UNITED STATES DEPARTMENT OF THE INTERIOR

GEOLOGICAL SURVEY

Analytical results and sample locality map of stream-sediment, heavy-mineral-concentrate, and rock samples from the Willow Creek (CO-010-002) and Skull Creek (CO-010-003) Wilderness Study Areas, Moffat County, Colorado

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CONTENTS

ILLUSTRATIONS

TABLES

STUDIES RELATED TO WILDERNESS

Bureau of Land Management Wilderness Study Area

The Wilderness Act (Public Law 88-577, September 3, 1964) and any 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 potential. Results must be available to the public and be submitted to the President and Congress. This report presents the results of the geochemical survey of the Skull Creek (CO-01-003) and Willow Creek (CO-010-002) Wilderness Study Areas, Moffat County, Colorado.

INTRODUCTION

In June 1988, the U.S. Geological Survey conducted a reconnaissance geochemical survey of the Skull Creek (CO-010-003) and Willow Creek (CO-010-002) Wilderness Study areas, Moffat County, Colorado.

The Skull Creek study area consists of 13,368 acres, and it lies east of the Willow Creek study area which consists of 13,739 acres. The study areas lie just north of State Highway 40 between the small towns of Dinosaur and Masodona. Access to the study areas on the west is possible from a National Park service road and the eastern and northern boundaries follow secondary roads for the most part. The study areas are separated by a jeep trail. See figure 1 for locations of study areas.

The study areas lie along the crest of east-west trending anticlines. These anticlines, named after drainages in the respective areas, are the Willow Creek anticline and the Skull Creek anticline. The surface trace of the Willow Creek thrust fault nearly parallels the southern flanks of the anticlines. The terrain rises in elevation from south to north. Elevations at the base of the hogbacks along Highway 40 are about 5,800 ft and the ele-

vation of the northern edge of the Willow Creek study area rises to 8,000 ft.

The stratigraphic rock units exposed in the study areas include over 3,000 feet of Paleozoic and Mesozoic sediments. The oldest rock unit is the Weber Sandstone of lower Permian to upper and middle Pennsylvanian age. The Weber is exposed in the Skull Creek Basin. Mudstones and siltstones of the Park City Formation of the lower Permian overlie the Weber. The Moenkopi Formation of middle and lower Triassic overlies the Park City. The Chinle Formation which includes the basal Garta member of lower Triassic age overlies the Moenkopi units. The Glen Canyon Sandstone of lower Jurassic age overlies the Chinle. The Carmel Formation of middle Jurassic age is present over half the study area. Where the Carmel is present it is overlain by the Entrada and the Stmp Formation of middle and upper Jurassic age. The Morrison Formation of upper Jurassic age overlies the Stump. The Cedar Mountain Formation and the Dakota Formation of lower Cretaceous age overlies the Morrison. The Mancos Shale of upper Cretaceous age is the youngest rock unit in the study area. (For a more thorough description of individual formations and geology of these study areas refer to Van Loenen and others, 1990.)

METHODS OF STUDY

Sample Media

Analyses of the stream-sediment samples represent the chemistry of the rock material eroded from the drainage basin upstream from each sample site. Such information is useful in identifying those basins which contain concentrations of elements that may be related to mineral deposits. Heavy-mineral-concentrate samples provide information about the chemistry of certain minerals in rock material eroded from the drainage basin upstream from each sample site. The selective concentration of minerals, many of which may be ore related, permits determination of some elements that are not easily detected in stream-sediment samples.

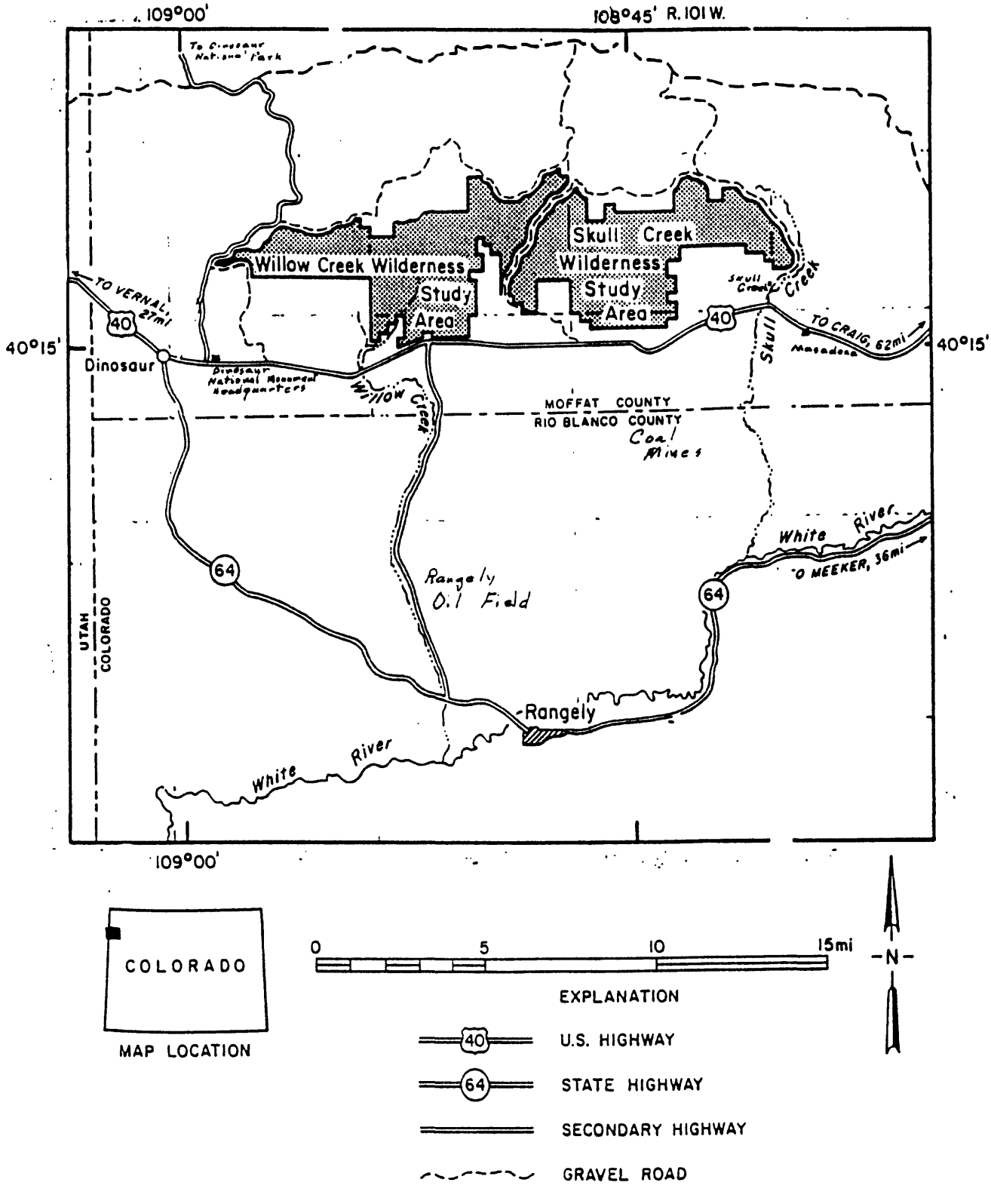

Figure 1. Location of the Willow Creek and Skull Creek Wilderness Study Areas, Moffat County, Colorado.

Analyses of unaltered or unmineralized rock samples provide background geochemical data for individual rock units. On the other hand, analyses of altered or mineralized rocks, where present, may provide useful geochemical information about the major- and trace-element assemblages associated with a mineralizing system.

Sample Collection

Eighty-two stream-sediment, 81 heavy-mineral-concentrate, and 10 rock samples were collected from the combined study areas. (The heavy-mineral-concentrate sample for 88SC140 was insufficient in size to be analyzed.) Average sampling density was about one sample per 0.52 mi^2 for the stream-sediment and heavy-mineral-concentrate samples. The approximate area of the drainage basins sampled ranged from 0.25 mi^2 to 1 mi^2. The locations of stream-sediment, heavy-mineral-concentrate, and rock samples are plotted in figure 2.

Stream-sediment samples

The stream-sediment samples were collected from first-order(unbranched), second-order (below the junction of two first-order), active and intermittent streams as shown on USGS topographic maps (scale = 1:24,000). Many of the stream beds were dry when samples were collected. Each sample was composited from several localities within an area that may extend as much as 10 feet from the site plotted on the map.

Heavy-mineral-concentrate samples

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

Rock samples

Rock samples were collected from outcrops or exposures in the vicinity of the plotted site location. Samples were collected from unaltered, altered, and mineralized rocks.

Sample Preparation

The stream sediments 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 and sieving to -35 mesh, bromoform (specific gravity 2.85) 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) by placing the sample in contact with the face of the magnet. The most magnetic material (removed at a setting of 0.25 ampere), consisting primarily of magnetite, was not analyzed. The second fraction (removed at a setting of 1.75 ampere), largely ferromagnesian silicates and iron oxides, was saved for analysis/archival storage. The third fraction (the nonmagnetic fraction which may include the ore minerals, zircon, sphene, etc.) was split using a Jones splitter for analysis. One split was hand ground for spectrographic analysis; the other split was saved for mineralogical analysis. The magnetic separates are the same as would be produced by using a Frantz Isodynamic Separtor 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 amperes to split the remainder of the sample into paramagnetic and nonmagnetic fractions.

