

UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

**Analytical results and sample locality map of stream-sediment,
heavy-mineral-concentrate, soil, and rock samples from the
western part (west of the Snake River) of the
Palisades Roadless Study Area, Bonneville County, Idaho**

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CONTENTS

Page

Studies related to wilderness	1
Introduction	1
Methods of study	3
Sample media	3
Sample collection	3
Stream-sediment samples	3
Heavy-mineral-concentrate samples	4
Rock samples	4
Soil samples	4
Sample preparation	4
Sample analysis	5
Spectrographic method	5
Other methods	5
Data storage system	5
Description of data tables	6
Acknowledgments	6
References cited	6

ILLUSTRATIONS

Figure 1. Location of the western part (west of the Snake River) of the Palisades Roadless Study Area, Bonneville County, Idaho	2
Plate 1. Localities of stream-sediment, heavy-mineral-concentrate, soil, and rock samples from the Palisades Roadless Study Area, Bonneville County, Idaho	In pocket

TABLES

Table 1. Limits of determination for spectrographic analysis of stream-sediments, heavy-mineral-concentrate, soil and rock samples	8
Table 2. Other methods used	9
Table 3. Results of analyses of stream-sediment samples	10
Table 4. Results of analyses of heavy-mineral-concentrate samples	18
Table 5. Results of analyses of rock samples	26
Table 6. Results of analyses of soil samples	30
Table 7. Rock descriptions	34

STUDIES RELATED TO WILDERNESS

The Wilderness Act (Public Law 88-577, September 3, 1964) and related acts requires the U.S. Geological Survey and the U.S. Bureau of Mines to survey certain areas on Federal lands to determine their mineral resource potential. Results must be made available to the public and be submitted to the President and the Congress. This report presents the results of a geochemical survey of the Palisades Roadless Study Area (RSA) in the Caribou National Forest, Bonneville County, Idaho. The Palisades Roadless Area was classified as a further planning area during the Second Roadless Area Review and Evaluation (RARE II) by the U.S. Forest Service, January 1979.

INTRODUCTION

In July and September 1990, the U.S. Geological Survey conducted a reconnaissance geochemical survey of the western part (west of the Snake River) of the Palisades Roadless Study Area in Bonneville County, Idaho. The eastern part of the Palisades RSA (east of the Snake River) was included in a previous geochemical survey (Hopkins and others, 1984).

The western part of the Palisades RSA comprises about 176 sq mi (458 sq km) in eastern Bonneville County, Idaho and lies about 15 mi (24 km) southeast of Idaho Falls (see fig. 1). The entire Palisades RSA comprises about 242.5 sq mi (630.5 sq km). Access to the study area is provided on the south by the road along McCoy Creek that connects to U.S. Highway 89 about 2.7 mi (4.3 km) south of Alpine Junction, Wyoming, on the east by boat via Palisades Reservoir, on the north by the gravel road along the west side of the Snake River, and dirt roads leading off that road, and on the west by several 4-wheel drive roads. Access to the interior of the southeastern part of the study area is provided by the dirt road from Bear Creek to McCoy Creek via Elk Creek and Jensen Creek, along a strip of land excluded from the study area.

The study area lies in the northern part of the arcuate Idaho-Wyoming-Utah salient of the Cordilleran foreland thrust belt. Over 10,000 ft of sedimentary rocks are exposed in the study area, ranging in age from upper Paleozoic (Mississippian) to Cretaceous. Descriptions of individual formations are given in Albee and Cullins (1975a, 1975b), Jobin and Schroeder (1964a), and Oriel and Moore (1985).

The topographic relief in the study area is about 4,100 ft (1,250 m), with a maximum elevation of 9,476 ft (2,888 m) at the summit of Big Elk Mountain. The entire study area is mountainous, and ranges from gentle to rugged.

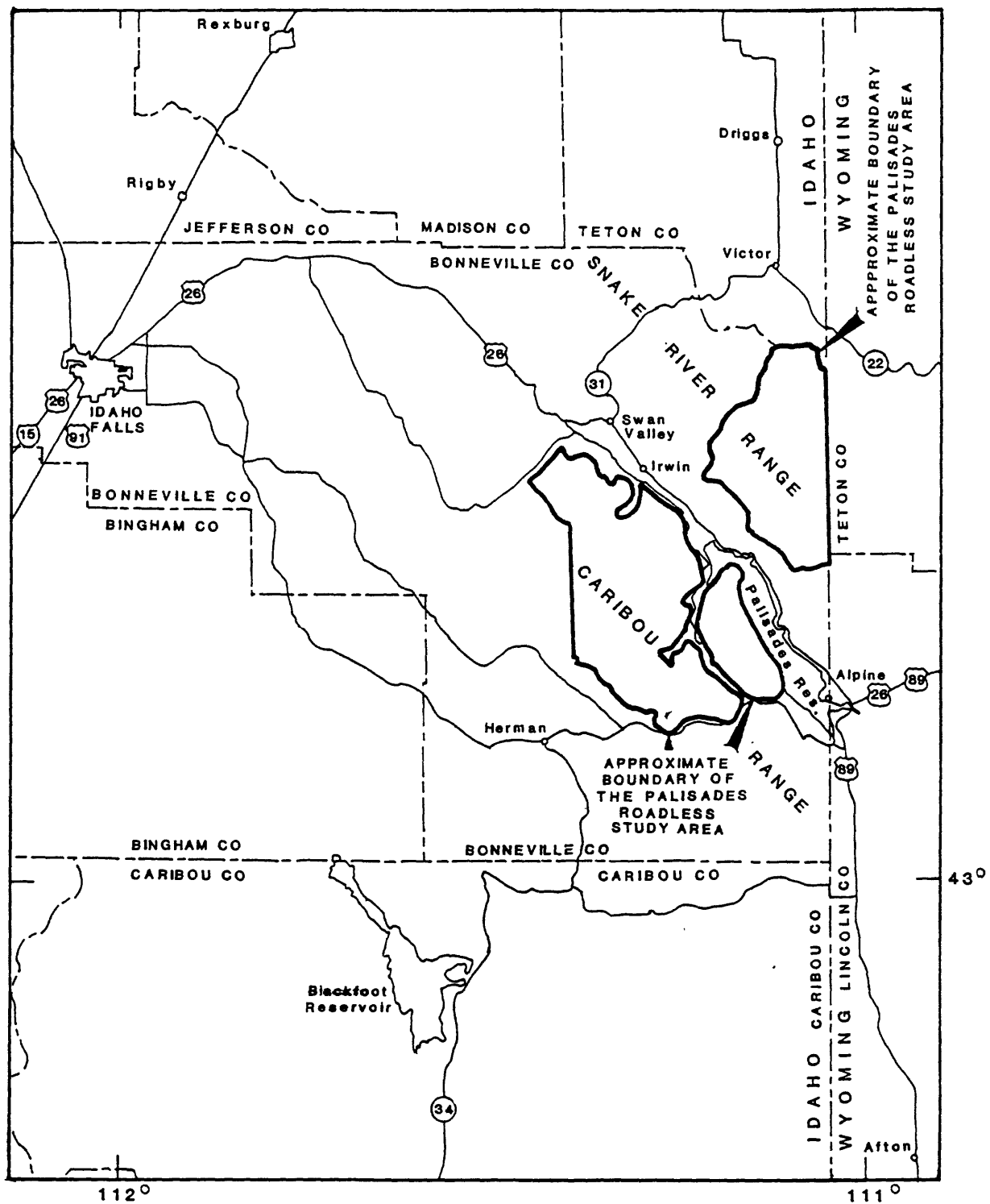


Figure 1.--Location of the western part (west of the Snake River) of the Palisades Roadless Study Area, Bonneville County, Idaho.

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 that contain concentrations of elements that may be related to mineral deposits.

Heavy-mineral-concentrate samples provide information about the chemistry of a limited number of 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.

