higher-than-expected cobalt concentrations (as high as 471 ppm) in brecciated dolomite at the mine. Manganese-rich layers in Quaternary alluvium about one-half mile west-northwest of site 151 (plate 1) contain as much as 6,100 ppm cobalt, 1,700 ppm nickel, 1,900 ppm lead, 3,700 ppm zinc, 500 ppm copper, 100 ppm molybdenum, and 80 ppm thallium (Causey, 1988); the bedrock source of these concentrations is unknown.

METHODS OF STUDY

Sample Media

Analyses of 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. Panned-concentrate samples derived from stream sediment 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.

Sample Collection and Preparation

Stream-sediment and panned-concentrate samples were collected at 60 sites in and near the Lime Canyon Wilderness Study Area and 28 sites in and near the Million Hills Wilderness Study Area (plate 1). Sampling density was about one sample site per 0.9 mi^2 in the Lime Canyon Wilderness Study Area and one sample site per 0.5 mi^2 in the Million Hills Wilderness Study Area. The area of the drainage basins sampled ranged from about 0.1 mi^2 to about 3 mi^2.

Two types of panned-concentrate samples were collected at each site. One is termed a "nonmagnetic heavy-mineral-concentrate sample" and the other a "raw panned-concentrate sample."

Samples were collected by Janet L. Jones, Steven M. Smith, and Gary A. Nowlan.

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 (plate 1). 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 pulverized to approximately minus 100-mesh (0.15-mm) for analysis.

Nonmagnetic heavy-mineral-concentrate samples

Active alluvium was screened with a 2.0-mm (10-mesh) screen to obtain about 20 lb of sample after removal of the coarse material. The samples were then panned to remove most of the quartz, feldspar, carbonate rock material, organic material, and clay-sized material. The resulting concentrate samples weighed an estimated 0.5-3 oz.

After the samples were oven dried at 90 °C, bromoform (specific gravity 2.8) was used to remove the remaining quartz, feldspar, and other light minerals. The resultant heavy-mineral sample was separated into three fractions using a large electromagnet (in this case a modified Frantz Isodynamic Separator). The most magnetic material, primarily magnetite, was not analyzed. The second fraction, largely ferromagnesian silicates and iron oxides, was saved for archival storage. The third fraction (the least magnetic material, which may include the nonmagnetic ore minerals, zircon, sphene, etc.) was split using a Jones splitter. One split was hand ground for spectrographic analysis; the other split was saved for mineralogical analysis. These magnetic separates are the same separates that would be produced by using a Frantz Isodynamic Separator set at a slope of 15° and a tilt of 10° with a current of 0.2 ampere to remove the magnetite and ilmenite, and a current of 0.6 ampere to split the remainder of the sample into paramagnetic and nonmagnetic fractions.

Raw panned-concentrate samples

Active alluvium was screened, panned, and dried in the same manner as the nonmagnetic heavy-mineral-concentrate samples. However, in each case, the entire raw panned-concentrate sample was weighed and analyzed for gold (Au) without further treatment.

Sample Analysis

Spectrographic method

The stream-sediment samples were analyzed for 31 elements and the nonmagnetic heavy-mineral-concentrate samples for 37 elements using a semiquantitative, direct-current arc emission spectrographic method (Grimes and Marranzino, 1968). The elements analyzed and their limits of determination are listed in tables 1 and 2. Spectrographic results were obtained by visual comparison of spectra derived from the sample against spectra obtained from standards made from pure oxides and carbonates. Standard concentrations are geometrically spaced over any given order of magnitude of concentration as follows: 100, 50, 20, 10, and so forth. Samples whose concentrations are estimated to fall between those values are assigned values of 70, 30, 15, and so forth. The precision of the analytical

method is approximately plus or minus one reporting interval at the 83 percent confidence level and plus or minus two reporting intervals at the 96 percent confidence level (Motooka and Grimes, 1976). Emission spectrographic analyses were performed by John H. Bullock, Jr.

Other methods

Stream-sediment samples were also analyzed by inductively coupled plasma-atomic emission spectroscopy (ICP) and ultraviolet fluorimetry. The samples were analyzed for arsenic (As), antimony (Sb), bismuth (Bi), cadmium (Cd), and zinc (Zn) using ICP and for uranium (U) using ultraviolet fluorimetry. Stream-sediment and raw panned-concentrate samples were analyzed for gold (Au) by atomic absorption spectroscopy (AA). Limits of determination, precision, and references for the methods are included in table 3. Analysts were Paul H. Briggs, John B. McHugh, and Theodore A. Roemer.

Analytical results for stream-sediment, nonmagnetic heavy-mineral-concentrate, and raw panned-concentrate samples are listed in tables 4, 5, and 6, respectively.

DATA STORAGE SYSTEM

Upon completion of the analytical work, the results were entered into a U.S. Geological Survey computer data base called PLUTO. 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, VanTrump and Miesch, 1977) for computerized statistical analysis or publication.

DESCRIPTION OF DATA TABLES

The numeric part of each sample identification in tables 4-6 is the same as the corresponding sampling-site number on plate 1. A letter "N" in the tables indicates that a given element was looked for but not detected at the lower limit of determination shown for that element in tables 1 and 2. For emission spectrographic analyses, a "less than" symbol (<) entered in the tables indicates that an element was observed but was below the lowest reporting value. For AA and ICP analyses, a "less than" symbol (<) entered in the tables indicates that an element was below the lowest reporting value. If an element was above the highest reporting value, a "greater than" symbol (>) was entered in the tables. Because of the formatting used in the computer program that produced tables 4-6, some of the elements listed in these tables (Ca, Fe, Mg, P, Ti, and Be) carry one or more nonsignificant digits to the right of the significant digits.

Some elements were not detected in any sample by emission spectrography and are omitted from tables 4-5. These elements are As, Au, Bi, Cd, Mo, Sb, Th, and W in stream-sediment samples and As, Au, Cd, Ge, Sb, Pd, and Pt in nonmagnetic heavy-mineral-concentrate samples. Concentrations of Bi and Sb, as determined by ICP, are all less than the lower limits of determination and thus are omitted from table 4.

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

Elements	Lower determination limit	Upper determination limit
	Weight percent	
Calcium (Ca)	0.05	20
Iron (Fe)	0.05	20
Magnesium (Mg)	0.02	10
Titanium (Ti)	0.002	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
Manganese (Mn)	10	5,000
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)	50	10,000
Yttrium (Y)	10	2,000
Zinc (Zn)	200	10,000
Zirconium (Zr)	10	1,000

TABLE 2.--Limits of determination for the spectrographic analysis of nonmagnetic heavy-mineral-concentrate samples, based on a 5-mg sample

Elements	Lower determination limit	Upper determination limit
	Percent	
Calcium (Ca)	0.1	50
Iron (Fe)	0.1	50
Magnesium (Mg)	0.05	20
Sodium (Na)	0.5	10
Phosphorus (P)	0.5	20
Titanium (Ti)	0.005	2
	Parts per million	
Silver (Ag)	1	10,000
Arsenic (As)	500	20,000
Gold (Au)	20	1,000
Boron (B)	20	5,000
Barium (Ba)	50	10,000
Beryllium (Be)	2	2,000
Bismuth (Bi)	20	2,000
Cadmium (Cd)	50	1,000
Cobalt (Co)	20	5,000
Chromium (Cr)	20	10,000
Copper (Cu)	10	50,000
Gallium (Ga)	10	1,000
Germanium (Ge)	20	200
Lanthanum (La)	100	2,000
Manganese (Mn)	20	10,000
Molybdenum (Mo)	10	5,000
Niobium (Nb)	50	5,000
Nickel (Ni)	10	10,000
Lead (Pb)	20	50,000
Antimony (Sb)	200	20,000
Scandium (Sc)	10	200
Tin (Sn)	20	2,000
Strontium (Sr)	200	10,000
Thorium (Th)	200	5,000
Vanadium (V)	20	20,000
Tungsten (W)	50	20,000
Yttrium (Y)	20	5,000
Zinc (Zn)	500	20,000
Zirconium (Zr)	20	2,000
Palladium (Pd)	5	1,000
Platinum (Pt)	20	1,000