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

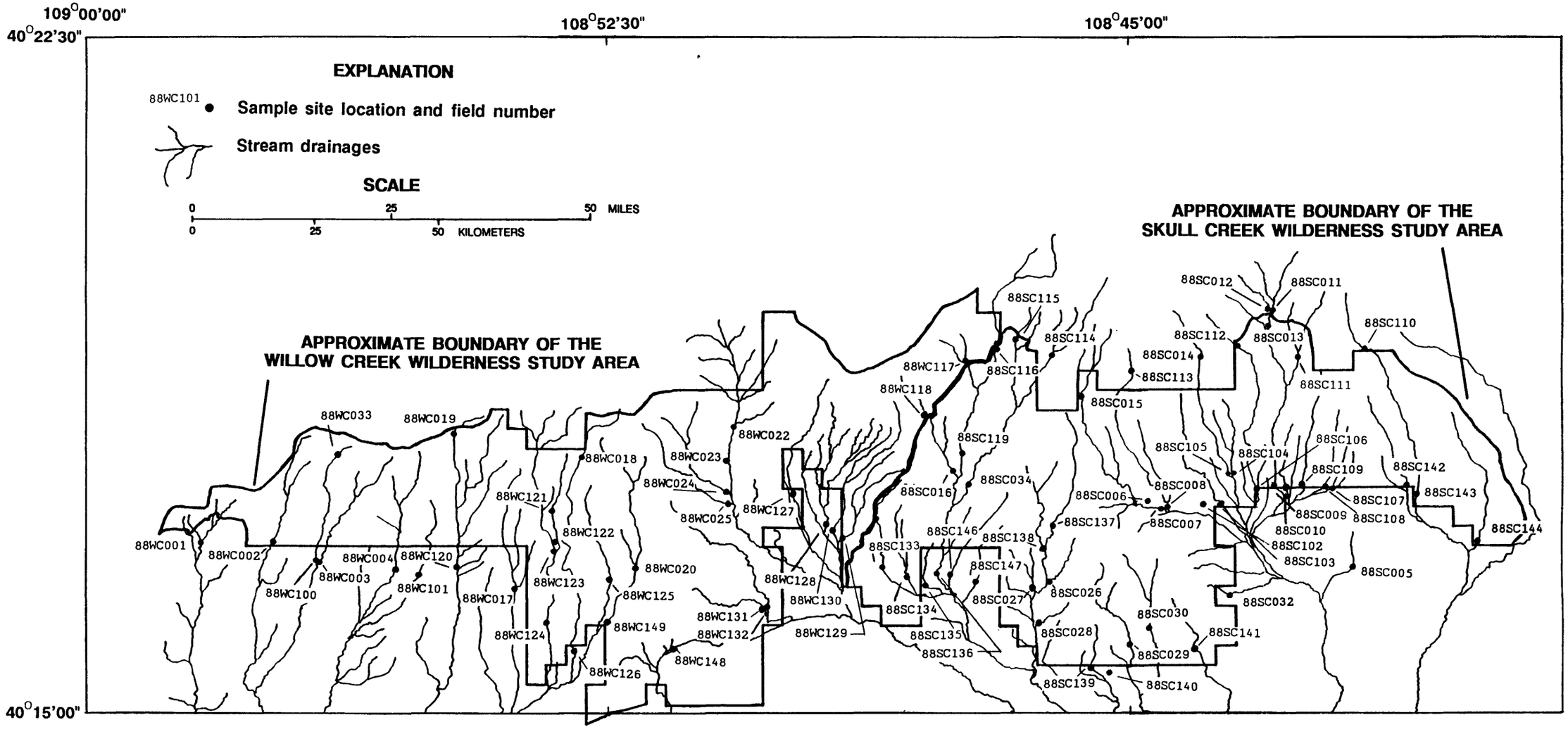

Figure 2.--Localities of stream-sediment, heavy-mineral-concentrate, and rock samples, from the Willow Creek and Skull Creek Wilderness Study Areas, Moffat County, Colorado.

Sample analysis

Spectrographic method

The stream-sediment, heavy-mineral-concentrate, and rock samples were analyzed for 35 elements using a semiquantitative, direct-current arc emission spectrographic method (Grimes and Marranzino, 1968). The elements determined and their lower limits of determination are listed in tables 1. Spectrographic results were obtained by visual comparison of spectra derived from the sample against spectra obtained from standards made from pure oxides and carbonates. Standard concentrations are geometrically spaced over any given order of magnitude of concentration as follows: 100, 50, 20, 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 (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 Willow Creek and Skull Creek study areas are listed in tables 3, 4, 5, 6,and 7.

Chemical methods

Other methods of analysis used on stream-sediment and rock samples include inductively coupled plasma atomic emission spectroscopy (ICP) for the determination of arsenic (As), bismuth (Bi), cadmium (Cd), antimony (Sb), and zinc (Zn), and delayed neutron activation analysis (DNAA) for the determination of thorium (Th) and uranium (U). Limits of determination and references are listed in table 2. Analytical results using these methods for stream-sediment and rock samples are listed in tables 3, 5, and 7.

ROCK ANALYSIS STORAGE SYSTEM

Upon completion of all analytical work, the analytical results were entered into a computer-based file called Rock Analysis Storage System (RASS). This data base contains both descriptive geological information and analytical data. Any or all of this information may be retrieved and converted to a binary form (STATPAC) for computerized statistical analysis or publication (VanTrump and Miesch, 1977).

DESCRIPTION OF DATA TABLES

Tables 3 and 4 list the results of analyses of stream-sediment and heavy-mineral-concentrate samples for the Willow Creek Wilderness Study Area, respectively. Tables 5 and 6 list the results of analyses of stream sediment and heavy-mineral-concentrate samples for the Skull Creek Wilderness Study Area, respectively. Table 7 lists the results of analyses of rock samples for both the Willow Creek and the Skull Creek Wilderness Study Areas. In all five tables, the data are arranged so that column 1 contains the USGS-assigned sample numbers. These numbers correspond to the numbers shown on the site location map (plate 1). Columns in which element headings show the letter "s" below the element symbol denote emission spectrographic analyses; "icp" denotes inductively coupled atomic emission spectrography; no symbol denotes delayed neutron activation analysis (DNAA). 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, or 2. For emission spectrographic analyses, a "less than" symbol (<) entered in the tables in front of the lower limit of detection indicates that an element was observed but was below the lowest reporting value. For ICP analyses, a "less than" symbol (<) was entered in the tables in front of the lower limit of detection indicate that the element was below the lowest reporting value. If an element was observed but was above the highest reporting value, a "greater than" symbol (>) was entered in the tables in front of the upper limit of detection. If an element was not looked for in the sample, two dashes(--) are entered in

tables 4-8 in place of an analytical value. Because of the formatting used in the computer program that produced tables 3-7, some of the elements listed in these tables (Fe, Mg, Ca, Ti, Ag, and Be) may 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.

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

[The spectrographic limits of determination for heavy-mineral-concentrate samples are based on a 5-mg sample, and are therefore two reporting intervals higher than the limits given for rocks and stream sediments]

Elements	Lower determination limit	Upper determination limit
	Percent	
Iron (Fe)	0.05	20
Magnesium (Mg)	.02	10
Calcium (Ca)	.05	20
Titanium (Ti)	.002	1
Phosphorus (P)	0.2	10
Sodium (Na)	0.2	5
	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
Gallium (Ga)	5	500
Germanium (Ge)	10	100
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
Paladium (Pd)*	5	1,000
Platinum (Pt)*	20	1,000

* Determined in heavy-mineral-concentrate samples only. Limits are for heavy-mineral-concentrate-samples.

TABLE 2.-- Limits of determination for other chemical methods used for analysis of rocks and stream sediments

[DNAA = delayed neutron activation analysis, ICP = inductively coupled plasma spectroscopy]

Element or constituent determined	Sample type	Method	Determination limit (micrograms/ gram or ppm)	Analyst	Reference
Arsenic (As)		ICP	5		Crock and others, 1983, and modification of O'Leary and Viets, 1986.
Antimony (Sb)		ICP	2		
Zinc (Zn)		ICP	2		
Bismuth (Bi)		ICP	2		
Cadmium (Cd)		ICP	.1		
Uranium (U)		DNAA	--		McKown and Millard, 1987.

TABLE 3. RESULTS OF ANALYSES OF STREAM-SEDIMENT SAMPLES FROM THE WILLOW CREEK WILDERNESS STUDY AREA, MOFFAT COUNTY, COLORADO

Sample	Latitude	Longitude	Ca %	Fe %	Mg %	Na %	P %	Ti %	Ag ppm	As ppm	Au ppm	B ppm
			s	s	s	s	s	s	s	s	s	s
88WC001	40 16 53	108 58 21	2.0	.2	.20	.2	<.2	.20	N	N	N	50
88WC002	40 16 54	108 57 19	2.0	.3	.30	.2	<.2	.20	N	N	N	70
88WC003	40 16 40	108 56 39	3.0	.3	.30	.2	<.2	.30	N	N	N	50
88WC004	40 16 36	108 55 33	2.0	.2	.30	.2	.2	.20	N	N	N	70
88WC018	40 17 50	108 52 52	3.0	.5	.50	<.2	.2	.20	N	N	N	70
88WC019	40 18 6	108 54 42	.7	.5	.50	.2	<.2	.30	N	N	N	100
88WC020	40 16 36	108 52 6	1.0	.2	.20	.2	<.2	.20	N	N	N	50
88WC022	40 18 11	108 50 41	2.0	1.0	.70	.2	<.2	.50	N	N	N	100
88WC025	40 17 27	108 50 48	1.5	.2	.30	.2	<.2	.20	N	N	N	70
88WC033	40 17 52	108 56 22	3.0	.5	.50	.2	.2	.20	N	N	N	70
88WC100	40 16 42	108 56 42	2.0	.2	.20	.2	<.2	.20	N	N	N	50
88WC101	40 16 32	108 55 13	1.5	.2	.20	<.2	<.2	.15	N	N	N	50
88WC117	40 18 55	108 47 21	3.0	2.0	1.50	.3	<.2	.50	N	N	N	70
88WC118	40 18 18	108 47 56	3.0	1.5	1.00	.2	<.2	.50	N	N	N	100
88WC120	40 12 37	108 54 40	2.0	.2	.30	<.2	<.2	.20	N	N	N	70
88WC121	40 17 15	108 53 17	3.0	.5	.50	<.2	.2	.20	N	N	N	70
88WC123	40 16 44	108 53 16	2.0	.2	.30	<.2	<.2	.20	N	N	N	30
88WC124	40 16 1	108 53 22	2.0	.2	.70	.2	<.2	.20	N	N	N	70
88WC125	40 16 29	108 53 28	2.0	.2	.50	.2	<.2	.30	N	N	N	50
88WC126	40 15 42	108 52 59	1.5	.2	.30	.2	<.2	.30	N	N	N	50
88WC127	40 17 25	108 49 50	3.0	2.0	2.00	.3	<.2	.50	N	N	N	100
88WC128	40 17 6	108 49 21	5.0	3.0	2.00	.3	<.2	.70	N	N	N	100
88WC129	40 16 56	108 49 7	2.0	.5	.30	<.2	<.2	.20	N	N	N	50
88WC130	40 17 1	108 47 16	2.0	2.0	1.00	.2	<.2	.50	N	N	N	100
88WC131	40 16 9	108 50 16	1.5	.2	.20	.2	<.2	.20	N	N	N	50
88WC132	40 16 11	108 50 12	.7	.5	.30	.2	<.2	.30	N	N	N	70
88WC148	40 15 43	108 51 34	3.0	1.0	.70	.2	<.2	.30	N	N	N	100
88WC149	40 16 1	108 52 30	1.0	.2	.15	<.2	<.2	.50	N	N	N	70
88WC017	40 16 23	108 53 50	1.5	.3	.70	.2	<.2	.30	N	N	N	30
88WC024	40 17 27	108 50 48	1.5	.7	.50	<.2	<.2	.50	N	N	N	50
88WC023	40 17 48	108 50 49	2.0	1.0	.70	<.2	<.2	.50	N	N	N	70

TABLE 3. RESULTS OF ANALYSES OF STREAM-SEDIMENT SAMPLES FROM THE WILLOW CREEK WILDERNESS STUDY AREA, MOFFAT COUNTY, COLORADO--Continued