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.

Stream alluvium for stream-sediment or heavy-mineral-concentrate sampling was not found at some of the valley sites accessed during this survey. Those sites also lacked stream channels. At those sites, soil samples were collected from the point in the valleys where the stream channels should have been found, with the assumption that the soils may have developed from stream-sediment and thereby provide similar useful information.

Sample Collection

Samples were collected at a total of 76 sites (plate 1). At 66 sites, both a stream-sediment sample and a heavy-mineral-concentrate sample were collected. Twenty rock samples and six soil samples were also collected. Sampling density for the stream-sediment and heavy-mineral-concentrate samples was about one sample site per 2.7 square miles. The area of the drainage basins sampled ranged from 0.2 to 11 square miles. Sufficient heavy-mineral-concentrate for spectrographic analysis (5 mg) was recovered from all 66 sites.

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) stream as shown on USGS topographic maps (scale = 1:24,000). Each sample was composited from several localities within an area that may extend as much as 50 feet from the center of the site symbol 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 float or outcrop in the vicinity of the plotted site location. Descriptions of the rock samples are in table 7.

Soil Samples

Five soil samples were taken from sites where no stream alluvium or stream channels were present. The soils were sampled from about 0-8 in. (20 cm) in depth. Another soil sample (PS031D) was taken from a small area of limonite staining on a valley side slope.

Sample Preparation

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

Samples that had been panned in the field were air dried and sieved to -35 mesh; bromoform (specific gravity 2.85) was used to remove the remaining quartz and feldspar. The resultant heavy-mineral sample was separated into three fractions using a large electromagnet by placing the sample in contact with the face of the magnet (in this case a modified Frantz Isodynamic Separator). The most magnetic material (removed at a setting of 0.25 ampere), primarily magnetite, was not analyzed. The second fraction (removed at a setting of 1.75 ampere), largely ferromagnesian silicates and iron oxides, was saved for archival storage. The third fraction (the nonmagnetic material which may include the nonmagnetic ore minerals, zircon, sphene, etc.) was split using a Jones splitter. One split was hand ground for spectrographic analysis; the other split was saved for mineralogical analysis. (These magnetic separates are the same separates that would be produced by using a Frantz Isodynamic Separator set at a slope of 15 degrees and a tilt of 10 degrees 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.)

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

Sample Analysis

Spectrographic Method

Stream-sediment, rock, and soil samples were analyzed for 35 elements using a semiquantitative, direct-current arc emission spectrographic method (Grimes and Marranzino, 1968). Heavy-mineral-concentrate samples were analyzed for those 35 elements plus platinum and palladium. The elements analyzed and their lower limits of determination are listed in Table 1. Spectrographic results were obtained by visual comparison of spectra derived from the sample against spectra obtained from standards made from pure oxides and carbonates. Standard concentrations are geometrically spaced over any given order of magnitude of concentration as follows: 100, 50, 20, 10, and so forth. Samples whose concentrations are estimated to fall between those values are assigned values of 70, 30, 15, and so forth. The precision of the analytical method is approximately plus or minus one reporting intervals at the 83 percent confidence level and plus or minus two reporting intervals at the 96 percent confidence level (Motooka and Grimes, 1976). Values determined for the major elements (iron, magnesium, calcium, sodium, phosphorus, and titanium) are given in weight percent; all others are given in parts per million (micrograms/gram). Analytical data are listed in tables 3-6 for stream-sediment, heavy-mineral-concentrate, rock, and soil samples, respectively.

Other Methods

The stream-sediment, rock, and soil samples from the RSA were also analyzed by inductively coupled plasma-atomic emission spectroscopy (ICP-AES) and atomic absorption spectroscopy (AA). Silver (Ag), arsenic (As), gold (Au), bismuth (Bi), cadmium (Cd), copper (Cu), molybdenum (Mo), lead (Pb), antimony (Sb), and zinc (Zn) were analyzed by ICP-AES (Motooka, 1988), and gold (Au) and mercury (Hg) were analyzed by AA. In addition, the stream-sediment and soil samples were also analyzed by delayed neutron analysis (DNA) for thorium (Th) and uranium (U). Limits of determination and references are listed in table 2. Analytical results using these methods are listed in tables 3, 5, and 6.

DATA STORAGE SYSTEM

Upon completion of all analytical work, the analytical 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) for computerized statistical analysis or publication (Van Trump and Miesch, 1977).

DESCRIPTION OF DATA TABLES

Tables 3-6 list the results of analyses for the stream-sediment, heavy-mineral-concentrate, rock, and soil samples, respectively. For these tables, the data are arranged so that column 1 contains the USGS-assigned sample numbers. These numbers correspond to the numbers shown on plate 1. Columns in which the element headings show the letter "s" following the element symbol indicate emission spectrographic analyses, "icp" indicates inductively couple plasma analyses, "dna" indicates delayed neutron analyses, and "aa" indicates atomic absorption analyses. A letter "N" in the tables indicates that a given element was looked for but not detected at the lower limit of determination (LLD) shown for that element in table 1. For emission spectrographic and AA analyses, a "less than" symbol (<) entered in the tables in front of the LLD indicates that an element was observed but was below the lowest reporting value. For DNA analyses, a "less than" symbol (<) indicates 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 determination. If an element was not looked for in a sample, two dashes (--) are entered in the tables in place of the analytical value. Because of the formatting used in the computer program that produced the data tables, 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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REFERENCES CITED

- Albee, H.F., and Cullins, H.L., 1975a, Geologic map of the Alpine quadrangle, Bonneville County, Idaho, and Lincoln County, Wyoming: U.S. Geological Survey Geological Quadrangle Map GQ-1259.
- Albee, H.F., and Cullins, H.L., 1975b, Geologic map of the Poker Peak quadrangle, Bonneville County, Idaho: U.S. Geological Survey Geological Quadrangle Map GQ-1260.
- Grimes, D.J., and Marranzino, A.P., 1968, Direct-current arc and alternating-current spark emission spectrographic field methods for the semiquantitative analysis of geologic materials: U.S. Geological Survey Circular 591, 6 p.

- Hopkins, R.T., Antweiler, J.C., Campbell, W.L., and Fox, J.P., 1984, Analytical results and sample locality map of stream-sediment and panned-concentrate, rock, and water samples from the West and East Palisades Roadless Areas, Idaho and Wyoming: U.S. Geological Survey Open-File Report 84-284.
- Jobin, D.A., and Schroeder, M.L., 1964a, Geology of the Conant Valley quadrangle, Bonneville County, Idaho: U.S. Geological Survey Mineral Investigation Field Studies Map MF-277.
- Koirtiyohann, S.R., and Khalil, Moheb, 1976, Variables in the determination of mercury by cold vapor atomic absorption: *Analytical Chemistry*, 48, p. 136-139.
- McKown, D.M., and Millard, H.T., Jr., 1987, Determination of uranium and thorium by delayed neutron counting: U.S. Geological Survey Bulletin 1770, p. I1-I12.
- Motooka, J.M., and Grimes, D.J., 1976, Analytical precision of one-sixth order semiquantitative spectrographic analyses: U.S. Geological Survey Circular 738, 25 p.
- Motooka, J.M., 1988, An exploration geochemical technique for the determination of preconcentrated organometallic halides by ICP-AES: *Applied Spectroscopy*, v. 42, no. 7, p. 1293-1296.
- O'Leary, R.M., and Meier, A.L., 1986, Analytical methods used in geochemical exploration, 1984: U.S. Geological Survey Circular 948, 48 p.
- Oriel, S.S., and Moore, D.W., 1985, Geologic map of the West and East Palisades Roadless Areas, Idaho and Wyoming: U.S. Geological Survey Miscellaneous Field Studies Map MF-1619-B, scale 1:50,000.
- Thompson, C.E., Nakagawa, H.M., and Van Sickle, G.H., 1968, Rapid analysis for gold in geologic materials, in *Geological Survey research 1968*: U.S. Geological Survey Professional Paper 600-B, p. B130-B132.
- Van Trump, George, Jr., and Miesch, A.T., 1977, The U.S. Geological Survey RASS-STATPAC system for management and statistical reduction of geochemical data: *Computers and Geosciences*, v. 3, p. 475-488.