TABLE 3.--Analytical methods used other than emission spectrography

[AAF, flame atomic absorption; AAG, graphite furnace atomic absorption; F, ultraviolet fluorimetry; ICP, inductively coupled plasma-atomic emission spectroscopy]

Element determined	Sample type	Method	Lower determination limit, ppm	Precision, percent relative standard deviation	References
Arsenic (As)	stream sediment	ICP	5	3.5-20	Crock and others, 1987.
Antimony (Sb)	stream sediment	ICP	2	6.4-11	
Bismuth (Bi)	stream sediment	ICP	2	2.2-11.9	
Cadmium (Cd)	stream sediment	ICP	0.1	2.8-8.8	
Zinc (Zn)	stream sediment	ICP	2	1.4-11.9	
Uranium (U)	stream sediment	F	0.1	6.9-14.2	Centanni and others, 1956; O'Leary and Meier, 1986.
Gold (Au)	stream sediment	AAG	0.001	3.7-21.1	Meier, 1980; O'Leary and Meier, 1986.
Gold (Au)	raw panned concentrate	AAF	0.05*	9.3-42.5	Thompson and others, 1968; O'Leary and Meier, 1986.

*Based on 10-g sample

TABLE 4.--Results of analyses of stream-sediment samples from the Lime Canyon and Million Hills Wilderness Study Areas, Clark County, Nevada

[N, not detected; <, detected below concentration shown for emission spectrographic analyses, less than concentration shown for other methods; >, greater than concentration shown. Methods: Au-a, graphite furnace atomic absorption spectroscopy; As-i, Cd-i, Zn-i, inductively coupled plasma-atomic emission spectroscopy; U-f, ultraviolet fluorimetry; others, emission spectrography. Concentrations in ppm except Ca, Fe, Mg, and Ti, which are weight percent]

Sample	Latitude	Longitude	Ca	Fe	Mg	Ti	Ag	B	Ba	Be	Co	Cr	Cu	La
						Lime Canyon								
LIM033	36 15 58	114 16 8	2.0	3.00	3.0	.70	N	30	500	1.5	30	100	50	70
LIM034	36 16 4	114 16 34	.7	5.00	1.5	1.00	N	70	700	2.0	50	50	50	100
LIM035	36 16 25	114 17 7	1.5	3.00	5.0	.70	N	50	700	2.0	20	100	70	70
LIM036	36 16 48	114 18 39	2.0	5.00	2.0	1.00	N	50	700	1.5	20	70	50	150
LIM037	36 17 25	114 20 8	1.5	5.00	2.0	1.00	N	50	500	1.5	20	70	50	100
LIM038	36 17 28	114 20 7	1.5	5.00	1.5	1.00	N	50	500	2.0	20	70	30	70
LIM039	36 18 0	114 19 36	2.0	3.00	2.0	.70	N	50	700	1.5	30	70	30	70
LIM040	36 18 11	114 18 44	2.0	3.00	5.0	.50	N	30	700	2.0	15	50	30	70
LIM041	36 17 11	114 19 23	1.5	3.00	1.5	.50	N	30	700	2.0	15	70	30	100
LIM042	36 16 50	114 20 27	1.0	3.00	1.0	.70	N	10	500	1.5	15	50	20	70
LIM043	36 16 23	114 20 0	1.5	3.00	1.0	.70	N	20	700	2.0	20	50	20	70
LIM101	36 17 54	114 13 13	1.5	3.00	1.5	.50	N	10	300	3.0	20	50	20	30
LIM102	36 18 24	114 14 8	3.0	5.00	5.0	.30	N	20	500	3.0	10	20	20	70
LIM103	36 18 25	114 14 13	2.0	1.00	1.0	.20	N	30	300	N	N	30	10	20
LIM104	36 20 51	114 14 12	2.0	2.00	3.0	.20	N	70	300	1.0	15	20	30	<20
LIM105	36 20 50	114 14 16	2.0	1.00	1.5	.20	N	50	500	<1.0	5	10	10	20
LIM106	36 21 30	114 14 33	1.5	.70	1.0	.15	N	50	300	<1.0	<5	15	20	N
LIM107	36 21 53	114 14 18	2.0	.70	1.0	.15	N	50	300	N	<5	20	15	<20
LIM108	36 22 20	114 14 24	2.0	1.00	.7	.20	N	30	300	N	5	15	10	<20
LIM109	36 23 7	114 14 4	2.0	1.50	1.0	.30	N	30	700	<1.0	10	30	20	30
LIM110	36 23 50	114 13 53	2.0	1.50	1.0	.30	N	50	500	1.0	5	30	15	30
LIM111	36 24 13	114 13 44	2.0	2.00	.7	.30	N	20	500	1.5	5	30	15	20
LIM112	36 24 50	114 13 56	3.0	2.00	2.0	.20	N	30	300	<1.0	7	<10	20	<20
LIM113	36 25 54	114 13 46	2.0	1.50	1.0	.20	N	50	500	<1.0	<5	10	10	20
LIM114	36 26 45	114 14 15	1.5	2.00	1.5	.15	N	50	1,000	1.5	10	20	30	20
LIM115	36 26 53	114 16 1	2.0	3.00	2.0	.50	N	70	700	1.5	15	20	30	30
LIM116	36 26 28	114 16 50	3.0	2.00	5.0	.15	N	100	500	1.5	5	10	30	20
LIM117	36 26 3	114 16 39	1.0	.50	.7	.10	N	50	1,000	N	N	N	5	N
LIM118	36 25 30	114 16 24	2.0	.70	1.0	.10	N	50	700	<1.0	N	50	7	N
LIM119	36 25 2	114 16 22	1.5	.30	1.0	.07	N	30	500	N	N	N	<5	N
LIM120	36 24 27	114 17 19	2.0	2.00	2.0	.70	N	50	500	<1.0	5	20	20	30
LIM121	36 23 7	114 17 26	3.0	1.50	3.0	.20	N	30	500	<1.0	5	10	15	20
LIM122	36 22 38	114 17 5	2.0	1.00	5.0	.10	N	30	300	N	<5	<10	10	N
LIM123	36 22 6	114 18 20	2.0	2.00	3.0	.20	N	50	1,500	1.0	15	10	30	20
LIM124	36 22 10	114 17 45	2.0	.50	2.0	.10	N	50	300	N	N	10	5	<20
LIM125	36 22 33	114 18 3	3.0	.70	5.0	.10	N	20	200	N	<5	10	10	<20
LIM126	36 21 41	114 18 17	1.0	.50	.7	.10	N	30	500	N	N	<10	<5	N
LIM127	36 21 47	114 18 47	2.0	3.00	3.0	.50	N	50	500	<1.0	10	30	20	20
LIM128	36 20 39	114 19 11	3.0	2.00	5.0	.20	N	70	300	<1.0	<5	20	7	30
LIM129	36 19 38	114 18 31	2.0	1.00	2.0	.20	N	70	700	<1.0	<5	30	10	20

TABLE 4.--Results of analyses of stream-sediment samples from the Lime Canyon and Million Hills Wilderness Study Areas, Clark County, Nevada--Continued