Sample	Ba ppm s	Be ppm s	Bi ppm s	Cd ppm s	Co ppm s	Cr ppm s	Cu ppm s	Ga ppm s	Ge ppm s	La ppm s	Mn ppm s
88WC001	500	1	N	N	<10	<10	<5	5	N	N	150
88WC002	500	1	N	N	<10	70	5	5	N	N	200
88WC003	1,000	1	N	N	<10	5	5	5	N	N	300
88WC004	700	1	N	N	<10	15	5	5	N	N	200
88WC018	1,000	1	N	N	<10	20	7	5	N	N	500
88WC019	700	1	N	N	<10	20	10	5	N	N	500
88WC020	500	1	N	N	<10	10	<5	<5	N	N	150
88WC022	500	1	N	N	10	100	10	10	N	N	300
88WC025	500	1	N	N	<10	150	5	5	N	N	150
88WC033	1,000	1	N	N	<10	15	5	5	N	N	500
88WC100	1,000	1	N	N	<10	10	<5	5	N	N	200
88WC101	700	1	N	N	<10	30	<5	<5	N	N	150
88WC117	700	1	N	N	10	20	15	7	N	N	500
88WC118	1,000	1	N	N	10	30	10	7	N	N	500
88WC120	2,000	<1	N	N	<10	20	<5	5	N	N	200
88WC121	1,000	1	N	N	<10	20	7	<5	N	N	700
88WC123	700	<1	N	N	<10	<10	5	5	N	N	200
88WC124	1,000	<1	N	N	<10	20	5	5	N	N	150
88WC125	700	<1	N	N	<10	15	<5	5	N	N	200
88WC126	1,000	<1	N	N	<10	10	<5	5	N	N	200
88WC127	500	1	N	N	10	50	15	7	N	N	500
88WC128	700	1	N	N	15	20	30	5	N	N	700
88WC129	500	<1	N	N	N	<10	<5	5	N	N	150
88WC130	1,000	1	N	N	10	20	20	5	N	N	500
88WC131	500	<1	N	N	N	<10	<5	5	N	N	200
88WC132	700	<1	N	N	N	50	<5	7	N	N	200
88WC148	100	1	N	N	<10	20	10	5	N	N	500
88WC149	500	<1	N	N	N	50	<5	5	N	N	150
88WC017	500	<1	N	N	N	10	<5	5	N	N	500
88WC024	500	<1	N	N	N	150	7	5	N	N	300
88WC023	500	1	N	N	N	100	5	5	N	N	200

TABLE 3. RESULTS OF ANALYSES OF STREAM-SEDIMENT SAMPLES FROM THE WILLOW CREEK WILDERNESS STUDY AREA, MOFFAT COUNTY, COLORADO--Continued

Sample	Mo ppm s	Nb ppm s	Ni ppm s	Pb ppm s	Sb ppm s	Sc ppm s	Sn ppm s	Sr ppm s	Th ppm s	V ppm s	W ppm s
88WC001	<5	N	5	<10	N	<5	N	<100	N	20	<20
88WC002	<5	N	5	<10	N	<5	N	100	N	50	<20
88WC003	<5	N	5	<10	N	<5	N	200	N	20	<20
88WC004	<5	<20	5	<10	N	<5	N	200	N	30	<20
88WC018	<5	<20	10	<10	N	5	N	200	N	50	<20
88WC019	<5	<20	10	<10	N	5	N	100	N	50	<20
88WC020	<5	N	7	<10	N	<5	N	100	N	20	<20
88WC022	<5	<20	15	<10	N	7	N	100	N	50	<20
88WC025	<5	N	7	<10	N	5	N	100	N	30	<20
88WC033	<5	N	10	<10	N	5	N	150	N	50	<20
88WC100	<5	N	7	<10	N	<5	N	150	N	20	<20
88WC101	<5	N	5	<10	N	<5	N	150	N	15	<20
88WC117	<5	<20	20	<10	N	10	N	200	N	70	<20
88WC118	<5	N	20	<10	N	10	N	200	N	70	<20
88WC120	<5	N	7	<10	N	7	N	200	N	30	<20
88WC121	<5	N	10	<10	N	7	N	300	N	70	<20
88WC123	<5	N	<5	<10	N	N	N	100	N	20	<20
88WC124	<5	N	5	<10	N	N	N	150	N	20	<20
88WC125	<5	N	5	<10	N	<5	N	150	N	20	<20
88WC126	<5	N	5	<10	N	5	N	100	N	20	<20
88WC127	<5	N	20	<10	N	10	N	300	N	50	<20
88WC128	<5	N	30	<10	N	10	N	300	N	70	<20
88WC129	<5	N	5	<10	N	<5	N	100	N	20	<20
88WC130	<5	N	20	<10	N	10	N	200	N	50	<20
88WC131	<5	N	<5	<10	N	N	N	100	N	20	<20
88WC132	<5	N	5	<10	N	5	N	100	N	20	<20
88WC148	<5	N	10	<10	N	<5	N	200	N	50	<20
88WC149	<5	N	<5	<10	N	N	N	100	N	15	<20
88WC017	<5	N	<5	<10	N	N	N	100	N	15	<20
88WC024	<5	N	<5	<10	N	N	N	100	N	20	<20
88WC023	<5	N	5	<10	N	5	N	100	N	30	<20

TABLE 3. RESULTS OF ANALYSES OF STREAM-SEDIMENT SAMPLES FROM THE WILLOW CREEK WILDERNESS STUDY AREA, MOFFAT COUNTY, COLORADO--Continued

Sample	Y ppm s	Zn ppm s	Zr ppm s	As ppm icp	Bi ppm icp	Cd ppm icp	Sb ppm icp	Zn ppm icp	Th ppm	Cv/th %	U ppm	Cv/u %
88WC001	<10	N	700	<5	<2	<.1	<2	7	3.00	22	1.000	6
88WC002	<10	N	300	<5	<2	<.1	<2	12	3.20	22	1.090	6
88WC003	15	N	700	<5	<2	.1	<2	12	4.10	18	1.910	4
88WC004	15	N	500	<5	<2	<.1	<2	9	2.60	29	1.710	4
88WC018	20	N	300	<5	<2	.2	<2	18	6.50	16	2.370	4
88WC019	20	N	500	<5	<2	.2	<2	32	8.32	12	2.840	4
88WC020	<10	N	300	<5	<2	<.1	<2	12	2.60	26	1.110	5
88WC022	15	N	300	<5	<2	.2	<2	17	7.96	10	1.820	4
88WC025	<10	N	200	<5	<2	<.1	<2	10	2.80	25	1.110	6
88WC033	15	N	300	12	<2	.3	<2	28	6.50	16	3.100	4
88WC100	10	N	300	<5	<2	<.1	<2	10	3.90	18	1.440	5
88WC101	<10	N	500	<5	<2	<.1	<2	8	2.20	26	.934	6
88WC117	20	N	300	<5	<2	.2	<2	17	8.05	12	2.780	3
88WC118	30	N	200	<5	<2	.3	<2	18	9.32	10	2.600	4
88WC120	15	N	>1,000	<5	<2	<.1	<2	9	3.90	19	1.900	4
88WC121	20	N	300	<5	<2	.3	<2	22	7.34	13	2.120	4
88WC123	10	N	500	<5	<2	<.1	<2	10	<2.10	--	1.340	5
88WC124	15	N	500	<5	<2	<.1	<2	10	2.90	24	1.340	5
88WC125	50	N	>1,000	<5	<2	<.1	<2	10	<2.40	--	1.710	5
88WC126	10	N	>1,000	<5	<2	<.1	<2	10	4.20	17	1.650	4
88WC127	20	N	300	<5	<2	.2	<2	17	7.20	13	2.160	4
88WC128	30	N	500	<5	<2	.3	<2	22	8.46	11	2.340	4
88WC129	15	N	700	<5	<2	.1	<2	17	3.90	18	1.430	5
88WC130	70	N	>1,000	<5	<2	.3	<2	21	9.39	10	2.860	3
88WC131	<10	N	300	<5	<2	<.1	<2	12	<2.00	--	1.100	6
88WC132	<10	N	>1,000	<5	<2	<.1	<2	11	3.10	24	1.570	5
88WC148	15	N	200	<5	<2	.2	<2	25	5.00	17	1.590	6
88WC149	15	N	>1,000	<5	<2	<.1	<2	7	2.80	25	1.220	5
88WC017	<10	N	300	<5	<2	<.1	<2	9	3.10	23	1.330	5
88WC024	N	N	>1,000	<5	<2	<.1	<2	10	<1.90	--	.813	8
88WC023	<10	N	1,000	<5	<2	<.1	<2	8	4.70	18	1.510	5

TABLE 4. RESULTS OF ANALYSES OF HEAVY-MINERAL-CONCENTRATE SAMPLES FROM THE WILLOW CREEK WILDERNESS STUDY AREA, MOFFAT COUNTY, COLORADO

Sample	Latitude	Longitude	Ca % s	Fe % s	Mg % s	Na % s	P % s	Ti % s	Ag ppm s	As ppm s	Au ppm s
88WC001	40 16 53	108 58 21	.10	.7	.15	N	N	>2.0	N	N	N
88WC002	40 16 54	108 57 19	2.00	.2	.10	N	1.0	2.0	N	N	N
88WC003	40 16 40	108 56 39	.70	.2	.05	N	<.5	.7	N	N	N
88WC004	40 16 36	108 55 33	1.00	.3	.20	N	.7	2.0	N	N	N
88WC018	40 17 50	108 52 52	1.00	.5	.10	N	.7	1.5	N	N	N
88WC019	40 18 6	108 54 42	3.00	.5	.07	N	1.5	1.5	N	N	N
88WC020	40 16 36	108 52 6	.10	.5	.15	N	<.5	>2.0	N	N	N
88WC022	40 18 11	108 50 41	.15	.7	.20	N	N	2.0	N	N	N
88WC025	40 17 27	108 50 48	<.10	1.5	.15	N	N	>2.0	N	N	N
88WC033	40 17 52	108 56 22	2.00	.1	.15	N	.7	1.0	N	N	N
88WC100	40 16 42	108 56 42	3.00	.2	.07	N	2.0	2.0	N	N	N
88WC101	40 16 32	108 55 13	N	.5	.05	N	N	>2.0	N	N	N
88WC117	40 18 55	108 47 21	10.00	5.0	2.00	N	N	1.5	N	N	N
88WC118	40 18 18	108 47 56	1.00	10.0	.50	N	<.5	1.0	N	N	N
88WC120	40 16 37	108 54 40	1.50	.2	.07	N	N	2.0	N	N	N
88WC121	40 17 15	108 53 18	2.00	.3	.10	N	N	2.0	N	N	N
88WC123	40 16 48	108 53 16	3.00	.3	.15	N	2.0	>2.0	N	N	N
88WC124	40 16 1	108 53 22	.30	.2	.10	N	<.5	.7	N	N	N
88WC125	40 16 29	108 52 28	.50	.7	.10	N	.5	>2.0	N	N	N
88WC126	40 15 42	108 52 59	.20	.5	.05	N	<.5	>2.0	N	N	N
88WC127	40 17 25	108 49 50	.50	1.5	.30	N	N	2.0	N	N	N
88WC128	40 17 6	108 49 21	5.00	10.0	1.00	N	.7	.7	N	N	N
88WC129	40 16 56	108 49 7	<.10	.2	.10	N	N	2.0	N	N	N
88WC130	40 17 1	108 49 16	.50	3.0	.20	N	N	.3	N	N	N
88WC131	40 16 9	108 50 16	<.10	.5	.15	N	N	>2.0	N	N	N
88WC132	40 16 11	108 50 12	N	.3	<.05	N	N	>2.0	N	N	N
88WC148	40 15 43	108 51 34	1.50	.5	.07	N	1.0	1.0	N	N	N
88WC149	40 16 1	108 52 30	.50	.7	.10	N	.7	>2.0	N	N	N
88WC017	40 16 23	108 53 50	.20	1.0	.20	N	<.5	>2.0	N	N	N
88WC024	40 17 27	108 50 48	.30	.2	.10	N	<.5	>2.0	N	N	N
88WC023	40 17 48	108 50 49	.30	.3	.30	N	N	>2.0	N	N	N