Table 1.--Limits of determination for spectrographic analysis of stream-sediment, heavy-mineral-concentrate, soil and rock samples.

[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 listed, except as noted]

Elements	Lower determination limit	Upper determination limit
Weight percent		
Calcium (Ca)	0.05	20
Iron (Fe)	0.05	20
Magnesium (Mg)	0.02	10
Sodium (Na)	0.2	5
Phosphorus (P)	0.2	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)	10	2,000
Chromium (Cr)	10	5,000
Copper (Cu)	5	20,000
Gallium (Ga)	5	500
Germanium (Ge)	10	100
Lanthanum (La)	50	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)	20	10,000
Yttrium (Y)	10	2,000
Zinc (Zn)	200	10,000
Zirconium (Zr)	10	1,000
Palladium (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.--Other methods used

[AA, atomic absorption spectroscopy; ICP, inductively coupled plasma-atomic emission spectroscopy; DNA, delayed neutron analysis; s, stream-sediments; r, rocks; d, soils]

Element determined	Sample type	Method	LLD (PPM)	References
Silver (Ag)	s/r/d	ICP	0.045	Motooka, 1988.
Arsenic (As)	do	do	0.6	
Gold (Au)	do	do	0.15	
Bismuth (Bi)	do	do	0.6	
Cadmium (Cd)	do	do	0.03	
Copper (Cu)	do	do	0.03	
Molybdenum (Mo)	do	do	0.09	
Lead (Pb)	do	do	0.6	
Antimony (Sb)	do	do	0.6	
Zinc (Zn)	do	do	0.03	
Gold (Au)	do	AA	0.05	Thompson and others, 1968; O'Leary and Meier, 1986.
Mercury (Hg)	do	AA	0.02	Koirttyohann and Khalil, 1976.
Thorium (Th)	s/d	DNA	--	McKown and Millard, 1987.
Uranium (U)	do	do	--	

TABLE 3--ANALYTICAL RESULTS OF STREAM-SEDIMENT SAMPLES FROM THE WESTERN PART OF THE PALISADES ROADLESS STUDY AREA, BONNEVILLE COUNTY, IDAHO.

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

Sample	Latitude	Longitude	Ca-pct. s	Fe-pct. s	Mg-pct. s	Na-pct. s	P-pct. s	Ti-pct. s	Ag-ppm s	As-ppm s	Au-ppm s
PS001S	43 10 55	111 7 20	20	2	2	.7	<.2	.3	N	N	N
PS002S	43 11 16	111 9 6	3	2	1	.7	<.2	.3	N	N	N
PS003S	43 9 35	111 12 12	7	3	1	1	N	.5	N	N	N
PS004S	43 10 43	111 9 12	1	2	.7	.7	<.2	.3	N	N	N
PS005S	43 19 46	111 13 44	2	2	.7	1	<.2	.3	N	N	N
PS006S	43 20 18	111 13 17	.7	2	.7	1	.2	.3	N	N	N
PS007S	43 21 50	111 14 30	1.5	2	.7	.7	<.2	.3	N	N	N
PS008S	43 22 27	111 15 12	2	2	1	1	<.2	.3	N	N	N
PS009S	43 24 14	111 19 28	3	2	1	1	.2	.3	N	N	N
PS010S	43 24 20	111 26 3	10	2	.7	1	<.2	.15	N	N	N
PS011S	43 24 6	111 26 29	15	2	1	1	N	.2	N	N	N
PS012S	43 23 32	111 26 57	7	2	.7	.5	<.2	.3	N	N	N
PS014S	43 18 22	111 12 36	5	3	1.5	1	<.2	.5	N	N	N
PS015S	43 16 47	111 13 35	1.5	3	.7	1	.3	.3	N	N	N
PS016S	43 16 27	111 14 42	3	3	1	1	N	.3	N	N	N
PS017S	43 16 8	111 13 13	7	2	1	1	N	.2	N	N	N
PS018S	43 15 7	111 13 31	1.5	2	1	.7	<.2	.3	N	N	N
PS019S	43 14 15	111 14 33	15	3	1.5	1.5	N	.3	N	N	N
PS020S	43 14 18	111 14 35	15	2	.7	.7	N	.2	N	N	N
PS021S	43 14 21	111 14 29	1.5	2	.7	.7	<.2	.15	N	N	N
PS022S	43 14 45	111 13 48	.7	2	1	.7	<.2	.2	N	N	N
PS023S	43 14 43	111 13 36	2	2	1	.7	<.2	.2	N	N	N
PS024S	43 12 45	111 11 31	3	2	1.5	.7	<.2	.2	N	N	N
PS025S	43 18 47	111 19 48	.7	2	.7	.5	<.2	.3	N	N	N
PS026S	43 18 51	111 19 46	1.5	3	1	.7	<.2	.5	N	N	N
PS027S	43 18 42	111 19 28	15	3	1.5	1	N	.5	N	N	N
PS028S	43 18 32	111 19 21	.7	3	1	.7	<.2	.3	N	N	N
PS029S	43 18 15	111 18 56	1.5	3	1	1	<.2	.3	<.5	N	N
PS030S	43 17 44	111 18 25	15	3	1.5	1	N	.3	N	N	N
PS031S	43 9 24	111 15 57	1.5	2	.7	.7	<.2	.3	N	N	N
PS032S	43 10 20	111 16 17	1.5	3	.7	.7	<.2	.3	N	N	N
PS033S	43 10 20	111 16 14	1	2	.7	.5	<.2	.3	N	N	N
PS034S	43 9 21	111 15 9	.5	2	.7	.3	<.2	.3	N	N	N
PS035S	43 16 3	111 19 52	10	3	1	1.5	N	.2	N	N	N
PS036S	43 16 5	111 19 49	7	3	1.5	1.5	<.2	.2	N	N	N
PS037S	43 16 30	111 19 40	7	3	1.5	.7	<.2	.3	N	N	N
PS038S	43 16 28	111 19 45	7	3	1	1	N	.3	N	N	N
PS039S	43 16 45	111 18 40	15	2	1	.7	N	.15	N	N	N
PS040S	43 17 2	111 18 13	5	2	.7	.7	<.2	.2	N	N	N
PS041S	43 17 17	111 17 30	3	2	.7	.7	<.2	.3	N	N	N
PS042S	43 17 12	111 16 50	15	2	1	1	N	.3	N	N	N
PS043S	43 17 2	111 16 21	20	2	1	1	N	.3	N	N	N
PS044S	43 16 41	111 15 34	2	3	1	1	N	.3	N	N	N
PS045S	43 11 29	111 16 54	3	3	1	.7	N	.3	N	N	N
PS046S	43 11 17	111 16 52	1.5	3	.7	.7	<.2	.3	N	N	N
PS047S	43 15 57	111 21 6	15	2	1	1	N	.2	N	N	N
PS048S	43 16 3	111 21 2	15	3	1	1	N	.3	N	N	N
PS049S	43 15 46	111 21 47	15	2	1	1	N	.2	N	N	N
PS050S	43 15 38	111 21 45	3	3	1	1	N	.5	N	N	N
PS051S	43 15 25	111 22 12	1	2	1	.7	<.2	.5	N	N	N
PS052S	43 11 14	111 10 31	1.5	1.5	1	.7	<.2	.3	N	N	N
PS053S	43 11 16	111 10 34	1.5	1.5	.7	.3	<.2	.3	N	N	N
PS054S	43 12 15	111 11 45	1.5	2	1	1	<.2	.3	N	N	N
PS055S	43 12 18	111 11 45	2	2	1	.3	<.2	.3	N	N	N
PS057S	43 12 30	111 6 37	5	2	1	1	<.2	.3	N	N	N
PS063S	43 10 56	111 19 37	.7	1.5	.7	.7	<.2	.3	N	N	N
PS064S	43 10 44	111 18 52	.7	1.5	.7	.7	<.2	.3	N	N	N
PS065S	43 10 42	111 18 40	1	1.5	1	1	<.2	.3	N	N	N
PS066S	43 11 22	111 20 40	1.5	2	1	1	<.2	.5	N	N	N
PS067S	43 12 52	111 22 13	.3	1.5	.7	.7	<.2	.3	N	N	N