Sample	Mn	Nb	Ni	Pb	Sc	Sn	Sr	V	Y	Zn	Zr	As-i	Cd-i	Zn-i	Au-a	U-f
							Lime Canyon--Continued									
LIM033	1,000	<20	200	20	20	<10	150	100	50	<200	300	6	1.5	60	.001	1.30
LIM034	700	<20	50	50	20	10	<100	100	70	<200	500	16	1.7	130	.001	1.10
LIM035	1,500	N	50	200	20	<10	200	150	50	200	200	12	2.3	270	.006	1.20
LIM036	1,000	<20	50	30	20	<10	200	150	100	N	700	8	1.4	64	.001	1.90
LIM037	1,000	<20	50	30	20	<10	100	150	100	N	1,000	<5	1.2	60	.001	1.90
LIM038	1,000	<20	30	20	20	<10	100	150	70	N	1,000	<5	1.3	59	.001	1.50
LIM039	700	<20	30	20	20	N	200	150	70	N	1,000	8	.9	52	.001	1.10
LIM040	500	N	30	30	15	N	200	100	50	<200	300	8	.9	71	.001	.90
LIM041	500	<20	30	20	20	N	200	100	70	<200	300	7	1.2	59	.001	1.90
LIM042	500	<20	20	20	20	N	100	70	50	N	700	7	1.2	54	.001	1.80
LIM043	700	<20	30	20	20	N	200	100	50	<200	300	7	1.6	68	.001	1.30
LIM101	500	<20	50	20	15	N	200	70	30	N	500	<5	1.2	45	.001	1.20
LIM102	1,000	<20	20	20	15	<10	150	100	30	<200	300	6	2.6	44	.001	1.30
LIM103	300	N	5	20	5	N	150	50	10	N	150	8	.9	26	.001	1.90
LIM104	500	N	20	15	7	N	500	70	10	N	200	7	1.2	31	.001	1.10
LIM105	200	N	10	20	5	N	100	30	15	N	500	7	.5	24	<.001	.75
LIM106	150	N	7	20	N	N	<100	20	<10	N	100	8	.5	29	.001	1.00
LIM107	150	N	5	20	N	N	100	20	10	N	100	11	.5	22	.001	1.50
LIM108	200	N	7	15	N	N	150	30	15	N	200	5	.6	26	.001	.55
LIM109	200	<20	20	30	7	N	150	50	20	N	300	8	.6	41	.001	.75
LIM110	300	<20	15	30	7	N	200	50	20	N	300	14	.7	43	.001	.85
LIM111	300	<20	10	20	5	N	100	50	20	N	500	8	.8	41	.001	.75
LIM112	200	<20	10	20	7	N	500	50	15	N	200	8	.6	30	<.001	.90
LIM113	300	N	5	30	5	N	150	50	15	N	200	6	.6	32	.001	1.20
LIM114	500	N	10	10	7	N	200	50	10	N	70	<5	.8	50	.002	1.30
LIM115	700	<20	20	20	10	N	200	100	20	<200	200	6	.9	43	.002	1.40
LIM116	500	N	15	20	7	N	1,500	50	10	<200	70	6	.6	44	.002	1.20
LIM117	100	N	5	N	N	N	150	10	N	N	200	<5	.2	7	.002	.30
LIM118	100	N	5	N	N	N	100	20	<10	N	300	6	.3	11	<.001	.55
LIM119	70	N	5	N	N	N	<100	10	N	N	200	6	.2	6	<.001	.45
LIM120	500	<20	10	15	7	N	100	50	20	N	700	12	.9	27	<.001	1.40
LIM121	300	N	10	15	5	N	100	50	15	N	100	9	.7	26	.001	1.00
LIM122	200	N	5	20	<5	N	<100	20	<10	N	100	9	.5	17	.001	.80
LIM123	500	N	10	10	7	N	1,000	50	15	<200	150	<5	.9	33	.001	1.90
LIM124	200	N	<5	N	<5	N	100	20	N	N	300	<5	.2	7	<.001	.80
LIM125	200	N	5	10	<5	N	100	30	20	N	200	6	.4	11	<.001	.80
LIM126	100	N	5	<10	N	N	<100	15	10	N	200	<5	.2	6	.006	.40
LIM127	500	<20	15	20	10	N	100	100	<10	N	500	10	1.1	26	<.001	1.10
LIM128	700	N	7	20	5	N	100	50	N	<200	150	<5	1.6	26	.001	.80
LIM129	300	N	10	10	5	N	150	30	15	N	500	9	.4	13	<.001	.50

TABLE 4.--Results of analyses of stream-sediment samples from the Lime Canyon and Million Hills Wilderness Study Areas, Clark County, Nevada--Continued

Sample	Latitude	Longitude	Ca	Fe	Mg	Ti	Ag	B	Ba	Be	Co	Cr	Cu	La
						Lime Canyon--Continued								
LIM130	36 19 26	114 17 43	1.5	2.00	3.0	.50	N	100	700	1.0	10	20	20	20
LIM131	36 19 13	114 18 21	2.0	7.00	3.0	.70	<.5	50	700	1.5	20	200	50	70
LIM132	36 18 55	114 18 23	2.0	5.00	2.0	.50	N	30	500	1.0	20	30	30	20
LIM133	36 18 41	114 18 36	2.0	5.00	5.0	.50	N	100	500	2.0	30	50	50	50
LIM134	36 16 13	114 15 27	2.0	5.00	3.0	.50	N	10	500	<1.0	30	70	50	<20
LIM135	36 16 18	114 15 21	2.0	2.00	2.0	.50	N	30	300	1.0	20	50	30	30
LIM136	36 15 57	114 15 1	1.5	5.00	2.0	.70	N	20	300	1.0	50	100	50	30
LIM137	36 15 51	114 14 15	1.0	3.00	1.5	.50	N	15	300	1.5	20	30	30	20
LIM138	36 15 43	114 20 37	2.0	5.00	1.0	>1.00	N	30	700	2.0	20	70	50	100
LIM139	36 18 47	114 14 34	1.5	3.00	1.0	.70	N	20	300	<1.0	7	100	15	50
LIM140	36 18 40	114 14 36	3.0	.50	1.5	.20	N	30	300	N	N	10	<5	N
LIM141	36 19 14	114 15 56	10.0	.70	10.0	.07	N	30	300	N	<5	N	10	N
LIM142	36 19 22	114 16 23	1.5	3.00	1.5	.70	N	50	150	2.0	15	100	20	50
LIM143	36 19 25	114 16 16	7.0	1.00	5.0	.10	N	30	500	N	<5	10	10	<20
LIM144	36 19 0	114 15 31	7.0	.07	5.0	.05	N	30	300	N	N	N	10	<20
LIM145	36 19 1	114 15 45	7.0	2.00	5.0	.15	N	70	150	1.5	<5	<10	10	N
LIM146	36 19 52	114 16 59	7.0	2.00	3.0	.20	N	30	200	N	5	<10	15	20
LIM147	36 19 51	114 16 53	5.0	3.00	2.0	.30	N	50	300	1.0	5	10	15	50
LIM148	36 23 31	114 15 7	3.0	1.00	.7	.10	N	50	500	N	N	20	7	N
LIM149	36 23 35	114 15 5	1.5	.70	.5	.07	N	50	500	N	N	10	5	N
						Million Hills								
MIL044	36 19 10	114 5 20	7.0	.50	10.0	.05	N	15	100	N	N	N	7	N
MIL045	36 19 10	114 5 21	2.0	3.00	5.0	.20	N	30	300	3.0	15	20	20	20
MIL150	36 18 52	114 3 30	1.5	3.00	2.0	.50	N	10	500	3.0	20	100	30	50
MIL151	36 19 35	114 2 58	3.0	10.00	1.5	1.00	N	30	300	3.0	50	500	50	500
MIL152	36 18 58	114 2 22	2.0	5.00	2.0	.50	N	20	300	<1.0	20	200	50	50
MIL153	36 20 31	114 2 50	3.0	1.50	2.0	.15	N	30	500	1.5	10	50	20	<20
MIL154	36 20 33	114 2 47	2.0	2.00	2.0	.20	N	20	300	1.0	15	70	20	20
MIL155	36 19 47	114 2 32	2.0	3.00	3.0	.20	N	50	500	3.0	20	150	20	30
MIL156	36 19 55	114 2 35	1.5	5.00	3.0	.30	N	30	300	2.0	30	200	30	70
MIL157	36 17 36	114 2 34	2.0	1.50	7.0	.15	N	30	200	<1.0	7	1,000	15	<20
MIL158	36 17 41	114 2 31	3.0	1.00	5.0	.15	N	30	300	N	10	<10	10	N
MIL159	36 16 12	114 3 36	2.0	2.00	2.0	.30	N	70	500	N	5	100	7	20
MIL160	36 16 14	114 3 38	1.5	.50	1.0	.10	N	50	300	N	<5	20	<5	N
MIL161	36 16 16	114 3 36	3.0	.50	3.0	.07	N	30	200	N	<5	<10	5	N
MIL162	36 15 5	114 5 8	1.0	5.00	2.0	.50	N	50	300	5.0	30	150	30	50
MIL163	36 15 3	114 5 7	1.5	5.00	3.0	.70	N	20	500	3.0	50	200	50	200
MIL164	36 15 5	114 2 5	5.0	2.00	2.0	.30	N	50	500	2.0	10	70	20	70
MIL165	36 15 39	114 1 46	2.0	3.00	1.5	.50	N	20	500	3.0	20	150	20	70
MIL166	36 17 0	114 2 14	3.0	2.00	3.0	.20	N	50	300	<1.0	10	20	30	20
MIL167	36 15 51	114 2 1	2.0	2.00	1.0	.50	N	20	300	2.0	15	100	20	50
MIL168	36 16 0	114 1 57	3.0	2.00	5.0	.30	N	20	300	N	10	70	10	70
MIL169	36 15 56	114 1 59	5.0	3.00	5.0	.20	N	20	500	1.0	10	100	15	30
MIL170	36 14 3	114 3 12	2.0	5.00	5.0	.50	N	10	500	1.5	15	200	30	150
MIL171	36 14 16	114 3 40	7.0	1.00	2.0	.10	N	30	200	N	5	20	15	<20