TABLE 4. RESULTS OF ANALYSES OF HEAVY-MINERAL-CONCENTRATE SAMPLES FROM THE WILLOW CREEK WILDERNESS STUDY AREA, MOFFAT COUNTY, COLORADO--Continued

Sample	B ppm s	Ba ppm s	Be ppm s	Bi ppm s	Cd ppm s	Co ppm s	Cr ppm s	Cu ppm s	Ga ppm s
88WC001	150	7,000	<2	N	N	N	30	N	N
88WC002	20	>10,000	N	N	N	N	<20	N	N
88WC003	100	>10,000	N	N	N	N	20	N	N
88WC004	30	>10,000	<2	N	N	N	<20	N	N
88WC018	70	>10,000	N	N	N	N	20	N	N
88WC019	70	>10,000	N	N	N	N	50	N	N
88WC020	300	10,000	2	N	N	N	100	N	<10
88WC022	50	>10,000	N	N	N	N	30	N	<10
88WC025	500	10,000	2	N	N	N	500	N	<10
88WC033	30	>10,000	N	N	N	N	<20	N	N
88WC100	20	>10,000	N	N	N	N	20	N	N
88WC101	500	10,000	3	N	N	N	700	N	<10
88WC117	20	>10,000	N	N	N	<20	70	<10	<10
88WC118	<20	>10,000	N	N	N	20	30	50	10
88WC120	30	>10,000	N	N	N	N	<20	N	N
88WC121	50	>10,000	N	N	N	N	<20	N	N
88WC123	50	>10,000	<2	N	N	N	<20	N	N
88WC124	150	>10,000	N	N	N	N	20	N	N
88WC125	70	>10,000	<2	N	N	N	30	N	N
88WC126	100	>10,000	N	N	N	N	70	N	N
88WC127	30	>10,000	N	N	N	N	N	<10	N
88WC128	20	>10,000	N	N	N	<20	N	50	<10
88WC129	30	>10,000	<2	N	N	N	N	N	N
88WC130	<20	>10,000	N	N	N	N	N	15	N
88WC131	100	10,000	2	N	N	N	20	N	N
88WC132	100	10,000	3	N	N	N	<20	N	<10
88WC148	30	>10,000	N	N	N	N	<20	<10	N
88WC149	70	10,000	2	N	N	N	30	N	N
88WC017	500	10,000	2	N	N	N	100	N	N
88WC024	30	>10,000	<2	N	N	N	20	N	N
88WC023	50	>10,000	N	N	N	N	50	N	N

TABLE 4. RESULTS OF ANALYSES OF HEAVY-MINERAL-CONCENTRATE SAMPLES FROM THE WILLOW CREEK WILDERNESS STUDY AREA, MOFFAT COUNTY, COLORADO--Continued

Sample	Ge ppm s	La ppm s	Mn ppm s	Mo ppm s	Nb ppm s	Ni ppm s	Pb ppm s	Sb ppm s	Sc ppm s
88WC001	N	N	30	N	N	N	<20	N	50
88WC002	N	150	20	N	N	N	<20	N	N
88WC003	N	N	<20	N	N	N	N	N	N
88WC004	N	N	20	N	N	N	<20	N	<10
88WC018	N	200	30	N	<50	N	<20	N	N
88WC019	N	150	20	N	<50	N	<20	N	N
88WC020	N	N	30	N	N	N	<20	N	30
88WC022	N	N	<20	N	N	N	20	N	<10
88WC025	N	N	50	N	N	N	20	N	100
88WC033	N	100	30	N	<50	N	N	N	N
88WC100	N	100	20	N	N	N	<20	N	<10
88WC101	N	N	20	N	N	N	<20	N	70
88WC117	N	<100	100	N	50	<10	<20	N	<10
88WC118	N	N	70	N	<50	50	30	N	<10
88WC120	N	N	<20	N	N	N	<20	N	<10
88WC121	N	200	20	N	<50	N	<20	N	<10
88WC123	N	<100	20	N	N	N	200	N	50
88WC124	N	N	<20	N	N	N	N	N	N
88WC125	N	<100	30	N	N	N	<20	N	70
88WC126	N	N	<20	N	N	N	<20	N	15
88WC127	N	N	20	N	N	N	N	N	N
88WC128	N	N	100	N	<50	30	<20	N	N
88WC129	N	N	20	N	N	N	<20	N	50
88WC130	N	N	30	N	<50	<10	N	N	N
88WC131	N	N	<20	N	N	N	<20	N	70
88WC132	N	N	20	N	N	N	<20	N	100
88WC148	N	<100	<20	N	<50	N	20	N	N
88WC149	N	N	30	N	N	N	<20	N	70
88WC017	N	N	30	N	N	N	<20	N	50
88WC024	N	N	20	N	N	N	N	N	50
88WC023	N	N	20	N	N	N	<20	N	10

TABLE 4. RESULTS OF ANALYSES OF HEAVY-MINERAL-CONCENTRATE SAMPLES FROM THE WILLOW CREEK WILDERNESS STUDY AREA, MOFFAT COUNTY, COLORADO--Continued

Sample	Sn ppm s	Sr ppm s	Th ppm s	V ppm s	W ppm s	Y ppm s	Zn ppm s	Zr ppm s	Pd ppm s	Pt ppm s
88WC001	N	N	N	100	N	500	N	>2,000	N	N
88WC002	50	7,000	N	50	N	100	N	>2,000	N	N
88WC003	N	5,000	N	50	N	70	N	>2,000	N	N
88WC004	N	3,000	N	70	N	200	N	>2,000	N	N
88WC018	N	3,000	N	50	N	100	N	>2,000	N	N
88WC019	N	7,000	N	50	N	100	N	>2,000	N	N
88WC020	N	200	N	70	N	700	N	>2,000	N	N
88WC022	N	7,000	N	50	N	200	N	>2,000	N	N
88WC025	N	500	N	100	N	1,000	N	>2,000	N	N
88WC033	N	5,000	N	30	N	50	N	>2,000	N	N
88WC100	N	5,000	N	50	N	300	N	>2,000	N	N
88WC101	N	<200	N	100	N	1,500	N	>2,000	N	N
88WC117	N	5,000	N	50	N	200	N	>2,000	N	N
88WC118	N	10,000	N	30	N	150	N	>2,000	N	N
88WC120	N	10,000	N	50	N	300	N	>2,000	N	N
88WC121	N	10,000	N	50	N	200	N	>2,000	N	N
88WC123	N	10,000	N	70	N	500	N	>2,000	N	N
88WC124	N	5,000	N	20	N	30	N	>2,000	N	N
88WC125	N	1,000	N	100	N	1,000	N	>2,000	N	N
88WC126	N	3,000	N	70	N	500	N	>2,000	N	N
88WC127	N	>10,000	N	50	N	70	N	>2,000	N	N
88WC128	N	>10,000	N	20	N	50	N	>2,000	N	N
88WC129	N	1,500	N	50	N	1,000	N	>2,000	N	N
88WC130	N	10,000	N	20	N	30	N	>2,000	N	N
88WC131	N	N	N	100	N	1,000	N	>2,000	N	N
88WC132	N	200	N	100	N	1,500	N	>2,000	N	N
88WC148	N	10,000	N	30	N	50	N	>2,000	N	N
88WC149	N	200	N	100	N	1,000	N	>2,000	N	N
88WC017	N	N	N	100	N	700	N	>2,000	N	N
88WC024	N	700	N	70	N	700	N	>2,000	N	N
88WC023	N	5,000	N	70	N	500	N	>2,000	N	N

TABLE 5. RESULTS OF ANALYSES OF STREAM-SEDIMENT SAMPLES FROM THE SKULL CREEK WILDERNESS STUDY AREA, MOFFAT COUNTY, COLORADO