TABLE 3--ANALYTICAL RESULTS OF STREAM-SEDIMENT SAMPLES FROM THE WESTERN PART OF THE PALISADES ROADLESS STUDY AREA, BONNEVILLE COUNTY, IDAHO.--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	Ge-ppm s	La-ppm s	Mn-ppm s	Mo-ppm s
PS001S	30	700	<1	N	N	10	70	20	15	N	<50	1,000	N
PS002S	30	500	1.5	N	N	15	70	20	10	N	<50	300	N
PS003S	30	500	<1	N	N	10	100	20	15	N	<50	500	N
PS004S	20	500	1.5	N	N	10	30	20	7	N	<50	500	N
PS005S	30	300	1	N	N	<10	30	15	7	N	<50	700	N
PS006S	30	500	1	N	N	10	50	20	7	N	<50	1,000	N
PS007S	20	300	<1	N	N	<10	50	7	5	N	<50	500	N
PS008S	20	500	1	N	N	10	100	15	7	N	<50	1,000	N
PS009S	30	500	1.5	N	N	10	70	20	10	N	<50	500	N
PS010S	30	300	1	N	N	<10	30	7	7	N	<50	300	N
PS011S	30	300	1	N	N	<10	30	15	10	N	<50	500	N
PS012S	30	1,000	<1	N	N	10	70	20	7	N	<50	300	N
PS014S	50	700	1.5	N	N	15	100	20	15	N	<50	2,000	N
PS015S	50	200	1	N	N	15	70	10	10	N	<50	500	N
PS016S	50	300	1	N	N	15	50	20	15	N	<50	700	N
PS017S	30	300	1	N	N	10	70	15	10	N	<50	200	N
PS018S	30	500	1	N	N	15	70	20	10	N	<50	500	N
PS019S	50	200	1	N	N	20	100	30	20	N	50	1,000	N
PS020S	30	200	1	N	N	<10	70	10	7	N	<50	300	N
PS021S	30	150	<1	N	N	10	30	20	5	N	<50	200	N
PS022S	30	300	1.5	N	N	15	70	30	15	N	<50	700	N
PS023S	50	300	1	N	N	15	70	30	15	N	<50	700	N
PS024S	30	700	1.5	N	N	15	70	30	15	N	<50	700	N
PS025S	30	500	<1	N	N	10	50	20	10	N	<50	300	N
PS026S	30	500	1	N	N	15	70	20	15	N	<50	700	N
PS027S	30	500	<1	N	N	10	100	30	15	N	<50	700	<5
PS028S	50	500	1	N	N	15	100	20	20	N	<50	700	N
PS029S	50	300	1	N	N	15	50	20	15	N	<50	500	N
PS030S	50	500	<1	N	N	15	100	20	20	N	<50	700	N
PS031S	30	700	1	N	N	10	30	20	10	N	<50	500	N
PS032S	50	700	1	N	N	15	50	20	15	N	<50	300	N
PS033S	50	700	1	N	N	10	50	20	15	N	<50	500	N
PS034S	30	300	1	N	N	<10	30	20	10	N	<50	300	N
PS035S	50	300	1.5	N	N	15	70	20	20	N	<50	700	N
PS036S	50	300	1.5	N	N	15	70	20	30	N	50	700	N
PS037S	50	500	1.5	N	N	15	70	20	20	N	<50	300	N
PS038S	50	500	1.5	N	N	15	70	20	20	N	<50	700	N
PS039S	30	70	1	N	N	10	50	10	15	N	<50	500	N
PS040S	30	500	1.5	N	N	10	50	20	15	N	<50	500	N
PS041S	50	300	1.5	N	N	10	50	20	10	N	<50	500	N
PS042S	50	300	1	N	N	15	70	20	20	N	<50	700	N
PS043S	30	500	1	N	N	10	70	15	15	N	<50	500	N
PS044S	30	300	1.5	N	N	15	70	20	15	N	<50	700	N
PS045S	50	500	1.5	N	N	15	100	20	20	N	50	700	N
PS046S	50	300	1	N	N	10	70	20	15	N	<50	200	N
PS047S	50	150	1	N	N	10	30	15	15	N	<50	500	N
PS048S	70	200	1	N	N	20	70	20	20	N	<50	1,000	N
PS049S	50	200	1	N	N	10	30	20	15	N	<50	700	N
PS050S	50	700	1	N	N	10	70	20	15	N	<50	1,000	N
PS051S	50	500	1	N	N	10	50	20	10	N	<50	700	N
PS052S	50	500	1	N	N	<10	50	20	10	N	<50	700	N
PS053S	50	700	1	N	N	<10	50	15	7	N	<50	700	N
PS054S	50	300	1.5	N	N	15	50	20	15	N	<50	700	N
PS055S	50	1,000	1.5	N	N	15	70	20	15	N	50	700	N
PS057S	50	700	1	N	N	15	50	20	15	N	<50	700	N
PS063S	50	700	1	N	N	<10	20	15	20	N	<50	700	N
PS064S	50	700	1	N	N	10	50	15	7	N	50	700	N
PS065S	50	500	1	N	N	10	50	20	15	N	<50	700	N
PS066S	50	1,000	1	N	N	10	70	20	20	N	50	300	N
PS067S	70	500	1	N	N	10	30	20	10	N	<50	700	N

TABLE 3--ANALYTICAL RESULTS OF STREAM-SEDIMENT SAMPLES FROM THE WESTERN PART OF THE PALISADES ROADLESS STUDY AREA, BONNEVILLE COUNTY, IDAHO.--Continued