TABLE 4.--Results of analyses of stream-sediment samples from the Lime Canyon and Million Hills Wilderness Study Areas, Clark County, Nevada--Continued

Sample	Mn	Nb	Ni	Pb	Sc	Sn	Sr	V	Y	Zn	Zr	As-i	Cd-i	Zn-i	Au-a	U-f
							Lime Canyon--Continued									
LIM130	500	N	15	20	10	N	300	100	20	N	200	8	.8	25	.002	2.10
LIM131	1,000	N	70	30	20	<10	500	300	30	<200	200	26	2.8	53	.002	1.10
LIM132	700	N	50	30	15	N	100	100	20	<200	200	7	1.3	42	.001	.80
LIM133	700	<20	70	30	20	N	100	150	30	<200	500	7	1.3	48	.003	.90
LIM134	1,000	N	150	10	15	N	150	100	15	<200	150	5	1.7	53	.001	.90
LIM135	500	N	70	30	10	N	100	70	20	N	200	<5	.8	31	<.001	.80
LIM136	1,000	<20	200	20	15	N	150	150	20	N	500	<5	2.3	63	.001	3.30
LIM137	700	N	70	30	15	N	<100	100	30	N	300	<5	1.1	77	.001	1.00
LIM138	2,000	<20	50	30	20	N	200	200	70	200	500	10	2.7	88	.001	1.50
LIM139	700	<20	20	10	5	N	<100	100	20	N	700	<5	1.6	32	.001	.70
LIM140	150	N	5	10	N	N	<100	20	<10	N	300	<5	.1	7	<.001	.75
LIM141	200	N	<5	20	N	N	<100	20	10	N	100	<5	.4	6	<.001	.85
LIM142	700	N	20	15	10	N	100	150	20	<200	200	6	1.4	45	.001	1.50
LIM143	200	N	10	20	<5	N	100	30	<10	N	70	<5	.5	21	<.001	1.20
LIM144	200	N	5	15	N	N	<100	15	N	N	100	<5	.4	8	<.001	.70
LIM145	200	N	5	20	<5	N	<100	20	<10	N	100	<5	.4	10	<.001	.70
LIM146	300	N	10	30	5	N	100	30	10	N	100	<5	.5	19	<.001	.70
LIM147	300	N	10	20	5	N	150	50	15	N	200	<5	.6	29	<.001	1.00
LIM148	100	N	5	<10	N	N	<100	20	N	N	700	7	.2	12	<.001	.65
LIM149	70	N	5	N	N	N	N	15	N	N	500	8	.1	7	<.001	.45
							Million Hills--Continued									
MIL044	150	N	5	15	N	N	N	15	<10	N	70	<5	.3	8	<.001	.65
MIL045	700	N	20	30	7	N	<100	50	20	N	300	5	1.2	37	.001	1.70
MIL150	1,000	<20	70	20	15	N	300	100	30	<200	200	<5	1.8	47	.001	1.10
MIL151	2,000	<20	150	30	30	N	100	500	150	200	700	17	5.6	56	.001	1.90
MIL152	1,500	<20	70	30	10	N	<100	200	20	<200	500	11	3.6	37	.001	1.50
MIL153	700	N	20	30	7	N	200	50	15	N	200	<5	1.1	37	<.001	1.30
MIL154	700	N	30	20	7	N	100	70	20	N	150	12	1.6	37	.001	1.70
MIL155	300	N	50	20	10	N	200	100	20	N	150	12	1.4	43	.002	1.50
MIL156	1,000	<20	70	30	15	<10	200	150	30	<200	500	6	2.4	46	.001	1.00
MIL157	200	N	10	20	N	N	<100	20	30	N	200	5	.5	19	<.001	.55
MIL158	150	N	10	15	N	N	<100	20	<10	N	300	<5	.4	10	<.001	.45
MIL159	200	N	15	10	5	N	<100	70	10	N	500	5	.5	6	<.001	.65
MIL160	100	N	<5	N	N	N	N	15	N	N	200	<5	.2	4	<.001	.50
MIL161	100	N	<5	<10	N	N	N	20	N	N	150	<5	.2	<2	<.001	.45
MIL162	1,000	<20	70	30	20	N	100	100	70	<200	500	<5	1.3	48	.001	1.50
MIL163	1,000	<20	200	30	20	<10	300	150	50	<200	500	<5	2.0	56	.003	2.00
MIL164	700	N	20	30	7	N	200	70	30	N	300	6	1.0	37	<.001	1.90
MIL165	500	N	50	20	10	N	200	70	20	N	500	8	1.7	42	.001	2.40
MIL166	300	N	20	20	7	N	<100	50	15	N	300	6	.6	32	.001	1.70
MIL167	500	N	30	15	7	N	150	100	20	N	300	5	1.3	40	<.001	1.00
MIL168	300	N	20	20	5	N	100	100	20	N	300	5	1.1	10	<.001	.70
MIL169	500	N	20	20	7	N	100	70	15	N	200	9	1.4	31	.001	1.10
MIL170	1,000	N	50	20	15	<10	200	100	50	<200	150	8	2.7	44	.001	1.60
MIL171	200	N	15	30	<5	N	<100	30	15	N	300	<5	.7	24	<.001	.70

TABLE 4.--Results of analyses of stream-sediment samples from the Lime Canyon and Million Hills Wilderness Study Areas, Clark County, Nevada--Continued

Sample	Latitude	Longitude	Ca	Fe	Mg	Ti	Ag	B	Ba	Be	Co	Cr	Cu	La
					Million Hills--Continued									
MIL172	36 14 27	114 4 0	5.0	.70	7.0	.07	N	20	150	N	<5	10	10	20
MIL173	36 14 24	114 4 2	2.0	5.00	5.0	.30	N	30	300	5.0	30	100	30	70
MIL174	36 13 27	114 3 20	15.0	1.00	3.0	.10	N	20	200	N	5	20	10	<20
MIL175	36 13 29	114 3 18	3.0	1.50	2.0	.10	N	50	300	<1.0	<5	70	15	30