Sample	Latitude	Longitude	Ca % s	Fe % s	Mg % s	Na % s	P % s	Ti % s	Ag ppm s	As ppm s	Au ppm s	B ppm s
88SC006	40 17 21	108 44 44	1.5	1.5	.70	<.2	<.2	.30	N	N	N	70
88SC007	40 17 16	108 44 33	2.0	3.0	2.00	.2	<.2	.50	N	N	N	100
88SC008	40 17 17	108 44 27	1.5	1.0	.70	<.2	<.2	.30	N	N	N	30
88SC009	40 17 31	108 42 55	3.0	3.0	2.00	.5	<.2	.50	N	N	N	100
88SC010	40 17 31	108 42 45	.5	7.0	.30	<.2	<.2	.30	N	N	N	30
88SC011	40 19 29	108 42 55	3.0	5.0	2.00	.5	<.2	.70	N	N	N	100
88SC012	40 19 29	108 42 59	2.0	2.0	2.00	.3	<.2	.50	N	N	N	100
88SC013	40 19 18	108 42 59	3.0	3.0	1.50	.5	<.2	.50	N	N	N	100
88SC014	40 18 58	108 43 58	2.0	.5	1.00	<.2	<.2	.30	N	N	N	100
88SC015	40 18 31	108 45 41	2.0	3.0	1.50	.2	<.2	.50	N	N	N	100
88SC016	40 47 41	108 47 32	2.0	1.5	1.00	<.2	<.2	.50	N	N	N	50
88SC021	40 17 9	108 48 39	1.0	.5	.20	<.2	<.2	.30	N	N	N	50
88SC026	40 16 28	108 46 9	3.0	5.0	2.00	.3	<.2	.70	N	N	N	150
88SC027	40 16 23	108 46 23	2.0	.5	.50	<.2	<.2	.20	N	N	N	50
88SC028	40 16 3	108 46 18	2.0	5.0	2.00	.2	<.2	.70	N	N	N	150
88SC029	40 15 46	108 44 59	2.0	.5	1.50	.2	<.2	.30	N	N	N	100
88SC030	40 15 57	108 44 43	2.0	.7	1.50	.2	<.2	.30	N	N	N	100
88SC031	40 17 31	108 42 10	.5	.3	.20	<.2	<.2	.20	N	N	N	20
88SC032	40 16 19	108 43 33	.5	.3	.15	<.2	<.2	.20	N	N	N	20
88SC034	40 17 32	108 47 18	3.0	2.0	1.00	.2	<.2	.30	N	N	N	30
88SC102	40 17 19	108 43 56	.5	.5	.20	<.2	<.2	.20	N	N	N	30
88SC103	40 17 19	108 43 40	.3	.5	.30	<.2	<.2	.15	N	N	N	50
88SC104	40 17 38	108 43 31	.3	.5	.20	<.2	<.2	.20	N	N	N	30
88SC105	40 17 37	108 43 34	2.0	1.0	1.00	.2	<.2	.30	N	N	N	30
88SC106	40 17 29	108 43 10	2.0	1.0	1.00	.3	<.2	.30	N	N	N	50
88SC107	40 17 29	108 42 4	2.0	1.0	.50	<.2	<.2	.30	N	N	N	20
88SC108	40 17 31	108 42 10	2.0	.7	.30	<.2	<.2	.20	N	N	N	10
88SC109	40 17 33	108 42 30	1.0	.5	.20	<.2	<.2	.20	N	N	N	15
88SC110	40 19 3	108 41 36	3.0	5.0	2.00	.5	<.2	.50	N	<200	N	100
88SC111	40 18 57	108 42 33	5.0	5.0	2.00	.5	<.2	.50	N	N	N	100
88SC112	40 19 5	108 43 26	3.0	3.0	1.50	.5	<.2	.50	N	N	N	70
88SC113	40 18 48	108 44 57	2.0	3.0	1.50	.2	<.2	.50	N	N	N	70
88SC114	40 18 58	108 46 6	3.0	2.0	1.50	.3	<.2	.50	N	N	N	100
88SC115	40 19 8	108 46 38	3.0	5.0	2.00	.5	<.2	.50	N	N	N	100
88SC116	40 19 3	108 46 54	3.0	1.5	2.00	.3	<.2	.30	N	N	N	100
88SC119	40 17 52	108 47 24	3.0	1.5	1.50	.3	<.2	.30	N	N	N	100
88SC133	40 16 37	108 48 33	1.5	1.0	.30	<.2	<.2	.20	N	N	N	20
88SC134	40 16 31	108 48 12	2.0	.3	.30	<.2	<.2	.20	N	N	N	15
88SC135	40 16 25	108 47 56	.7	.7	.50	<.2	<.2	.30	N	N	N	20
88SC136	40 16 33	108 47 46	2.0	.5	.50	<.2	<.2	.20	N	N	N	15
88SC137	40 17 5	108 46 6	2.0	.7	.70	<.2	<.2	.15	N	N	N	20
88SC138	40 16 49	108 46 14	.3	.5	.15	<.2	<.2	.10	N	N	N	30
88SC139	46 15 31	108 45 34	.2	.2	.15	<.2	<.2	.07	N	N	N	50
88SC140	40 15 27	108 45 17	.2	.2	.10	<.2	<.2	.10	N	N	N	30
88SC141	40 15 43	108 40 5	.2	.2	.10	<.2	<.2	.30	N	N	N	30

TABLE 5. RESULTS OF ANALYSES OF STREAM-SEDIMENT SAMPLES FROM THE SKULL CREEK WILDERNESS STUDY AREA, MOFFAT COUNTY, COLORADO--Continued

Sample	Ba ppm s	Be ppm s	Bi ppm s	Cd ppm s	Co ppm s	Cr ppm s	Cu ppm s	Ga ppm s	Ge ppm s	La ppm s	Mn ppm s
88SC006	500	<1.0	N	N	<10	150	5	5	N	N	200
88SC007	500	1.0	N	N	15	50	20	7	N	<50	700
88SC008	500	<1.0	N	N	<10	20	<5	5	N	N	300
88SC009	700	1.0	N	N	10	50	30	10	N	<50	700
88SC010	300	<1.0	N	N	N	15	<5	5	N	N	150
88SC011	1,000	1.0	N	N	15	20	50	10	N	<50	1,000
88SC012	700	1.0	N	N	10	50	20	10	N	N	1,000
88SC013	500	<1.0	N	N	10	50	30	10	N	<50	700
88SC014	700	<1.0	N	N	N	50	<5	5	N	N	300
88SC015	700	1.0	N	N	10	70	30	10	N	<50	700
88SC016	500	<1.0	N	N	<10	20	20	5	N	N	300
88SC021	300	<1.0	N	N	N	15	<5	5	N	N	150
88SC026	700	1.0	N	N	15	50	50	10	N	50	1,000
88SC027	300	<1.0	N	N	N	10	<5	5	N	N	100
88SC028	700	1.0	N	N	10	100	15	7	N	<50	500
88SC029	700	<1.0	N	N	<10	20	5	7	N	N	200
88SC030	500	1.0	N	N	<10	20	5	7	N	<50	300
88SC031	300	<1.0	N	N	N	10	<5	<5	N	<50	150
88SC032	700	<1.0	N	N	N	15	<5	7	N	<50	100
88SC034	700	<1.0	N	N	<10	20	7	5	N	<50	300
88SC102	300	<1.0	N	N	<10	10	<5	<5	N	N	150
88SC103	500	<1.0	N	N	<10	10	<5	5	N	N	150
88SC104	300	<1.0	N	N	<10	10	<5	<5	N	N	70
88SC105	500	<1.0	N	N	<10	15	<5	5	N	N	200
88SC106	500	1.0	N	N	<10	30	5	7	N	N	500
88SC107	300	<1.0	N	N	<10	20	<5	5	N	N	150
88SC108	500	<1.0	N	N	<10	15	<5	5	N	N	100
88SC109	500	<1.0	N	N	<10	15	<5	5	N	N	70
88SC110	700	1.0	N	N	10	50	30	10	N	<50	1,000
88SC111	700	1.0	N	N	15	70	70	7	N	<50	1,000
88SC112	700	1.0	N	N	15	70	10	7	N	N	700
88SC113	700	1.0	N	N	15	70	20	5	N	N	1,000
88SC114	500	1.0	N	N	<10	20	5	7	N	N	500
88SC115	500	1.5	N	N	20	50	30	10	N	<50	1,000
88SC116	1,000	1.0	N	N	<10	30	10	7	N	N	700
88SC119	1,000	1.0	N	N	10	100	15	7	N	50	700
88SC133	300	<1.0	N	N	<10	20	<5	<5	N	N	150
88SC134	300	<1.0	N	N	<10	20	<5	<5	N	N	150
88SC135	300	N	N	N	<10	50	<5	5	N	N	100
88SC136	300	<1.0	N	N	N	20	<5	<5	N	N	150
88SC137	500	<1.0	N	N	<10	30	<5	5	N	N	150
88SC138	300	<1.0	N	N	<10	<10	<5	5	N	N	100
88SC139	500	1.0	N	N	<10	100	<5	<5	N	N	100
88SC140	500	1.0	N	N	<10	10	<5	5	N	N	1,000
88SC141	700	1.0	N	N	<10	20	<5	5	N	N	100

TABLE 5. RESULTS OF ANALYSES OF STREAM-SEDIMENT SAMPLES FROM THE SKULL CREEK WILDERNESS STUDY AREA, MOFFAT COUNTY, COLORADO--Continued

Sample	Mo ppm s	Nb ppm s	Ni ppm s	Pb ppm s	Sb ppm s	Sc ppm s	Sn ppm s	Sr ppm s	Th ppm s	V ppm s	W ppm s
88SC006	N	N	7	<10	N	5	N	100	N	20	<20
88SC007	N	N	20	<10	N	10	N	200	N	100	<20
88SC008	N	N	7	<10	N	<5	N	100	N	20	<20
88SC009	N	N	20	<10	N	5	N	200	N	100	<20
88SC010	N	N	5	<10	N	<5	N	<100	N	20	<20
88SC011	N	N	15	<10	N	7	N	150	N	70	<20
88SC012	N	N	10	<10	N	7	N	200	N	50	<20
88SC013	N	N	15	<10	N	7	N	100	N	50	<20
88SC014	N	N	<5	<10	N	5	N	100	N	20	<20
88SC015	N	N	20	<10	N	10	N	150	N	50	<20
88SC016	N	N	7	<10	N	5	N	100	N	50	<20
88SC021	N	N	7	<10	N	<5	N	100	N	30	<20
88SC026	N	<20	30	<10	N	10	N	300	N	70	<20
88SC027	N	N	5	<10	N	<5	N	100	N	30	<20
88SC028	N	<20	20	<10	N	10	N	150	N	70	<20
88SC029	N	N	7	<10	N	5	N	100	N	20	<20
88SC030	N	N	7	<10	N	5	N	100	N	20	<20
88SC031	N	N	5	<10	N	N	N	<100	N	15	<20
88SC032	N	N	5	<10	N	N	N	<100	N	15	<20
88SC034	N	N	7	<10	N	5	N	100	N	20	<20
88SC102	N	N	5	<10	N	<5	N	<100	N	15	<20
88SC103	N	N	5	<10	N	N	N	100	N	15	<20
88SC104	N	N	5	<10	N	N	N	100	N	20	<20
88SC105	N	N	5	<10	N	5	N	100	N	20	<20
88SC106	N	N	10	<10	N	5	N	150	N	30	<20
88SC107	N	N	5	<10	N	<5	N	<100	N	30	<20
88SC108	N	N	5	<10	N	<5	N	100	N	20	<20
88SC109	N	N	<5	<10	N	<5	N	100	N	20	<20
88SC110	5	<20	20	<10	N	10	N	200	N	50	<20
88SC111	N	<20	30	<10	N	10	N	200	N	70	<20
88SC112	N	N	20	<10	N	10	N	300	N	70	<20
88SC113	N	N	20	<10	N	10	N	200	N	50	<20
88SC114	N	N	10	<10	N	7	N	200	N	50	<20
88SC115	N	<20	20	<10	N	10	N	200	N	70	<20
88SC116	N	N	10	<10	N	7	N	200	N	50	<20
88SC119	N	N	10	20	N	7	N	200	N	30	<20
88SC133	N	N	5	<10	N	<5	N	<100	N	15	<20
88SC134	N	N	7	<10	N	<5	N	<100	N	15	<20
88SC135	N	N	5	<10	N	<5	N	<100	N	20	<20
88SC136	N	N	<5	<10	N	<5	N	<100	N	15	<20
88SC137	N	N	<5	<10	N	N	N	<100	N	20	<20
88SC138	N	N	<5	<10	N	N	N	<100	N	20	<20
88SC139	N	N	<5	<10	N	N	N	<100	N	15	<20
88SC140	N	N	<5	<10	N	N	N	<100	N	15	<20
88SC141	N	N	<5	<10	N	N	N	<100	N	20	<20