Sample	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	Zn-ppm s	Zr-ppm s	Au-ppm aa
PS001S	N	10	30	N	7	N	700	N	150	N	20	N	150	N
PS002S	<20	30	30	N	7	N	100	N	150	N	20	N	150	N
PS003S	<20	30	30	N	10	N	200	N	150	N	30	N	500	N
PS004S	N	30	20	N	7	N	<100	N	150	N	20	N	300	N
PS005S	<20	10	30	N	7	N	200	N	70	N	20	N	300	N
PS006S	<20	20	30	N	7	N	200	N	100	N	20	N	700	N
PS007S	<20	20	20	N	7	N	150	N	70	N	20	N	500	N
PS008S	<20	30	20	N	10	N	150	N	100	N	30	N	700	N
PS009S	<20	30	30	N	7	N	150	N	100	N	30	N	300	N
PS010S	N	10	20	N	10	N	200	N	50	N	20	N	200	N
PS011S	N	15	30	N	7	N	500	N	70	N	20	N	150	N
PS012S	N	20	20	N	7	N	500	N	150	N	20	N	300	N
PS014S	<20	30	30	N	10	N	150	N	150	N	30	N	300	N
PS015S	<20	30	20	N	7	N	200	N	70	N	70	N	300	N
PS016S	<20	30	30	N	15	N	300	N	100	N	30	N	300	N
PS017S	N	15	30	N	7	N	300	N	70	N	20	N	300	N
PS018S	<20	20	20	N	7	N	150	N	150	N	20	N	300	N
PS019S	<20	50	50	N	15	N	500	N	150	N	30	N	300	N
PS020S	N	15	15	N	7	N	500	N	70	N	20	N	200	N
PS021S	N	15	15	N	7	N	<100	N	70	N	20	N	300	N
PS022S	<20	30	20	N	7	N	100	N	100	N	20	N	200	N
PS023S	<20	30	30	N	10	N	150	N	100	N	20	N	200	N
PS024S	N	20	30	N	10	N	300	N	100	N	20	N	200	N
PS025S	N	30	20	N	7	N	<100	N	100	N	20	N	300	N
PS026S	<20	30	30	N	10	N	150	N	150	N	30	N	300	N
PS027S	<20	20	30	N	10	N	500	N	150	N	30	N	300	N
PS028S	<20	30	30	N	10	N	150	N	150	N	20	N	200	N
PS029S	<20	30	30	N	10	N	200	N	100	N	30	N	150	N
PS030S	<20	30	30	N	15	N	300	N	100	N	30	N	300	N
PS031S	<20	30	20	N	7	N	150	N	100	N	30	N	300	N
PS032S	<20	30	30	N	10	N	150	N	150	N	30	<200	300	N
PS033S	<20	30	20	N	7	N	150	N	150	N	20	N	300	N
PS034S	<20	30	20	N	7	N	<100	N	100	N	30	N	300	N
PS035S	N	30	30	N	15	N	300	N	70	N	30	N	100	N
PS036S	<20	30	30	N	15	N	300	N	100	N	30	N	300	N
PS037S	<20	30	30	N	15	N	500	N	100	N	30	N	300	N
PS038S	<20	30	30	N	10	N	300	N	100	N	20	N	300	N
PS039S	N	20	30	N	7	N	500	N	70	N	15	N	70	N
PS040S	<20	30	30	N	7	N	300	N	100	N	20	N	300	N
PS041S	<20	30	20	N	7	N	200	N	100	N	30	N	300	N
PS042S	<20	20	30	N	10	N	300	N	100	N	30	N	150	N
PS043S	<20	15	30	N	10	N	500	N	70	N	30	N	150	N
PS044S	<20	30	30	N	10	N	300	N	100	N	30	N	200	N
PS045S	<20	30	30	N	15	N	300	N	150	N	30	N	200	N
PS046S	<20	30	20	N	7	N	200	N	100	N	20	N	300	N
PS047S	N	30	30	N	7	N	300	N	70	N	20	N	200	N
PS048S	<20	30	50	N	10	N	300	N	100	N	30	N	100	N
PS049S	N	15	30	N	7	N	300	N	70	N	20	N	150	N
PS050S	<20	20	30	N	10	N	300	N	100	N	30	N	500	N
PS051S	<20	20	30	N	7	N	150	N	100	N	20	N	300	N
PS052S	<20	20	20	N	7	N	150	N	100	N	20	N	500	N
PS053S	<20	20	30	N	7	N	150	N	100	N	30	N	500	N
PS054S	<20	20	30	N	10	N	150	N	70	N	30	N	300	N
PS055S	<20	30	30	N	10	N	150	N	150	N	30	N	300	N
PS057S	<20	20	30	N	10	N	200	N	70	N	20	N	300	N
PS063S	<20	20	30	N	7	N	<100	N	70	N	20	N	300	N
PS064S	20	20	20	N	7	N	100	N	100	N	30	N	500	N
PS065S	<20	20	30	N	7	N	150	N	70	N	20	N	300	N
PS066S	20	20	30	N	10	N	200	N	150	N	30	N	500	N
PS067S	<20	20	20	N	7	N	<100	N	50	N	20	N	300	N

TABLE 3--ANALYTICAL RESULTS OF STREAM-SEDIMENT SAMPLES FROM THE WESTERN PART OF THE PALISADES ROADLESS STUDY AREA, BONNEVILLE COUNTY, IDAHO.--Continued

Sample	Hg-ppm aa	Th-ppm dna	U-ppm dna	Ag-ppm icp	As-ppm icp	Au-ppm icp	Bi-ppm icp	Cd-ppm icp	Cu-ppm icp	Mo-ppm icp	Pb-ppm icp	Sb-ppm icp	Zn-ppm icp
PS001S	--	--	--	N	3.7	N	N	.29	8.2	.58	11	N	32
PS002S	--	--	--	N	N	N	N	.54	17	.19	21	N	73
PS003S	--	--	--	N	1.8	N	N	.26	9.3	.35	15	N	45
PS004S	--	--	--	N	1.5	N	N	.27	5.8	.36	14	N	41
PS005S	--	--	--	N	1.2	N	N	.7	4.7	.54	11	N	29
PS006S	--	--	--	N	1.7	N	N	1.4	6	.78	13	N	58
PS007S	--	--	--	N	.71	N	N	.24	2.6	.37	8.1	N	34
PS008S	--	--	--	N	2.7	N	N	.24	4.9	.4	9.9	N	34
PS009S	--	--	--	N	N	N	N	.23	3.9	.28	9.5	N	31
PS010S	--	--	--	N	N	N	N	.12	3.6	.13	8.3	N	20
PS011S	--	--	--	N	N	N	N	.083	2.9	N	6	N	25
PS012S	--	--	--	N	1.1	N	N	.17	5.1	.32	9.4	N	37
PS014S	--	--	--	N	1.8	N	N	.31	7.9	.2	14	N	44
PS015S	--	--	--	N	1.8	N	N	.039	2.8	.28	12	N	22
PS016S	--	--	--	N	1.7	N	N	.17	5.3	.43	14	N	24
PS017S	--	--	--	N	N	N	N	.088	3.5	.2	9.3	N	23
PS018S	--	--	--	N	1.7	N	N	.21	5.3	.39	14	N	37
PS019S	--	--	--	N	4.1	N	N	.3	14	.57	25	N	56
PS020S	--	--	--	N	.75	N	N	.18	4.8	.33	10	N	29
PS021S	--	--	--	N	N	N	N	.14	3.5	.16	10	N	22
PS022S	--	--	--	N	2.8	N	N	.49	11	.62	21	N	52
PS023S	--	--	--	N	3.4	N	N	.29	11	.56	19	N	47
PS024S	--	--	--	N	5.2	N	N	.35	16	.83	21	N	56
PS025S	N	8.33	2.67	N	2.7	N	N	.35	10	.46	13	N	49
PS026S	.02	5.6	3.11	N	3.6	N	N	.31	9.3	.59	14	N	51
PS027S	N	7.54	2.42	.056	3.5	N	N	.31	9.1	.73	13	N	46
PS028S	.02	8.19	3.3	.065	4.9	N	N	.52	12	.82	16	N	58
PS029S	N	8.87	2.43	.052	3.7	N	N	.38	11	.43	14	N	47
PS030S	N	8.3	2.37	.069	4.2	N	N	.31	13	.57	14	N	46
PS031S	N	6.7	3.38	N	3.7	N	N	.35	8.9	.4	13	N	48
PS032S	.04	10.2	3.63	N	3.8	N	N	.35	11	.54	14	N	56
PS033S	.02	8.4	2.87	N	3.6	N	N	.35	7.7	.46	11	.8	45
PS034S	N	7.7	3.12	.055	2.6	N	N	.32	6.8	.25	9.9	.69	43
PS035S	N	8.59	1.92	N	2.7	N	N	.34	16	.38	16	N	52
PS036S	N	8.06	2.42	N	3.6	N	N	.27	9.9	.47	13	.69	45
PS037S	N	9.48	2.43	N	2.7	N	N	.28	6.4	.32	12	.73	40
PS038S	N	8.04	2.22	N	6.6	N	N	.31	13	.72	16	N	45
PS039S	N	6.69	1.03	N	1.8	N	N	.2	9.3	.14	9	N	39
PS040S	N	5.7	3	N	3.8	N	N	.42	9.8	.58	12	.68	49
PS041S	N	5.9	2.38	N	3.2	N	N	.28	8.4	.37	11	N	42
PS042S	N	6	1.8	N	1.9	N	N	.21	7.6	.36	10	N	37
PS043S	N	6.1	1.71	N	2.1	N	N	.26	7.2	.23	12	N	35
PS044S	N	10.1	2.65	N	5	N	N	.36	11	.51	15	N	49
PS045S	N	9.9	3.23	N	5.3	N	N	.41	15	.63	15	.7	58
PS046S	N	8.81	2.81	N	1.6	N	N	.25	6.6	.27	12	.81	42
PS047S	N	8.27	2.13	N	4	N	N	.16	12	.63	15	N	41
PS048S	N	9.65	1.85	N	6.3	N	N	.54	18	.62	19	N	80
PS049S	N	7.53	1.61	N	1.9	N	N	.18	10	.24	11	N	35
PS050S	N	7.5	2.45	.051	4.6	N	N	.32	9.4	.55	13	N	44
PS051S	N	7.03	2.64	.05	4.4	N	N	.29	8.5	.52	12	N	37
PS052S	N	7.72	2.72	.057	3.4	N	N	.37	6.9	.41	12	N	42
PS053S	.02	8.05	2.75	.07	3.4	N	N	.31	7.8	.4	12	N	35
PS054S	N	7.33	2.68	N	5	N	N	.47	13	.68	19	N	52
PS055S	.04	8.84	3.1	.061	5	N	N	.44	11	.69	15	.64	47
PS057S	N	6.83	2.27	N	4.2	N	N	.33	8.1	.41	13	N	45
PS063S	.02	9.93	3.8	.05	2.6	N	N	.45	5.4	.29	12	N	60
PS064S	N	8.57	3.6	.057	2.2	N	N	.4	5.4	.24	10	N	43
PS065S	N	9.66	2.47	N	2.5	N	N	.34	6.6	.35	11	N	35
PS066S	N	8.78	3.12	.052	2.5	N	N	.28	5.3	.22	9.7	N	31
PS067S	N	9.38	2.24	N	1.9	N	N	.27	4.4	.23	9.9	N	29