TABLE 4.--Results of analyses of stream-sediment samples from the Lime Canyon and Million Hills Wilderness Study Areas, Clark County, Nevada--Continued

Sample	Mn	Nb	Ni	Pb	Sc	Sn	Sr	V	Y	Zn	Zr	As-i	Cd-i	Zn-i	Au-a	U-f
							Million Hills--Continued									
MIL172	200	N	10	15	N	N	<100	50	<10	N	100	6	.5	9	<.001	1.00
MIL173	1.000	N	70	20	20	<10	200	150	50	<200	300	<5	1.7	37	.001	3.90
MIL174	200	N	5	20	<5	N	<100	30	15	N	300	5	.4	12	<.001	.60
MIL175	300	N	10	15	<5	N	100	50	10	N	150	10	.8	22	<.001	1.30

TABLE 5.--Results of analyses of nonmagnetic heavy-mineral-concentrate samples from the Lime Canyon and Million Hills Wilderness Study Areas, Clark County, Nevada

[N, not detected; <, detected below limit of determination shown; >, greater than upper limit of determination; ---, not enough sample for analysis. Analyses by emission spectrography. Concentrations in ppm except Ca, Fe, Mg, Na, P, and Ti, which are weight percent]

Sample	Latitude	Longitude	Ca	Fe	Mg	Na	P	Ti	Ag	B	Ba	Be	Bi	Co	Cr	Cu
							Lime Canyon									
LIM033H	36 15 58	114 16 8	5.0	1.50	1.50	.5	.5	2.00	N	N	1,000	N	N	N	N	<10
LIM034H	36 16 4	114 16 34	5.0	.70	.50	<.5	5.0	.30	N	20	1,000	<2	N	N	N	10
LIM035H	36 16 25	114 17 7	7.0	1.00	.30	.5	5.0	.20	N	<20	300	N	N	N	<20	<10
LIM036H	36 16 48	114 18 39	2.0	1.00	.50	N	.7	1.00	N	N	150	N	N	N	<20	N
LIM037H	36 17 25	114 20 8	2.0	.50	.50	<.5	1.0	1.00	N	N	150	2	N	N	N	N
LIM038H	36 17 28	114 20 7	5.0	1.00	2.00	N	10.0	1.50	N	N	200	N	N	N	<20	N
LIM039H	36 18 0	114 19 36	3.0	1.50	1.00	N	1.0	2.00	N	N	200	N	N	N	N	10
LIM040H	36 18 11	114 18 44	5.0	.70	7.00	N	3.0	.70	N	N	200	N	N	N	<20	N
LIM041H	36 17 11	114 19 23	3.0	.20	.50	N	3.0	.30	N	N	500	N	N	N	N	N
LIM042H	36 16 50	114 20 27	3.0	.20	.20	N	5.0	.30	N	N	200	N	N	N	N	N
LIM043H	36 16 23	114 20 0	2.0	.30	.20	N	5.0	.50	N	N	100	N	N	N	N	N
LIM101H	36 17 54	114 13 13	2.0	.20	.30	N	2.0	.70	N	N	200	N	N	N	N	N
LIM102H	36 18 24	114 14 8	1.0	.70	5.00	N	1.0	1.00	N	N	700	N	N	N	N	N
LIM103H	36 18 25	114 14 13	5.0	.30	1.50	N	3.0	1.00	N	N	5,000	N	N	N	N	N
LIM104H	36 20 51	114 14 12	2.0	.70	2.00	N	<.5	.50	N	N	>10,000	N	<20	N	N	15
LIM105H	36 20 50	114 14 16	2.0	.15	2.00	N	.7	1.00	N	N	1,500	N	N	N	20	N
LIM106H	36 21 30	114 14 33	1.5	1.50	1.00	N	1.0	2.00	N	70	5,000	3	N	N	30	50
LIM107H	36 21 53	114 14 18	.3	2.00	.50	N	N	1.00	N	30	5,000	<2	N	<20	50	<10
LIM108H	36 22 20	114 14 24	1.5	.70	.70	N	.5	1.50	N	<20	10,000	N	N	N	<20	N
LIM109H	36 23 7	114 14 4	2.0	.70	.50	N	2.0	2.00	N	20	7,000	2	N	N	30	N
LIM110H	36 23 50	114 13 53	1.5	.50	.70	N	1.0	1.50	N	<20	10,000	<2	N	N	20	N
LIM111H	36 24 13	114 13 44	3.0	.70	.30	N	3.0	1.00	N	20	7,000	<2	N	N	30	10
LIM112H	36 24 50	114 13 56	2.0	.70	2.00	N	N	.07	N	N	10,000	N	<20	N	N	<10
LIM113H	36 25 54	114 13 46	3.0	.70	.30	<.5	.7	.50	N	N	>10,000	2	N	N	N	<10
LIM114H	36 26 45	114 14 15	.3	.20	.05	<.5	N	.10	N	N	>10,000	N	<20	N	N	<10
LIM115H	36 26 53	114 16 1	.5	.30	.15	N	N	.20	N	N	>10,000	N	<20	N	N	<10
LIM116H	36 26 28	114 16 50	1.0	.30	.70	N	<.5	.03	N	N	>10,000	N	<20	N	N	<10
LIM117H	36 26 3	114 16 39	1.5	.50	1.00	N	.5	1.00	N	30	>10,000	N	N	N	20	N
LIM118H	36 25 30	114 16 24	.7	2.00	1.00	N	N	1.50	N	50	>10,000	<2	N	N	100	N
LIM119H	36 25 2	114 16 22	1.0	.50	1.50	N	N	.50	N	N	>10,000	N	<20	N	N	<10
LIM120H	36 24 27	114 17 19	5.0	.30	5.00	N	<.5	.70	N	<20	>10,000	N	N	N	N	N
LIM121H	36 23 7	114 17 26	2.0	1.00	2.00	N	.7	1.00	N	30	5,000	<2	N	N	30	<10
LIM122H	36 22 38	114 17 5	5.0	.50	10.00	N	.5	.50	N	N	3,000	N	N	N	<20	15
LIM123H	36 22 6	114 18 20	.7	.70	.30	N	N	.10	N	N	>10,000	N	N	N	N	<10
LIM124H	36 22 10	114 17 45	5.0	1.00	5.00	N	<.5	.70	N	<20	7,000	N	N	N	N	N
LIM125H	36 22 33	114 18 3	3.0	2.00	7.00	N	N	.50	N	30	5,000	N	N	N	200	N
LIM126H	36 21 41	114 18 17	1.5	1.50	1.00	N	<.5	1.00	N	N	>10,000	N	N	N	<20	<10
LIM127H	36 21 47	114 18 47	5.0	.50	5.00	N	3.0	.70	N	N	>10,000	N	N	N	<20	N
LIM128H	36 20 39	114 19 11	7.0	.50	7.00	N	.7	.70	N	N	5,000	<2	N	N	N	N
LIM129H	36 19 38	114 18 31	3.0	.20	3.00	N	.7	.70	N	20	>10,000	N	N	N	N	N

TABLE 5.--Results of analyses of nonmagnetic heavy-mineral-concentrate samples from the Lime Canyon and Million Hills Wilderness Study Areas, Clark County, Nevada--Continued