TABLE 5. RESULTS OF ANALYSES OF STREAM-SEDIMENT SAMPLES FROM THE SKULL CREEK WILDERNESS STUDY AREA, MOFFAT COUNTY, COLORADO--Continued

Sample	Y ppm s	Zn ppm s	Zr ppm s	As ppm icp	Bi ppm icp	Cd ppm icp	Sb ppm icp	Zn ppm icp	Th ppm	Cv/th %	U ppm	Cv/u %
88SC006	10	N	300	<5	<2	.1	<2	12	<2.40	--	1.730	5
88SC007	30	N	500	<5	<2	.2	<2	22	6.34	15	2.340	4
88SC008	10	N	500	<5	<2	.2	<2	13	3.70	22	1.800	5
88SC009	30	N	1,000	<5	<2	.2	<2	16	7.33	12	2.080	4
88SC010	<10	N	>1,000	<5	<2	.2	<2	16	<2.50	--	2.470	4
88SC011	30	N	>1,000	<5	<2	.2	<2	20	7.33	14	2.730	4
88SC012	20	N	>1,000	<5	<2	.2	<2	17	6.87	13	2.200	4
88SC013	15	N	500	<5	<2	.2	<2	17	7.09	12	2.190	4
88SC014	20	N	>1,000	<5	<2	<.1	<2	5	4.80	16	1.950	4
88SC015	20	N	700	<5	<2	.2	<2	24	6.86	13	2.460	4
88SC016	10	N	500	<5	<2	.2	<2	14	3.20	23	1.740	4
88SC021	<10	N	>1,000	<5	<2	.1	<2	12	4.00	18	1.620	4
88SC026	30	N	1,000	<5	<2	.3	<2	20	6.53	15	2.830	3
88SC027	10	N	>1,000	<5	<2	.2	<2	14	2.80	25	1.240	5
88SC028	30	N	1,000	<5	<2	.2	<2	9	10.80	10	2.810	4
88SC029	10	N	700	9	<2	<.1	<2	11	<2.30	--	1.220	6
88SC030	10	N	1,000	7	<2	.1	<2	8	3.90	20	1.430	5
88SC031	<10	N	>1,000	<5	<2	.2	<2	13	2.90	28	2.440	3
88SC032	<10	N	300	29	<2	<.1	<2	12	<1.80	--	.931	6
88SC034	15	N	>1,000	<5	<2	.1	<2	13	3.60	20	1.780	4
88SC102	10	N	1,000	<5	<2	.2	<2	14	3.00	25	1.600	5
88SC103	N	N	300	<5	<2	.2	<2	18	3.90	17	1.400	5
88SC104	<10	N	500	<5	<2	.2	<2	18	3.10	21	1.410	5
88SC105	15	N	1,000	<5	<2	<.1	<2	7	5.39	15	1.550	5
88SC106	15	N	700	<5	<2	.2	<2	13	5.52	14	1.840	4
88SC107	10	N	>1,000	<5	<2	.4	<2	16	3.40	21	1.640	4
88SC108	N	N	700	<5	<2	.2	<2	13	2.70	26	1.420	5
88SC109	10	N	700	<5	<2	.3	<2	18	<2.50	--	2.440	4
88SC110	20	N	700	<5	<2	.3	<2	23	8.85	11	2.610	4
88SC111	30	N	1,000	<5	<2	.3	<2	24	6.94	13	2.680	3
88SC112	30	N	500	<5	<2	.2	<2	17	7.97	12	2.450	4
88SC113	20	N	700	<5	<2	.3	<2	27	8.52	11	2.810	3
88SC114	30	N	1,000	<5	<2	.2	<2	10	7.19	13	2.000	5
88SC115	30	N	500	<5	<2	.3	<2	23	10.20	11	3.230	3
88SC116	20	N	700	<5	<2	.2	<2	10	7.15	14	2.680	4
88SC119	30	N	500	<5	<2	.2	<2	9	6.87	13	2.470	4
88SC133	10	N	1,000	<5	<2	.2	<2	18	<2.30	--	2.010	4
88SC134	<10	N	1,000	5	<2	.2	<2	17	<2.40	--	1.780	5
88SC135	<10	N	>1,000	<5	<2	.2	<2	17	<2.50	--	2.050	4
88SC136	<10	N	>1,000	7	<2	.2	<2	10	2.70	27	1.270	6
88SC137	<10	N	1,000	<5	<2	.3	<2	18	<2.50	--	1.400	6
88SC138	<10	N	700	<5	<2	.2	<2	13	2.80	29	1.760	5
88SC139	<10	N	1,000	6	<2	<.1	<2	7	<2.10	--	.898	7
88SC140	<10	N	200	30	<2	<.1	<2	21	2.50	28	.622	11
88SC141	<10	N	>1,000	29	<2	<.1	<2	14	<2.00	--	1.120	6

TABLE 5. RESULTS OF ANALYSES OF STREAM-SEDIMENT SAMPLES FROM THE SKULL CREEK WILDERNESS STUDY AREA, MOFFAT COUNTY, COLORADO--Continued

Sample	Latitude	Longitude	Ca % s	Fe % s	Mg % s	Na % s	P % s	Ti % s	Ag ppm s	As ppm s	Au ppm s	B ppm s
88SC142	40 17 32	108 40 59	.3	.5	.15	<.2	<.2	.20	N	N	N	20
88SC143	40 17 26	108 40 51	2.0	2.0	1.00	.2	<.2	.30	N	N	N	30
88SC144	40 16 54	108 39 59	1.5	.5	.30	<.2	<.2	.30	N	N	N	50
88SC145	40 16 37	108 41 47	2.0	.7	1.00	.2	<.2	.30	N	N	N	50
88SC146	40 16 33	108 47 34	.5	.3	.50	<.2	<.2	.10	N	N	N	20
88SC147	40 16 28	108 47 12	2.0	.5	.30	<.2	<.2	.20	N	N	N	20

Sample	Ba ppm s	Be ppm s	Bi ppm s	Cd ppm s	Co ppm s	Cr ppm s	Cu ppm s	Ga ppm s	Ge ppm s	La ppm s	Mn ppm s
88SC142	300	<1.0	N	N	<10	20	<5	<5	N	N	70
88SC143	500	1.0	N	N	<10	30	5	7	N	N	700
88SC144	500	<1.0	N	N	<10	20	<5	5	N	N	100
88SC145	500	1.0	N	N	<10	20	7	7	N	N	200
88SC146	500	1.0	N	N	<10	10	<5	<5	N	N	70
88SC147	300	1.0	N	N	<10	10	<5	5	N	N	150

Sample	Mo ppm s	Nb ppm s	Ni ppm s	Pb ppm s	Sb ppm s	Sc ppm s	Sn ppm s	Sr ppm s	Th ppm s	V ppm s	W ppm s
88SC142	N	N	<5	<10	N	N	N	<100	N	20	<20
88SC143	N	N	10	<10	N	5	N	200	N	30	<20
88SC144	N	N	5	<10	N	<5	N	100	N	20	<20
88SC145	N	N	5	<10	N	5	N	150	N	50	<20
88SC146	N	N	5	<10	N	N	N	100	N	15	<20
88SC147	N	N	5	<10	N	<5	N	<100	N	15	<20

Sample	Y ppm s	Zn ppm s	Zr ppm s	As ppm icp	Bi ppm icp	Cd ppm icp	Sb ppm icp	Zn ppm icp	Th ppm	Cv/th %	U ppm	Cv/u %
88SC142	<10	N	1,000	<5	<2	.4	<2	18	<2.40	--	1.420	6
88SC143	10	N	1,000	<5	<2	.2	<2	17	7.25	14	2.300	4
88SC144	N	N	>1,000	<5	<2	.2	<2	13	<2.50	--	2.360	4
88SC145	15	N	1,000	<5	<2	.1	<2	12	5.30	18	1.990	5
88SC146	N	N	300	<5	<2	.3	<2	16	3.30	20	1.150	6
88SC147	N	N	300	<5	<2	.2	<2	10	<2.30	--	1.160	7

TABLE 6. RESULTS OF ANALYSES OF HEAVY-MINERAL-CONCENTRATE SAMPLES FROM THE SKULL CREEK WILDERNESS STUDY AREA, MOFFAT COUNTY, COLORADO

Sample	Latitude	Longitude	Ca % s	Fe % s	Mg % s	Na % s	P % s	Ti % s	Ag ppm s	As ppm s	Au ppm s
88SC137	40 17 5	108 46 6	.10	1.5	.30	N	N	>2.00	N	N	N
88SC138	40 16 49	108 46 14	N	1.0	.07	N	N	>2.00	N	N	N
88SC139	40 15 31	108 45 34	N	.5	.10	N	N	>2.00	N	N	N
88SC141	40 15 43	108 40 5	N	1.0	<.05	N	N	>2.00	N	N	N
88SC142	40 17 32	108 40 59	N	1.0	.05	N	N	>2.00	N	N	N
88SC143	40 17 26	108 40 51	1.00	1.0	1.00	N	N	1.00	N	N	N
88SC144	40 16 54	108 39 59	N	.7	<.05	N	N	>2.00	N	N	N
88SC145	40 16 37	108 41 47	.20	1.5	.30	N	N	2.00	N	N	N
88SC146	40 16 33	108 47 34	N	.2	.05	N	N	2.00	N	N	N
88SC147	40 16 28	108 47 12	.15	.2	.15	N	N	>2.00	N	N	N
88SC006	40 17 21	108 44 44	.20	.5	.10	N	N	.70	N	N	N
88SC007	40 17 16	108 44 33	1.00	3.0	.50	N	N	.50	N	N	N
88SC008	40 17 17	108 44 27	.30	.3	.07	N	N	2.00	N	N	N
88SC009	40 17 31	108 42 55	1.00	2.0	.30	N	N	2.00	N	N	N
88SC010	40 17 31	108 42 45	N	.1	<.05	N	N	2.00	N	N	N
88SC011	40 19 29	108 42 55	1.00	2.0	.30	N	N	1.50	N	N	N
88SC012	40 19 29	108 42 59	.50	3.0	.20	N	N	2.00	N	N	N
88SC013	40 19 18	108 42 57	1.50	5.0	.50	N	<.5	1.50	N	N	N
88SC014	40 18 58	108 43 58	N	1.5	.10	N	N	2.00	N	N	N
88SC015	40 18 31	108 45 41	2.00	.7	.30	N	1.0	1.00	5	N	N
88SC016	40 17 41	108 47 32	.30	3.0	.30	N	<.5	1.50	N	N	N
88SC021	40 17 9	108 48 39	N	.3	<.05	N	N	2.00	N	N	N
88SC026	40 16 28	108 46 9	1.00	10.0	.70	N	N	.15	N	N	N
88SC027	40 16 23	108 46 23	<.10	.1	.15	N	N	2.00	N	N	N
88SC028	40 16 3	108 46 18	.50	.3	.50	N	N	1.50	N	N	N
88SC029	40 15 46	108 44 59	.20	.2	.20	N	N	2.00	N	N	N
88SC030	40 15 57	108 44 43	.50	.3	.70	N	N	>2.00	N	N	N
88SC031	40 17 31	108 42 10	N	.2	.07	N	N	2.00	<1	N	N
88SC032	40 16 19	108 43 33	.10	2.0	.15	N	N	>2.00	N	N	N
88SC034	40 17 32	108 47 18	<.10	.7	.10	N	N	1.00	N	N	N
88SC102	40 17 19	108 43 56	N	.5	<.05	N	N	>2.00	N	N	N
88SC103	40 17 19	108 43 40	N	1.0	.10	N	N	>2.00	N	N	N
88SC104	40 17 38	108 43 31	N	.5	.05	N	N	2.00	N	N	N
88SC105	40 17 37	108 43 34	.15	.7	.50	N	N	>2.00	N	N	N
88SC106	40 17 29	108 43 10	.15	2.0	.30	N	<.5	>2.00	N	N	N
88SC107	40 17 29	108 42 4	<.10	.5	.20	N	N	2.00	N	N	N
88SC108	40 17 31	108 42 10	<.10	.5	.15	N	N	2.00	N	N	N
88SC109	40 17 33	108 42 30	N	.3	<.05	N	N	>2.00	N	N	N
88SC110	40 19 3	108 41 36	1.00	3.0	.10	N	.5	1.50	N	N	N
88SC111	40 18 57	108 42 33	.70	2.0	.50	N	N	1.00	3	N	N
88SC112	40 19 5	108 43 26	.70	2.0	.70	N	<.5	1.50	N	N	N
88SC113	40 18 48	108 44 57	5.00	1.0	2.00	N	<.5	.70	N	N	N
88SC114	40 18 58	108 46 6	.50	5.0	.70	N	N	>2.00	N	N	N
88SC115	40 19 8	108 46 38	.70	5.0	.70	N	N	.50	N	N	N
88SC116	40 19 3	108 46 54	.20	.3	.20	N	N	1.00	N	N	N