TABLE 3--ANALYTICAL RESULTS OF STREAM-SEDIMENT SAMPLES FROM THE WESTERN PART OF THE PALISADES ROADLESS STUDY AREA, BONNEVILLE COUNTY, IDAHO.--Continued

Sample	Latitude	Longitude	Ca-pct. s	Fe-pct. s	Mg-pct. s	Na-pct. s	P-pct. s	Ti-pct. s	Ag-ppm s	As-ppm s	Au-ppm s
PS068S	43 21 18	111 23 59	10	1	.7	.7	<.2	.2	N	N	N
PS071S	43 16 41	111 9 51	7	1	.5	.7	<.2	.2	N	N	N
PS073S	43 17 21	111 9 59	5	2	1	1.5	N	.5	N	N	N
PS074S	43 13 26	111 13 1	3	2	1.5	1.5	<.2	.5	N	N	N
PS075S	43 13 27	111 13 7	20	2	2	.5	N	.3	N	N	N
PS076S	43 13 30	111 13 2	15	1.5	1	1	N	.15	N	N	N

TABLE 3--ANALYTICAL RESULTS OF STREAM-SEDIMENT SAMPLES FROM THE WESTERN PART OF THE PALISADES ROADLESS STUDY AREA, BONNEVILLE COUNTY, IDAHO.--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	Ge-ppm s	La-ppm s	Mn-ppm s	Mo-ppm s
PS068S	30	500	1	N	N	<10	30	10	10	N	<50	300	N
PS071S	50	300	<1	N	N	10	15	7	5	N	<50	300	N
PS073S	70	1,000	1	N	N	10	100	20	15	N	70	1,000	N
PS074S	70	700	<1	N	N	20	100	30	20	N	70	1,500	N
PS075S	50	1,000	<1	N	N	10	100	20	20	N	70	1,000	5
PS076S	50	150	1	N	N	<10	20	15	15	N	<50	700	N

TABLE 3--ANALYTICAL RESULTS OF STREAM-SEDIMENT SAMPLES FROM THE WESTERN PART OF THE PALISADES ROADLESS STUDY AREA, BONNEVILLE COUNTY, IDAHO.--Continued

Sample	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	Zn-ppm s	Zr-ppm s	Au-ppm aa
PS068S	<20	15	30	N	7	N	500	N	50	N	20	N	300	N
PS071S	<20	15	30	N	<5	N	300	N	30	N	15	N	300	N
PS073S	<20	20	50	N	10	N	500	N	70	N	30	N	700	N
PS074S	20	30	50	N	15	N	300	N	150	N	50	N	300	N
PS075S	<20	20	50	N	15	N	300	N	150	N	50	N	200	N
PS076S	N	15	30	N	7	N	300	N	50	N	20	N	150	N

TABLE 3--ANALYTICAL RESULTS OF STREAM-SEDIMENT SAMPLES FROM THE WESTERN PART OF THE PALISADES ROADLESS STUDY AREA, BONNEVILLE COUNTY, IDAHO.--Continued

Sample	Hg-ppm aa	Th-ppm dna	U-ppm dna	Ag-ppm icp	As-ppm icp	Au-ppm icp	Bi-ppm icp	Cd-ppm icp	Cu-ppm icp	Mo-ppm icp	Pb-ppm icp	Sb-ppm icp	Zn-ppm icp
PS068S	N	6.56	1.95	N	2.3	N	N	.18	5.1	.34	7.5	N	34
PS071S	N	4.2	1.83	N	3.7	N	N	.14	4.4	.27	7.5	N	22
PS073S	N	7.33	2.78	N	4.9	N	N	.26	10	.29	15	N	42
PS074S	.02	11.2	2.99	.067	6.6	N	N	.6	18	.75	21	N	59
PS075S	.04	8.94	3.08	.075	5.1	N	N	.49	17	.89	16	.66	59
PS076S	N	5.8	1.71	N	3.4	N	N	.38	12	.39	14	N	40

TABLE 4--ANALYTICAL RESULTS OF HEAVY-MINERAL-CONCENTRATE SAMPLES FROM THE WESTERN PART OF THE PALISADES ROADLESS STUDY AREA, BONNEVILLE COUNTY, IDAHO.