Sample	Ga	La	Mn	Mo	Nb	Ni	Pb	Sc	Sn	Sr	Th	V	W	Y	Zn	Zr
							Lime Canyon--Continued									
LIM033H	<10	300	200	N	<50	<10	200	<10	30	N	700	100	N	500	N	>2,000
LIM034H	N	200	150	N	N	N	100	10	N	N	N	20	<50	500	N	>2,000
LIM035H	N	200	200	N	N	<10	500	N	N	N	N	150	N	300	N	>2,000
LIM036H	N	300	100	N	N	N	20	<10	N	N	N	30	N	300	N	>2,000
LIM037H	N	200	150	N	<50	N	30	<10	N	N	N	30	N	150	N	>2,000
LIM038H	N	500	500	N	<50	N	30	15	N	N	N	50	N	700	N	>2,000
LIM039H	N	500	200	N	<50	N	<20	<10	N	N	N	50	N	500	N	>2,000
LIM040H	N	300	150	N	N	<10	20	<10	N	N	N	30	<50	300	N	>2,000
LIM041H	N	150	30	N	N	N	20	N	N	<200	N	30	N	200	N	>2,000
LIM042H	N	150	30	N	N	N	20	<10	N	<200	N	50	N	200	N	>2,000
LIM043H	N	150	20	N	N	N	20	N	N	<200	N	50	N	200	N	>2,000
LIM101H	N	100	30	N	N	N	<20	<10	N	<200	N	30	N	300	N	>2,000
LIM102H	N	300	150	<10	<50	N	70	N	N	N	N	50	100	300	N	>2,000
LIM103H	N	100	50	N	N	N	<20	<10	N	N	N	50	N	300	N	>2,000
LIM104H	N	<100	30	15	N	N	200	N	N	>10,000	N	70	300	100	N	>2,000
LIM105H	N	N	<20	N	N	N	N	<10	N	<200	N	30	N	200	N	>2,000
LIM106H	N	150	50	N	<50	<10	100	10	N	300	N	150	N	500	N	>2,000
LIM107H	N	300	500	N	N	10	<20	<10	N	<200	N	100	N	300	N	>2,000
LIM108H	N	150	<20	N	N	N	N	10	N	200	N	70	N	500	N	>2,000
LIM109H	N	<100	20	N	N	N	<20	15	N	N	N	100	N	500	N	>2,000
LIM110H	N	100	30	<10	N	N	N	15	N	<200	N	70	200	500	N	>2,000
LIM111H	N	100	30	N	N	N	<20	<10	N	<200	N	70	N	300	N	>2,000
LIM112H	N	N	20	N	N	N	100	N	N	>10,000	N	20	N	N	N	700
LIM113H	N	<100	100	N	<50	N	30	N	N	>10,000	N	50	N	70	N	>2,000
LIM114H	N	N	70	N	N	N	<20	N	N	>10,000	N	20	N	N	N	1,500
LIM115H	N	<100	20	N	N	N	20	N	N	>10,000	N	70	N	30	N	>2,000
LIM116H	N	N	<20	N	N	N	N	N	N	>10,000	N	70	N	<20	N	2,000
LIM117H	N	N	<20	N	N	<10	70	<10	N	>10,000	N	50	N	200	N	>2,000
LIM118H	N	150	100	N	<50	15	<20	10	N	3,000	N	100	N	300	N	>2,000
LIM119H	N	N	<20	N	N	N	N	N	N	7,000	N	70	N	150	N	>2,000
LIM120H	N	150	30	N	N	N	<20	N	N	300	N	50	N	200	N	>2,000
LIM121H	N	100	50	N	N	N	<20	<10	<20	<200	N	100	N	300	N	>2,000
LIM122H	N	N	20	N	N	N	100	N	N	N	N	100	N	150	N	>2,000
LIM123H	N	<100	30	N	N	N	2,000	N	N	>10,000	N	100	N	20	N	>2,000
LIM124H	N	N	<20	N	N	N	50	N	N	<200	N	70	N	150	N	>2,000
LIM125H	N	N	30	N	N	<10	<20	N	N	300	N	70	N	100	N	>2,000
LIM126H	N	N	50	N	N	<10	500	<10	N	10,000	N	100	N	200	1.500	>2,000
LIM127H	N	150	70	N	<50	N	<20	<10	N	300	N	50	N	200	N	>2,000
LIM128H	N	100	70	N	<50	N	20	<10	N	<200	N	50	<50	200	N	>2,000
LIM129H	N	N	30	N	N	N	<20	N	N	>10,000	N	70	N	150	N	>2,000

TABLE 5.--Results of analyses of nonmagnetic heavy-mineral-concentrate samples from the Lime Canyon and Million Hills Wilderness Study Areas, Clark County, Nevada--Continued

Sample	Latitude	Longitude	Ca	Fe	Mg	Na	P	Ti	Ag	B	Ba	Be	Bi	Co	Cr	Cu
							Lime Canyon--Continued									
LIM130H	36 19 26	114 17 43	1.5	.10	.50	N	1.0	.15	N	N	>10,000	N	N	N	N	N
LIM131H	36 19 13	114 18 21	7.0	.50	2.00	.5	1.0	.50	N	N	2,000	N	N	N	<20	<10
LIM132H	36 18 55	114 18 23	10.0	.30	5.00	N	7.0	.50	N	<20	1,000	N	<20	N	<20	<10
LIM133H	36 18 41	114 18 36	7.0	.50	7.00	N	1.5	1.50	N	200	1,000	N	N	N	100	<10
LIM134H	36 16 13	114 15 27	2.0	.70	.70	N	.5	1.50	N	N	3,000	N	N	N	20	N
LIM135H	36 16 18	114 15 21	5.0	.30	5.00	N	1.5	.70	N	<20	500	N	N	N	20	<10
LIM136H	36 15 57	114 15 1	2.0	1.00	1.00	N	.7	1.50	N	20	1,500	N	N	N	30	<10
LIM137H	36 15 51	114 14 15	10.0	.70	.50	N	10.0	.70	N	N	300	N	N	N	20	<10
LIM138H	36 15 43	114 20 37	5.0	.50	.10	N	5.0	.70	N	N	700	N	N	N	N	N
LIM139H	36 18 47	114 14 34	3.0	.30	1.50	N	1.5	.50	N	<20	5,000	3	<20	N	<20	<10
LIM140H	36 18 40	114 14 36	5.0	.50	1.50	N	.7	2.00	N	30	10,000	<2	N	N	30	<10
LIM141H	36 19 14	114 15 56	5.0	.50	5.00	N	<.5	.70	<1	N	5,000	N	N	N	N	N
LIM142H	36 19 22	114 16 23	1.5	.50	.20	N	.5	.70	N	N	>10,000	N	N	N	<20	N
LIM143H	36 19 25	114 16 16	7.0	1.50	5.00	N	2.0	1.00	<1	20	7,000	<2	N	N	30	30
LIM144H	36 19 0	114 15 31	7.0	1.00	10.00	N	<.5	.50	N	N	>10,000	N	N	N	<20	30
LIM145H	36 19 1	114 15 45	---	---	---	---	---	---	---	---	---	---	---	---	---	---
LIM146H	36 19 52	114 16 59	10.0	.30	3.00	N	2.0	.70	N	N	2,000	N	N	N	<20	30
LIM147H	36 19 51	114 16 53	5.0	.50	2.00	N	1.0	1.00	N	N	1,500	N	N	N	20	20
LIM148H	36 23 31	114 15 7	1.5	.70	.20	N	.7	1.00	N	50	>10,000	N	N	N	70	N
LIM149H	36 23 35	114 15 5	1.0	.20	.10	N	.5	.15	N	N	5,000	N	N	N	20	N
							Million Hills									
MIL044H	36 19 10	114 5 20	7.0	.50	10.00	N	.7	.07	5	N	150	N	<20	N	N	<10
MIL045H	36 19 10	114 5 21	7.0	.50	7.00	N	3.0	.70	N	N	1,500	2	20	N	20	N
MIL150H	36 18 52	114 3 30	10.0	.50	1.00	<.5	7.0	.20	N	N	10,000	N	N	N	<20	20
MIL151H	36 19 35	114 2 58	3.0	.50	.70	N	1.0	.70	N	N	2,000	<2	N	N	<20	N
MIL152H	36 18 58	114 2 22	5.0	.30	1.50	N	1.0	.70	N	N	300	N	N	N	20	N
MIL153H	36 20 31	114 2 50	10.0	.50	1.00	N	7.0	.70	N	N	500	N	N	N	20	30
MIL154H	36 20 33	114 2 47	7.0	.10	1.00	N	7.0	.50	N	N	3,000	N	N	N	N	N
MIL155H	36 19 47	114 2 32	10.0	1.00	2.00	<.5	5.0	.70	N	N	1,000	2	N	N	20	15
MIL156H	36 19 55	114 2 35	5.0	.50	1.00	N	2.0	.20	N	N	100	N	N	N	N	15
MIL157H	36 17 36	114 2 34	5.0	1.00	5.00	N	1.0	1.00	N	20	300	N	N	N	200	N
MIL158H	36 17 41	114 2 31	10.0	1.50	3.00	N	2.0	1.00	N	20	500	N	N	N	150	N
MIL159H	36 16 12	114 3 36	2.0	.70	2.00	N	1.0	.30	N	N	10,000	N	N	N	20	N
MIL160H	36 16 14	114 3 38	1.5	.50	.50	N	.7	.70	N	<20	>10,000	N	N	N	200	N
MIL161H	36 16 16	114 3 36	5.0	.20	5.00	N	1.0	.30	N	N	10,000	N	N	N	50	N
MIL162H	36 15 5	114 5 8	5.0	.70	1.50	.5	1.0	.30	N	N	1,500	N	N	N	<20	N
MIL163H	36 15 3	114 5 7	7.0	.10	.50	N	7.0	.05	N	N	500	N	N	N	N	10
MIL164H	36 15 5	114 2 5	7.0	.70	1.00	N	5.0	.50	N	N	1,000	N	N	N	30	10
MIL165H	36 15 39	114 1 46	7.0	.20	.20	N	5.0	.15	N	N	200	N	N	N	N	<10
MIL166H	36 17 0	114 2 14	5.0	.30	2.00	N	.7	1.00	N	N	>10,000	N	N	N	<20	N
MIL167H	36 15 51	114 2 1	7.0	.20	1.00	N	1.5	.20	N	N	1,500	50	N	N	N	10
MIL168H	36 16 0	114 1 57	5.0	.15	5.00	N	1.0	.50	N	N	2,000	N	N	N	N	N
MIL169H	36 15 56	114 1 59	7.0	.30	2.00	N	5.0	.50	N	N	2,000	N	N	N	N	20
MIL170H	36 14 3	114 3 12	10.0	.15	.70	N	7.0	.30	N	N	1,500	N	N	N	N	15
MIL171H	36 14 16	114 3 40	3.0	.50	1.50	<.5	1.5	1.50	N	20	150	N	N	N	50	N