TABLE 6. RESULTS OF ANALYSES OF HEAVY-MINERAL-CONCENTRATE SAMPLES FROM THE SKULL CREEK WILDERNESS STUDY AREA, MOFFAT COUNTY, COLORADO--Continued

Sample	B ppm s	Ba ppm s	Be ppm s	Bi ppm s	Cd ppm s	Co ppm s	Cr ppm s	Cu ppm s	Ga ppm s
88SC137	1,500	3,000	2	N	N	N	700	N	N
88SC138	300	500	3	N	N	N	300	N	N
88SC139	700	2,000	<2	N	N	N	500	N	N
88SC141	200	2,000	3	N	N	N	200	N	N
88SC142	200	300	2	N	N	N	200	N	N
88SC143	20	>10,000	N	N	N	N	N	15	N
88SC144	300	1,000	2	N	N	N	300	N	N
88SC145	150	>10,000	<2	N	N	N	100	10	<10
88SC146	70	10,000	2	N	N	N	50	N	10
88SC147	100	3,000	3	N	N	N	20	N	<10
88SC006	30	>10,000	N	N	N	N	N	<10	N
88SC007	<20	>10,000	N	N	N	N	N	30	N
88SC008	100	>10,000	<2	N	N	N	<20	N	<10
88SC009	30	>10,000	N	N	N	N	<20	10	N
88SC010	100	2,000	<2	N	N	N	70	N	10
88SC011	20	>10,000	N	N	N	N	<20	15	N
88SC012	30	>10,000	N	N	N	N	20	20	<10
88SC013	70	>10,000	N	N	N	N	50	30	10
88SC014	30	10,000	<2	N	N	N	<20	N	<10
88SC015	20	>10,000	N	N	N	N	<20	N	N
88SC016	50	>10,000	N	N	N	N	20	<10	N
88SC021	100	7,000	2	N	N	N	30	N	N
88SC026	<20	>10,000	N	N	N	<20	N	100	15
88SC027	50	2,000	<2	N	N	N	<20	N	<10
88SC028	30	>10,000	N	N	N	N	50	<10	N
88SC029	50	>10,000	N	N	N	N	50	<10	N
88SC030	200	>10,000	N	N	N	N	150	<10	N
88SC031	150	2,000	2	N	N	N	300	N	<10
88SC032	1,000	7,000	<2	N	N	N	700	10	<10
88SC034	50	>10,000	N	N	N	N	30	N	N
88SC102	150	7,000	3	N	N	N	100	N	N
88SC103	300	2,000	2	N	N	N	500	N	N
88SC104	300	1,000	2	N	N	N	150	N	N
88SC105	150	>10,000	<2	N	N	N	200	N	N
88SC106	50	>10,000	2	N	N	N	150	<10	N
88SC107	70	>10,000	<2	N	N	N	30	N	N
88SC108	150	1,500	2	N	N	N	70	N	N
88SC109	100	1,000	<2	N	N	N	30	N	N
88SC110	50	>10,000	N	N	N	N	30	20	N
88SC111	<20	>10,000	N	N	N	N	<20	20	N
88SC112	20	>10,000	N	N	N	N	<20	10	N
88SC113	30	>10,000	N	N	N	<20	<20	10	<10
88SC114	500	>10,000	<2	N	N	N	150	30	N
88SC115	<20	>10,000	N	N	N	N	N	20	<10
88SC116	N	>10,000	N	N	N	N	N	N	N

TABLE 6. RESULTS OF ANALYSES OF HEAVY-MINERAL-CONCENTRATE SAMPLES FROM THE SKULL CREEK WILDERNESS STUDY AREA, MOFFAT COUNTY, COLORADO--Continued

Sample	Ge ppm s	La ppm s	Mn ppm s	Mo ppm s	Nb ppm s	Ni ppm s	Pb ppm s	Sb ppm s	Sc ppm s
88SC137	N	N	70	N	N	N	<20	N	70
88SC138	N	N	70	N	N	N	20	N	100
88SC139	N	N	50	N	N	<10	<20	N	10
88SC141	N	N	20	N	N	<10	200	N	20
88SC142	N	N	20	N	N	<10	<20	N	20
88SC143	N	N	100	N	N	N	30	N	N
88SC144	N	N	20	N	N	N	20	N	70
88SC145	N	200	30	N	N	N	1,000	N	50
88SC146	N	N	50	N	N	N	20	N	70
88SC147	N	N	30	N	N	N	20	N	150
88SC006	N	N	<20	N	N	N	N	N	N
88SC007	N	N	70	N	N	10	<20	N	N
88SC008	N	N	<20	N	<50	N	20	N	10
88SC009	N	N	50	N	<50	N	<20	N	N
88SC010	N	N	50	N	N	N	20	N	70
88SC011	N	N	50	20	<50	N	50	N	N
88SC012	N	N	50	N	N	<10	<20	N	30
88SC013	N	N	100	N	<50	<10	20	N	<10
88SC014	N	N	20	N	N	N	<20	N	30
88SC015	N	N	50	N	<50	N	N	N	<10
88SC016	N	N	30	N	N	<10	<20	N	20
88SC021	N	N	20	N	N	N	20	N	50
88SC026	N	N	200	N	N	30	<20	N	N
88SC027	N	N	20	N	N	N	<20	N	30
88SC028	N	N	20	N	<50	N	20	N	15
88SC029	N	N	<20	N	N	N	700	N	<10
88SC030	N	N	20	N	<50	N	200	N	10
88SC031	N	N	30	N	N	N	<20	N	50
88SC032	N	N	70	N	<50	N	200	N	20
88SC034	N	N	<20	N	N	N	N	N	<10
88SC102	N	N	70	N	N	N	50	N	100
88SC103	N	N	50	N	N	<10	<20	N	30
88SC104	N	N	20	N	N	N	<20	N	30
88SC105	N	N	70	N	N	N	<20	N	70
88SC106	N	N	70	N	N	N	<20	N	200
88SC107	N	N	20	N	N	N	<20	N	30
88SC108	N	N	20	N	N	N	<20	N	20
88SC109	N	N	<20	N	N	N	N	N	20
88SC110	N	N	100	N	<50	N	<20	N	<10
88SC111	N	N	70	N	<50	N	<20	N	<10
88SC112	N	N	50	N	<50	N	N	N	N
88SC113	N	N	150	N	<50	<10	N	N	N
88SC114	N	150	50	N	<50	<10	<20	N	30
88SC115	N	N	50	N	N	<10	N	N	N
88SC116	N	N	<20	N	<50	N	N	N	N

TABLE 6. RESULTS OF ANALYSES OF HEAVY-MINERAL-CONCENTRATE SAMPLES FROM THE SKULL CREEK WILDERNESS STUDY AREA, MOFFAT COUNTY, COLORADO--Continued

Sample	Sn ppm s	Sr ppm s	Th ppm s	V ppm s	W ppm s	Y ppm s	Zn ppm s	Zr ppm s	Pd ppm s	Pt ppm s
88SC137	N	N	N	100	N	1,000	N	>2,000	N	N
88SC138	N	N	N	150	N	1,500	N	>2,000	N	N
88SC139	N	N	N	70	N	300	N	>2,000	N	N
88SC141	N	N	N	150	N	1,000	N	>2,000	N	N
88SC142	N	N	N	100	N	700	N	>2,000	N	N
88SC143	N	>10,000	N	30	N	100	N	>2,000	N	N
88SC144	N	N	N	70	N	1,500	N	>2,000	N	N
88SC145	N	>10,000	N	70	N	1,000	N	>2,000	N	N
88SC146	N	N	N	70	N	1,000	N	>2,000	N	N
88SC147	N	N	N	70	N	1,500	N	>2,000	N	N
88SC006	N	7,000	N	20	N	70	N	>2,000	N	N
88SC007	N	>10,000	N	20	N	30	N	>2,000	N	N
88SC008	N	1,500	N	50	N	500	N	>2,000	N	N
88SC009	N	>10,000	N	70	N	150	N	>2,000	N	N
88SC010	N	N	N	50	N	1,000	N	>2,000	N	N
88SC011	N	>10,000	N	50	N	100	N	>2,000	N	N
88SC012	N	>10,000	N	70	N	700	N	>2,000	N	N
88SC013	N	>10,000	N	70	N	200	N	>2,000	N	N
88SC014	N	5,000	N	100	N	700	N	>2,000	N	N
88SC015	N	>10,000	N	30	N	150	N	>2,000	N	N
88SC016	N	10,000	N	50	N	700	N	>2,000	N	N
88SC021	N	N	N	70	N	1,500	N	>2,000	N	N
88SC026	N	5,000	N	<20	N	<20	N	>2,000	N	N
88SC027	N	N	N	70	N	1,000	N	>2,000	N	N
88SC028	N	7,000	N	50	N	200	N	>2,000	N	N
88SC029	N	5,000	N	50	N	200	N	>2,000	N	N
88SC030	N	1,500	N	70	N	300	N	>2,000	N	N
88SC031	N	N	N	50	N	1,500	N	>2,000	N	N
88SC032	N	N	N	100	N	1,000	N	>2,000	N	N
88SC034	N	7,000	N	30	N	200	N	>2,000	N	N
88SC102	N	N	N	50	N	1,500	N	>2,000	N	N
88SC103	N	N	N	70	N	700	N	>2,000	N	N
88SC104	N	N	N	50	N	1,000	N	>2,000	N	N
88SC105	N	>10,000	N	100	N	1,500	N	>2,000	N	N
88SC106	N	10,000	N	100	N	1,500	N	>2,000	N	N
88SC107	N	200	N	70	N	1,000	N	>2,000	N	N
88SC108	N	N	N	70	N	700	N	>2,000	N	N
88SC109	N	N	N	70	N	700	N	>2,000	N	N
88SC110	N	>10,000	N	50	N	300	N	>2,000	N	N
88SC111	N	>10,000	N	50	N	200	N	>2,000	N	N
88SC112	N	>10,000	N	50	N	100	N	>2,000	N	N
88SC113	N	3,000	N	50	N	50	N	>2,000	N	N
88SC114	N	5,000	N	100	N	500	N	>2,000	N	N
88SC115	N	>10,000	N	<20	N	50	N	>2,000	N	N
88SC116	N	5,000	N	20	N	100	N	>2,000	N	N