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

Sample	Latitude	Longitude	Ca-pct. s	Fe-pct. s	Mg-pct. s	Na-pct. s	P-pct. s	Ti-pct. s	Ag-ppm s
PS001C3	43 10 55	111 7 20	30	1	1.5	<.5	5	.5	N
PS002C3	43 11 16	111 9 6	7	1	.2	N	1.5	.7	N
PS003C3	43 9 35	111 12 12	15	1	.5	N	7	1.5	N
PS004C3	43 10 43	111 9 12	15	.5	.5	N	3	.7	N
PS005C3	43 19 46	111 13 44	30	.7	1.5	.7	15	1.5	N
PS006C3	43 20 18	111 13 17	50	.7	.5	1	20	.7	N
PS007C3	43 21 50	111 14 30	>50	.7	.7	.7	20	1.5	N
PS008C3	43 22 27	111 15 12	50	1	.5	.7	20	2	N
PS009C3	43 24 14	111 19 28	>50	.3	.7	.7	15	.3	N
PS010C3	43 24 20	111 26 3	20	1	.7	.7	10	1.5	N
PS011C3	43 24 6	111 26 29	30	1.5	1.5	.7	10	2	N
PS012C3	43 23 32	111 26 57	20	.3	.5	N	1.5	.3	N
PS014C3	43 18 22	111 12 36	50	1	1.5	1	20	.7	N
PS015C3	43 16 47	111 13 35	>50	1.5	1.5	1	20	1	N
PS016C3	43 16 27	111 14 42	20	1.5	1.5	.7	5	>2	N
PS017C3	43 16 8	111 13 13	10	3	.7	N	3	>2	100
PS018C3	43 15 7	111 13 31	30	.7	1	<.5	7	.3	N
PS019C3	43 14 15	111 14 33	10	7	1	N	2	1.5	N
PS020C3	43 14 18	111 14 35	20	1.5	1	<.5	7	2	N
PS021C3	43 14 21	111 14 29	15	1.5	.7	N	7	>2	N
PS022C3	43 14 45	111 13 48	30	1.5	1	N	3	.3	N
PS023C3	43 14 43	111 13 36	5	1	.3	N	2	.3	N
PS024C3	43 12 45	111 11 31	15	3	.5	N	1.5	.3	N
PS025C3	43 18 47	111 19 48	10	7	.5	N	3	.7	N
PS026C3	43 18 51	111 19 46	15	3	1	N	5	.7	N
PS027C3	43 18 42	111 19 28	15	1.5	.7	N	10	.7	N
PS028C3	43 18 32	111 19 21	7	5	1.5	N	5	.7	N
PS029C3	43 18 15	111 18 56	15	3	2	<.5	7	.3	N
PS030C3	43 17 44	111 18 25	30	5	2	<.5	10	.3	N
PS031C3	43 9 24	111 15 57	20	3	1	N	7	.3	20
PS032C3	43 10 20	111 16 17	15	1	.7	N	5	.2	N
PS033C3	43 10 20	111 16 14	15	1	.7	N	5	.3	N
PS034C3	43 9 21	111 15 9	15	.7	.5	N	10	.7	N
PS035C3	43 16 3	111 19 52	20	10	1.5	.5	.5	.3	N
PS036C3	43 16 5	111 19 49	20	5	3	.5	7	.3	N
PS037C3	43 16 30	111 19 40	30	5	3	.5	10	.7	N
PS038C3	43 16 28	111 19 45	20	15	2	.5	2	.5	N
PS039C3	43 16 45	111 18 40	20	20	1	N	<.5	.3	N
PS040C3	43 17 2	111 18 13	15	7	1.5	<.5	7	.7	N
PS041C3	43 17 17	111 17 30	30	3	3	.5	10	.7	N
PS042C3	43 17 12	111 16 50	20	3	2	<.5	10	.7	N
PS043C3	43 17 2	111 16 21	30	5	3	.5	10	.7	10
PS044C3	43 16 41	111 15 34	30	10	2	.5	7	.5	N
PS045C3	43 11 29	111 16 54	20	7	1.5	N	5	.7	N
PS046C3	43 11 17	111 16 52	20	5	2	<.5	7	.7	N
PS047C3	43 15 57	111 21 6	20	10	2	<.5	<.5	.7	N
PS048C3	43 16 3	111 21 2	20	7	1.5	N	.5	.3	N
PS049C3	43 15 46	111 21 47	30	7	1.5	.2	7	.5	N
PS050C3	43 15 38	111 21 45	15	1.5	.7	N	5	.7	N
PS051C3	43 15 25	111 22 12	7	.7	.3	N	3	.3	N
PS052C3	43 11 14	111 10 31	10	.3	.3	N	3	.5	N
PS053C3	43 11 16	111 10 34	3	.15	.1	N	2	.15	N
PS054C3	43 12 15	111 11 45	15	.7	.5	N	7	.7	N
PS055C3	43 12 18	111 11 45	7	.7	.3	N	3	.3	N
PS057C3	43 12 30	111 6 37	20	1.5	.5	N	10	1	N
PS063C3	43 10 56	111 19 37	15	.2	.15	N	3	.3	N
PS064C3	43 10 44	111 18 52	20	.3	.2	N	7	.7	N
PS065C3	43 10 42	111 18 40	10	.3	.3	N	5	.2	N
PS066C3	43 11 22	111 20 40	7	.5	.15	N	5	.2	N
PS067C3	43 12 52	111 22 13	15	.3	.3	N	5	.2	N

TABLE 4--ANALYTICAL RESULTS OF HEAVY-MINERAL-CONCENTRATE SAMPLES FROM THE WESTERN PART OF THE PALISADES ROADLESS STUDY AREA, BONNEVILLE COUNTY, IDAHO.--Continued

Sample	As-ppm s	Au-ppm s	B-ppm s	Ba-ppm s	Be-ppm s	Bi-ppm s	Cd-ppm s	Co-ppm s	Cr-ppm s	Cu-ppm s
PS001C3	N	N	20	>10,000	N	N	N	N	30	20
PS002C3	N	N	N	>10,000	N	N	N	N	50	10
PS003C3	N	N	30	>10,000	N	N	N	N	70	15
PS004C3	N	N	<20	>10,000	N	N	N	N	20	<10
PS005C3	N	N	20	5,000	N	N	N	N	200	20
PS006C3	N	N	30	3,000	N	N	N	N	300	30
PS007C3	N	N	20	5,000	N	N	N	N	500	15
PS008C3	N	N	30	3,000	N	N	N	N	300	15
PS009C3	N	N	50	5,000	N	N	N	N	300	20
PS010C3	N	N	30	5,000	N	N	N	N	20	20
PS011C3	N	N	100	>10,000	N	N	N	N	200	<10
PS012C3	N	N	N	10,000	N	N	N	N	30	<10
PS014C3	N	N	50	5,000	N	N	N	N	300	15
PS015C3	N	N	20	7,000	N	N	N	<20	70	15
PS016C3	N	N	50	>10,000	N	N	N	N	200	15
PS017C3	N	N	100	10,000	N	N	N	N	70	15
PS018C3	N	N	20	>10,000	N	N	N	N	30	15
PS019C3	N	N	100	5,000	N	N	N	20	50	50
PS020C3	N	N	50	10,000	N	N	N	N	70	50
PS021C3	N	N	50	7,000	N	N	N	N	100	50
PS022C3	N	N	20	>10,000	N	N	N	N	100	50
PS023C3	N	N	20	>10,000	N	N	N	N	<20	15
PS024C3	N	N	<20	>10,000	N	N	N	N	20	15
PS025C3	N	N	100	>10,000	<2	N	N	N	100	50
PS026C3	N	N	50	>10,000	N	N	N	N	30	30
PS027C3	N	N	50	>10,000	<2	N	N	N	30	20
PS028C3	N	N	150	>10,000	<2	N	N	N	50	50
PS029C3	N	N	70	>10,000	2	N	N	N	<20	50
PS030C3	N	N	150	>10,000	<2	N	N	N	150	50
PS031C3	N	N	70	>10,000	<2	N	N	N	50	20
PS032C3	N	N	20	>10,000	N	N	N	N	70	15
PS033C3	N	N	50	>10,000	N	N	N	N	<20	15
PS034C3	N	N	20	>10,000	N	N	N	N	100	10
PS035C3	N	N	70	5,000	<2	N	N	50	30	70
PS036C3	N	N	70	>10,000	<2	N	N	N	70	50
PS037C3	N	N	100	>10,000	N	N	N	N	70	30
PS038C3	N	N	200	10,000	2	N	N	50	150	70
PS039C3	N	N	150	>10,000	<2	N	N	70	20	150
PS040C3	N	N	150	>10,000	N	N	N	N	200	50
PS041C3	N	N	100	>10,000	<2	N	N	<20	100	20
PS042C3	N	N	100	7,000	N	N	N	<20	100	30
PS043C3	N	N	70	>10,000	N	N	N	N	50	70
PS044C3	N	N	150	>10,000	2	N	N	30	100	50
PS045C3	N	N	100	>10,000	2	N	N	<20	70	50
PS046C3	N	N	70	>10,000	N	N	N	N	100	50
PS047C3	N	N	100	>10,000	N	N	N	50	150	100
PS048C3	N	N	100	3,000	2	N	N	30	70	70
PS049C3	N	N	100	>10,000	2	N	N	30	20	70
PS050C3	N	N	20	>10,000	<2	N	N	N	<20	15
PS051C3	N	N	20	>10,000	N	N	N	N	<20	10
PS052C3	N	N	N	>10,000	<2	N	N	N	<20	<10
PS053C3	N	N	N	>10,000	<2	N	N	N	N	<10
PS054C3	N	N	20	>10,000	<2	N	N	N	20	10
PS055C3	N	N	<20	>10,000	<2	N	N	N	<20	10
PS057C3	N	N	20	>10,000	<2	N	N	N	50	20
PS063C3	N	N	<20	>10,000	<2	N	N	N	<20	10
PS064C3	N	N	30	>10,000	<2	N	N	N	50	<10
PS065C3	N	N	N	>10,000	<2	N	N	N	N	10
PS066C3	N	N	<20	>10,000	<2	N	N	N	N	10
PS067C3	N	N	<20	>10,000	<2	N	N	N	<20	10