TABLE 5.--Results of analyses of nonmagnetic heavy-mineral-concentrate samples from the Lime Canyon and Million Hills Wilderness Study Areas, Clark County, Nevada--Continued

Sample	Ga	La	Mn	Mo	Nb	Ni	Pb	Sc	Sn	Sr	Th	V	W	Y	Zn	Zr
							Lime Canyon--Continued									
LIM130H	N	<100	20	10	N	N	<20	<10	N	>10,000	N	50	300	150	N	>2,000
LIM131H	N	200	50	N	N	<10	20	N	N	<200	N	30	N	150	N	>2,000
LIM132H	N	150	70	N	N	<10	<20	N	N	<200	N	50	N	150	N	>2,000
LIM133H	N	100	50	N	50	N	20	N	70	N	N	150	50	100	N	>2,000
LIM134H	N	<100	20	N	N	15	<20	<10	N	<200	N	50	N	200	N	>2,000
LIM135H	N	150	30	N	N	<10	300	N	N	<200	5,000	100	N	200	N	>2,000
LIM136H	N	200	150	N	<50	30	150	N	N	<200	1,000	70	<50	300	N	>2,000
LIM137H	<10	1,000	200	N	N	<10	30	<10	N	<200	N	50	N	1,000	N	>2,000
LIM138H	N	200	150	N	N	N	50	N	N	N	<200	50	N	300	N	>2,000
LIM139H	N	150	50	<10	N	N	30	N	N	<200	N	30	100	200	N	>2,000
LIM140H	N	<100	20	N	N	N	200	10	N	10,000	N	70	N	500	3,000	>2,000
LIM141H	N	N	30	N	N	N	30	<10	30	<200	N	50	N	200	<500	>2,000
LIM142H	N	<100	50	N	N	N	<20	N	N	5,000	N	30	<50	200	N	>2,000
LIM143H	<10	150	50	N	N	<10	1,000	<10	70	<200	N	150	N	300	<500	>2,000
LIM144H	N	N	50	N	N	N	200	N	N	N	N	70	N	100	N	>2,000
LIM145H	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
LIM146H	N	100	20	N	N	N	300	<10	<20	200	N	200	N	300	N	>2,000
LIM147H	N	<100	50	N	N	N	20	<10	N	N	N	50	N	150	N	>2,000
LIM148H	N	<100	<20	N	N	N	<20	<10	N	300	N	50	N	200	N	>2,000
LIM149H	N	N	<20	N	N	N	<20	N	N	200	N	20	N	50	N	>2,000
							Million Hills--Continued									
MIL044H	N	N	<20	N	N	N	3,000	N	N	N	N	150	200	50	N	2,000
MIL045H	N	100	70	<10	N	N	20	<10	N	<200	N	100	300	200	N	>2,000
MIL150H	N	300	150	<10	N	<10	500	N	N	<200	N	20	200	300	<500	>2,000
MIL151H	N	200	50	N	N	N	30	<10	N	N	N	30	N	200	N	>2,000
MIL152H	N	100	20	10	N	N	70	<10	N	N	N	50	100	150	N	>2,000
MIL153H	N	500	200	N	N	N	50	N	N	<200	N	50	N	200	N	>2,000
MIL154H	N	150	100	N	N	N	<20	<10	N	N	N	20	N	200	N	>2,000
MIL155H	N	500	300	N	N	<10	20	10	N	<200	N	70	N	500	N	>2,000
MIL156H	N	200	100	N	N	N	20	N	N	N	N	50	N	150	N	>2,000
MIL157H	N	150	30	N	N	<10	<20	<10	N	N	N	70	N	300	N	>2,000
MIL158H	N	150	150	N	N	<10	50	N	N	N	N	70	N	200	N	>2,000
MIL159H	N	300	70	N	N	N	30	<10	N	<200	N	30	100	150	N	>2,000
MIL160H	N	N	1,000	N	N	N	<20	<10	N	200	N	50	70	500	N	>2,000
MIL161H	N	N	300	N	N	N	N	N	N	N	N	50	N	100	N	>2,000
MIL162H	<10	150	300	50	<50	N	<20	N	N	N	N	30	1,000	150	N	2,000
MIL163H	N	100	N	N	N	N	<20	N	N	<200	N	20	N	100	N	>2,000
MIL164H	N	150	300	N	N	N	<20	N	N	<200	N	50	N	200	N	>2,000
MIL165H	N	100	30	N	N	N	50	N	N	<200	200	100	N	150	N	>2,000
MIL166H	N	100	500	N	N	N	<20	N	N	200	N	50	N	150	N	>2,000
MIL167H	N	150	70	N	N	N	20	<10	N	<200	N	20	N	200	N	>2,000
MIL168H	N	<100	300	N	N	N	N	<10	N	N	N	20	N	150	N	>2,000
MIL169H	N	300	300	N	N	N	30	<10	N	<200	N	50	N	200	N	>2,000
MIL170H	N	500	150	N	N	N	50	<10	N	<200	200	50	<50	500	N	>2,000
MIL171H	N	<100	1,000	N	N	N	<20	<10	N	N	N	70	N	300	N	>2,000

TABLE 5.--Results of analyses of nonmagnetic heavy-mineral-concentrate samples from the Lime Canyon and Million Hills Wilderness Study Areas, Clark County, Nevada--Continued