TABLE 6. RESULTS OF ANALYSES OF HEAVY-MINERAL-CONCENTRATE SAMPLES FROM THE SKULL CREEK WILDERNESS STUDY AREA, MOFFAT COUNTY, COLORADO--Continued

Sample	Latitude	Longitude	Ca %	Fe %	Mg %	Na %	P %	Ti %	Ag ppm	As ppm	Au ppm
			s	s	s	s	s	s	s	s	s
88SC119	40 17 52	108 47 24	.30	1.0	.30	N	N	1.50	N	N	N
88SC133	40 16 37	108 48 33	<.10	.3	.10	N	N	2.00	N	N	N
88SC134	40 16 31	108 48 12	<.10	.5	.10	N	N	2.00	N	N	N
88SC135	40 16 25	108 47 56	N	.7	.10	N	N	>2.00	N	N	N
88SC136	40 16 33	108 47 46	<.10	.7	.30	N	N	>2.00	N	N	N

Sample	B ppm	Ba ppm	Be ppm	Bi ppm	Cd ppm	Co ppm	Cr ppm	Cu ppm	Ga ppm
	s	s	s	s	s	s	s	s	s
88SC119	30	>10,000	N	N	N	N	20	N	N
88SC133	100	10,000	<2	N	N	N	30	N	N
88SC134	300	7,000	<2	N	N	N	50	N	N
88SC135	500	>10,000	3	N	N	N	500	N	<10
88SC136	700	10,000	2	N	N	N	300	N	N

Sample	Ge ppm	La ppm	Mn ppm	Mo ppm	Nb ppm	Ni ppm	Pb ppm	Sb ppm	Sc ppm
	s	s	s	s	s	s	s	s	s
88SC119	N	<100	20	N	N	N	N	N	<10
88SC133	N	N	20	N	N	N	<20	N	50
88SC134	N	N	20	N	N	N	<20	N	30
88SC135	N	N	70	N	N	N	20	N	150
88SC136	N	N	50	N	N	N	20	N	100

Sample	Sn ppm	Sr ppm	Th ppm	V ppm	W ppm	Y ppm	Zn ppm	Zr ppm	Pd ppm	Pt ppm
	s	s	s	s	s	s	s	s	s	s
88SC119	N	5,000	N	30	N	300	N	>2,000	N	N
88SC133	N	N	N	50	N	1,000	N	>2,000	N	N
88SC134	N	N	N	50	N	1,000	N	>2,000	N	N
88SC135	N	<200	N	100	N	1,500	N	>2,000	N	N
88SC136	N	N	N	70	N	1,000	N	>2,000	N	N

TABLE 7. RESULTS OF ANALYSES OF ROCK SAMPLES FROM THE WILLOW CREEK AND SKULL CREEK WILDERNESS STUDY AREAS, MOFFAT COUNTY, COLORADO

Sample	Latitude	Longitude	Ca %	Fe %	Mg %	Na %	P %	Ti %	Ag ppm	As ppm	Au ppm	B ppm	Ba ppm
			s	s	s	s	s	s	s	s	s	s	s
88WC121	40 17 15	108 53 18	15.00	.15	.15	<.2	<.2	.050	N	N	N	50	700
88WC122	40 16 54	108 53 15	15.00	.20	10.00	<.2	<.2	.050	N	N	N	15	5,000
88WC126	40 15 42	108 52 59	10.00	.15	.50	<.2	<.2	.050	N	N	N	30	700
88WC130	40 17 1	108 49 16	20.00	N	.15	<.2	<.2	.007	N	N	N	N	N
88WC132	40 16 11	108 50 12	.10	20.00	.07	<.2	<.2	.070	<.5	300	N	15	2,000
88WC003	40 16 40	108 56 39	15.00	.07	.15	<.2	<.2	.030	N	N	N	10	300
88SC005	40 16 44	108 41 54	.10	.20	.10	<.2	<.2	.100	5.0	1,000	N	10	200
88SC009	40 17 31	108 42 55	1.00	1.50	.07	<.2	<.2	.100	N	N	N	50	>5,000
88SC013	40 19 18	108 42 59	.10	20.00	.20	<.2	<.2	.300	N	N	N	70	5,000
88SC021	40 17 9	108 48 39	3.00	.50	.07	<.2	<.2	.200	N	N	N	15	200
88SC027	40 16 23	108 46 23	.50	.15	.07	<.2	<.2	.150	N	N	N	10	300
88SC029	40 15 46	108 44 59	7.00	1.50	5.00	.3	<.2	.500	N	N	N	150	500
88SC030	40 15 57	108 44 43	1.00	.07	.30	<.2	<.2	.050	N	N	N	10	500
88SC141	40 15 43	108 44 5	.15	10.00	.05	<.2	<.2	.100	50.0	2,000	N	10	500
88SC143	40 17 26	108 40 51	.20	.15	.10	<.2	<.2	.070	N	N	N	30	50
88SC147	40 16 28	108 47 12	7.00	.10	5.00	<.2	<.2	.050	N	N	N	<10	100

Sample	Be ppm	Bi ppm	Cd ppm	Co ppm	Cr ppm	Cu ppm	Ga ppm	Ge ppm	La ppm	Mn ppm
	s	s	s	s	s	s	s	s	s	s
88WC121	N	N	N	N	20	5	<5	N	N	500
88WC122	N	N	N	N	10	<5	N	N	N	2,000
88WC126	N	N	N	N	15	<5	<5	N	N	1,000
88WC130	N	N	N	N	N	<5	N	N	N	3,000
88WC132	1.0	N	N	15	20	15	30	N	N	500
88WC003	N	N	N	N	10	<5	<5	N	N	700
88SC005	1.0	N	N	10	100	>20,000	N	20	N	70
88SC009	1.0	N	N	N	70	50	5	N	N	50
88SC013	1.0	N	N	<10	100	50	30	N	N	150
88SC021	<1.0	N	N	<10	10	<5	<5	N	N	300
88SC027	<1.0	N	N	N	<10	<5	<5	N	N	20
88SC029	1.0	N	N	10	50	10	7	N	N	1,000
88SC030	<1.0	N	N	N	<10	<5	<5	N	N	150
88SC141	1.5	N	N	100	10	2,000	5	N	N	700
88SC143	N	N	N	N	<10	50	5	N	N	<10
88SC147	<1.0	N	N	N	<10	<5	<5	N	N	100

TABLE 7. RESULTS OF ANALYSES OF ROCK SAMPLES FROM THE WILLOW CREEK AND SKULL CREEK WILDERNESS STUDY AREAS, MOFFAT COUNTY, COLORADO--Continued

Sample	Mo ppm s	Nb ppm s	Ni ppm s	Pb ppm s	Sb ppm s	Sc ppm s	Sn ppm s	Sr ppm s	Th ppm s	V ppm s	W ppm s	Y ppm s
88WC121	N	N	7	N	N	N	N	200	N	50	<20	15
88WC122	N	N	5	<10	N	N	N	5,000	N	15	<20	70
88WC126	N	N	5	N	N	N	N	200	N	15	<20	10
88WC130	N	N	<5	N	N	N	N	200	N	30	<20	<10
88WC132	N	N	20	20	N	<5	N	100	N	150	<20	10
88WC003	N	N	5	N	N	N	N	100	N	20	<20	N
88SC005	20	N	10	50	N	<5	N	<100	N	>10,000	<20	10
88SC009	<5	N	5	<10	N	<5	N	1,500	N	70	<20	15
88SC013	5	N	<5	<10	N	15	N	2,000	N	500	<20	15
88SC021	<5	N	5	N	N	<5	N	<100	N	20	<20	10
88SC027	<5	N	<5	N	N	<5	N	<100	N	15	<20	<10
88SC029	7	N	10	10	N	5	N	100	N	30	<20	20
88SC030	<5	N	7	N	N	N	N	<100	N	10	<20	N
88SC141	2,000	N	20	20,000	N	<5	N	<100	N	10	<20	30
88SC143	<5	N	5	N	N	N	N	<100	N	70	<20	N
88SC147	<5	N	5	<10	N	N	N	100	N	10	<20	N

Sample	Zn ppm s	Zr ppm s	As ppm p	Bi ppm p	Cd ppm p	Sb ppm p	Zn ppm p	Th ppm	Cv/th %	U ppm	Cv/u %
88WC121	N	20	10	<2	<.1	<2	5	<2.1	--	1.190	6
88WC122	N	70	<5	<2	.3	<2	<2	3.7	19	1.130	6
88WC126	N	70	<5	<2	.3	<2	3	<2.1	--	1.130	6
88WC130	N	50	<5	<2	<.1	<2	<2	<2.9	--	3.070	4
88WC132	N	300	250	<2	1.5	6	41	<2.6	--	3.180	3
88WC003	N	10	<5	<2	.5	<2	<2	<1.8	--	.752	8
88SC005	300	150	710	<2	1.0	2	190	<210.0	--	1,030.000	1
88SC009	N	150	<5	<2	.2	<2	<2	<6.4	--	17.700	2
88SC013	N	700	<5	<2	1.6	<2	3	17.8	10	9.170	2
88SC021	N	500	6	<2	.1	<2	<2	2.9	25	1.570	5
88SC027	N	700	<5	<2	<.1	<2	10	<1.8	--	.675	9
88SC029	N	700	<5	<2	.2	<2	7	4.0	20	1.750	5
88SC030	N	70	16	<2	<.1	<2	2	<1.5	--	.280	18
88SC141	700	300	1,500	<2	7.6	9	630	<69.0	--	400.000	1
88SC143	N	50	7	<2	<.1	<2	<2	<7.3	--	22.300	2
88SC147	N	15	<5	<2	.1	<2	3	<1.4	--	.260	19