Sample	Latitude	Longitude	Ca	Fe	Mg	Na	P	Ti	Ag	B	Ba	Be	Bi	Co	Cr	Cu
					Million Hills--Continued											
MIL172H	36 14 27	114 4 0	5.0	1.00	5.00	N	1.0	1.00	N	<20	7,000	N	N	N	50	10
MIL173H	36 14 24	114 4 2	7.0	.30	3.00	N	5.0	.20	N	N	200	N	N	N	N	15
MIL174H	36 13 27	114 3 20	5.0	.20	.70	N	2.0	.70	N	N	1,000	N	N	N	70	N
MIL175H	36 13 29	114 3 18	7.0	.30	1.00	N	10.0	1.00	N	20	200	<2	N	N	<20	<10

TABLE 5.--Results of analyses of nonmagnetic heavy-mineral-concentrate samples from the Lime Canyon and Million Hills Wilderness Study Areas, Clark County, Nevada--Continued

Sample	Ga	La	Mn	Mo	Nb	Ni	Pb	Sc	Sn	Sr	Th	V	W	Y	Zn	Zr
							Million Hills--Continued									
MIL172H	N	200	1,000	N	N	N	<20	<10	N	N	N	70	N	300	N	>2,000
MIL173H	N	200	150	N	N	N	<20	N	N	<200	N	30	N	150	N	>2,000
MIL174H	N	<100	700	N	N	<10	N	<10	N	N	N	50	N	300	N	>2,000
MIL175H	N	300	150	N	N	N	50	<10	N	<200	<200	50	<50	300	N	>2,000

TABLE 6. Results of analyses of raw panned-concentrate samples from the Lime Canyon and Million Hills Wilderness Study Areas, Clark County, Nevada

[<, less than value shown. Au-a in ppm. Weight, grams of raw panned-concentrate sample. Analyses by atomic absorption]

Sample	Latitude	Longitude	Au-a	Weight
		Lime Canyon		
LIM033G	36 15 58	114 16 8	<.01	60.57
LIM034G	36 16 4	114 16 34	<.03	20.45
LIM035G	36 16 25	114 17 7	.10	72.01
LIM036G	36 16 48	114 18 39	<.06	8.46
LIM037G	36 17 25	114 20 8	<.01	67.61
LIM038G	36 17 28	114 20 7	<.03	18.03
LIM039G	36 18 0	114 19 36	<.02	35.96
LIM040G	36 18 11	114 18 44	<.02	33.14
LIM041G	36 17 11	114 19 23	.02	53.27
LIM042G	36 16 50	114 20 27	.02	39.06
LIM043G	36 16 23	114 20 0	<.04	14.09
LIM101G	36 17 54	114 13 13	<.03	23.46
LIM102G	36 18 24	114 14 8	<.03	23.23
LIM103G	36 18 25	114 14 13	<.03	23.90
LIM104G	36 20 51	114 14 12	<.03	21.54
LIM105G	36 20 50	114 14 16	<.30	1.67
LIM106G	36 21 30	114 14 33	<.18	2.87
LIM107G	36 21 53	114 14 18	.65	4.48
LIM108G	36 22 20	114 14 24	<.10	5.55
LIM109G	36 23 7	114 14 4	<.23	2.25
LIM110G	36 23 50	114 13 53	<.12	4.17
LIM111G	36 24 13	114 13 44	<.20	2.61
LIM112G	36 24 50	114 13 56	<.21	2.48
LIM113G	36 25 54	114 13 46	<.11	4.95
LIM114G	36 26 45	114 14 15	<.06	8.35
LIM115G	36 26 53	114 16 1	<.04	12.60
LIM116G	36 26 28	114 16 50	.47	10.96
LIM117G	36 26 3	114 16 39	<.35	1.45
LIM118G	36 25 30	114 16 24	<.14	3.82
LIM119G	36 25 2	114 16 22	<.22	2.38
LIM120G	36 24 27	114 17 19	<.04	14.42
LIM121G	36 23 7	114 17 26	<.14	3.63
LIM122G	36 22 38	114 17 5	<.16	3.16
LIM123G	36 22 6	114 18 20	<.05	11.07
LIM124G	36 22 10	114 17 45	.33	2.13
LIM125G	36 22 33	114 18 3	<.20	2.51
LIM126G	36 21 41	114 18 17	<.38	1.34
LIM127G	36 21 47	114 18 47	<.02	37.13
LIM128G	36 20 39	114 19 11	<.05	11.86
LIM129G	36 19 38	114 18 31	<.08	6.41

TABLE 6.--Results of analyses of raw panned-concentrate samples from the Lime Canyon and Million Hills Wilderness Study Areas, Clark County, Nevada--Continued

Sample	Latitude	Longitude	Au-a	Weight
	Lime Canyon--Continued			
LIM130G	36 19 26	114 17 43	<.02	39.82
LIM131G	36 19 13	114 18 21	<.02	40.26
LIM132G	36 18 55	114 18 23	<.02	40.59
LIM133G	36 18 41	114 18 36	.04	39.75
LIM134G	36 16 13	114 15 27	<.02	49.73
LIM135G	36 16 18	114 15 21	<.02	48.99
LIM136G	36 15 57	114 15 1	<.01	50.70
LIM137G	36 15 51	114 14 15	<.03	23.86
LIM138G	36 15 43	114 20 37	<.04	12.59
LIM139G	36 18 47	114 14 34	<.04	14.48
LIM140G	36 18 40	114 14 36	<.09	5.55
LIM141G	36 19 14	114 15 56	<.17	2.92
LIM142G	36 19 22	114 16 23	<.02	45.43
LIM143G	36 19 25	114 16 16	<.23	2.17
LIM144G	36 19 0	114 15 31	<.09	5.80
LIM145G	36 19 1	114 15 45	<.09	6.15
LIM146G	36 19 52	114 16 59	<.13	4.01
LIM147G	36 19 51	114 16 53	<.16	3.21
LIM148G	36 23 31	114 15 7	<.19	2.79
LIM149G	36 23 35	114 15 5	<.24	2.08
	Million Hills			
MIL044G	36 19 10	114 5 20	<.08	6.57
MIL045G	36 19 10	114 5 21	<.02	39.86
MIL150G	36 18 52	114 3 30	<.02	25.53
MIL151G	36 19 35	114 2 58	.11	23.38
MIL152G	36 18 58	114 2 22	.02	26.59
MIL153G	36 20 31	114 2 50	<.05	11.56
MIL154G	36 20 33	114 2 47	<.03	17.85
MIL155G	36 19 47	114 2 32	<.05	8.66
MIL156G	36 19 55	114 2 35	<.02	37.05
MIL157G	36 17 36	114 2 34	<.07	7.70
MIL158G	36 17 41	114 2 31	<.13	3.91
MIL159G	36 16 12	114 3 36	<.02	42.62
MIL160G	36 16 14	114 3 38	<.08	6.53
MIL161G	36 16 16	114 3 36	<.09	5.56
MIL162G	36 15 5	114 5 8	.07	29.75
MIL163G	36 15 3	114 5 7	.03	20.48
MIL164G	36 15 5	114 2 5	<.02	29.94
MIL165G	36 15 39	114 1 46	<.02	35.03
MIL166G	36 17 0	114 2 14	.35	12.93
MIL167G	36 15 51	114 2 1	<.11	4.37
MIL168G	36 16 0	114 1 57	<.02	39.48
MIL169G	36 15 56	114 1 59	<.01	51.14
MIL170G	36 14 3	114 3 12	<.02	48.21
MIL171G	36 14 16	114 3 40	<.11	4.41
MIL172G	36 14 27	114 4 0	<.07	7.00
MIL173G	36 14 24	114 4 2	<.07	7.68
MIL174G	36 13 27	114 3 20	<.15	3.34
MIL175G	36 13 29	114 3 18	<.10	5.04