TABLE 4--ANALYTICAL RESULTS OF HEAVY-MINERAL-CONCENTRATE SAMPLES FROM THE WESTERN PART OF THE PALISADES ROADLESS STUDY AREA, BONNEVILLE COUNTY, IDAHO.--Continued

Sample	Ga-ppm s	Ge-ppm s	La-ppm s	Mn-ppm s	Mo-ppm s	Nb-ppm s	Ni-ppm s	Pb-ppm s	Pd-ppm s	Pt-ppm s
PS001C3	N	N	200	700	N	N	10	50	N	N
PS002C3	N	N	200	200	N	<50	<10	300	N	N
PS003C3	N	N	300	300	20	50	15	70	N	N
PS004C3	N	N	300	300	N	N	N	<20	N	N
PS005C3	N	N	700	300	N	<50	20	70	N	N
PS006C3	N	N	1,000	1,000	N	N	50	70	N	N
PS007C3	N	N	700	300	N	<50	30	50	N	N
PS008C3	N	N	700	700	N	50	30	70	N	N
PS009C3	N	N	500	300	N	N	30	1,000	N	N
PS010C3	N	N	300	300	N	<50	<10	10,000	N	N
PS011C3	N	N	500	300	<10	50	30	70	N	N
PS012C3	N	N	100	200	N	N	N	20	N	N
PS014C3	N	N	700	1,000	N	<50	30	150	N	N
PS015C3	<10	N	700	700	N	<50	30	150	N	N
PS016C3	<10	N	700	500	N	50	50	70	N	N
PS017C3	N	N	300	200	N	50	50	100	N	N
PS018C3	N	N	300	300	N	N	N	50	N	N
PS019C3	<10	N	100	300	N	50	150	700	N	N
PS020C3	<10	N	500	300	N	50	15	1,000	N	N
PS021C3	N	N	500	300	N	50	20	150	N	N
PS022C3	<10	N	100	300	N	N	30	30	N	N
PS023C3	N	N	100	200	N	N	N	200	N	N
PS024C3	<10	N	<100	300	N	<50	20	30	N	N
PS025C3	N	N	300	700	N	<50	15	70	N	N
PS026C3	N	N	300	700	N	N	15	70	N	N
PS027C3	N	N	500	700	N	N	N	200	N	N
PS028C3	<10	N	300	1,000	N	<50	15	70	N	N
PS029C3	N	N	500	500	N	<50	10	70	N	N
PS030C3	N	N	700	1,000	N	N	50	100	N	N
PS031C3	N	N	300	300	N	N	15	70	N	N
PS032C3	N	N	300	300	N	N	N	50	N	N
PS033C3	N	N	300	300	N	N	N	30	N	N
PS034C3	N	N	500	200	N	N	N	70	N	N
PS035C3	<10	N	<100	500	N	N	100	200	N	N
PS036C3	<10	N	300	700	N	N	30	100	N	N
PS037C3	<10	N	500	700	N	N	20	100	N	N
PS038C3	10	N	150	700	N	<50	150	150	N	N
PS039C3	10	N	N	300	N	N	300	500	N	N
PS040C3	<10	N	300	700	N	<50	50	70	N	N
PS041C3	N	N	500	700	N	<50	15	70	N	N
PS042C3	N	N	500	700	N	<50	30	70	N	N
PS043C3	<10	N	500	500	N	<50	30	500	N	N
PS044C3	<10	N	300	1,000	N	<50	70	200	N	N
PS045C3	<10	N	300	700	N	<50	50	100	N	N
PS046C3	N	N	500	300	N	<50	15	70	N	N
PS047C3	<10	N	<100	500	N	<50	150	1,000	N	N
PS048C3	10	N	<100	700	N	N	100	100	N	N
PS049C3	<10	N	300	500	N	<50	100	100	N	N
PS050C3	N	N	150	300	N	<50	N	30	N	N
PS051C3	N	N	150	200	N	N	N	<20	N	N
PS052C3	N	N	200	100	N	<50	<10	150	N	N
PS053C3	N	N	<100	100	N	N	N	<20	N	N
PS054C3	N	N	300	300	N	N	N	20	N	N
PS055C3	N	N	150	200	N	N	N	20	N	N
PS057C3	N	N	500	300	N	<50	10	70	N	N
PS063C3	N	N	150	70	N	N	N	300	N	N
PS064C3	N	N	200	100	N	<50	10	20	N	N
PS065C3	N	N	200	100	N	N	N	<20	N	N
PS066C3	N	N	200	70	N	N	N	20	N	N
PS067C3	N	N	150	500	N	N	<10	20	N	N

TABLE 4--ANALYTICAL RESULTS OF HEAVY-MINERAL-CONCENTRATE SAMPLES FROM THE WESTERN PART OF THE PALISADES ROADLESS STUDY AREA, BONNEVILLE COUNTY, IDAHO.--Continued

Sample	Sb-ppm s	Sc-ppm s	Sn-ppm s	Sr-ppm s	Th-ppm s	V-ppm s	W-ppm s	Y-ppm s	Zn-ppm s	Zr-ppm s
PS001C3	N	15	N	>10,000	N	70	N	200	N	>2,000
PS002C3	N	15	N	10,000	N	30	N	70	N	>2,000
PS003C3	N	20	N	5,000	N	100	N	700	N	>2,000
PS004C3	N	<10	N	10,000	N	70	N	200	N	>2,000
PS005C3	N	20	N	2,000	N	300	N	700	N	>2,000
PS006C3	N	20	N	3,000	N	300	N	1,000	N	>2,000
PS007C3	N	50	N	2,000	N	300	N	1,000	N	>2,000
PS008C3	N	30	N	2,000	N	200	N	1,000	N	>2,000
PS009C3	N	10	N	2,000	N	300	N	700	N	>2,000
PS010C3	300	N	N	1,000	N	70	N	500	N	>2,000
PS011C3	N	30	N	3,000	N	150	N	700	N	>2,000
PS012C3	N	20	N	>10,000	N	30	N	150	N	>2,000
PS014C3	N	20	N	2,000	N	150	N	700	N	>2,000
PS015C3	N	30	N	3,000	N	100	N	700	N	>2,000
PS016C3	N	70	N	5,000	N	150	N	500	N	>2,000
PS017C3	N	70	N	1,500	N	150	N	700	N	>2,000
PS018C3	N	15	N	10,000	N	70	N	300	N	>2,000
PS019C3	N	20	N	700	N	70	N	200	N	>2,000
PS020C3	N	20	30	2,000	N	100	N	300	N	>2,000
PS021C3	N	30	N	1,000	N	150	N	700	N	>2,000
PS022C3	N	20	N	10,000	N	70	N	200	N	>2,000
PS023C3	N	<10	N	5,000	N	30	N	100	N	>2,000
PS024C3	N	10	N	>10,000	N	50	N	100	N	>2,000
PS025C3	N	15	N	3,000	N	150	N	300	N	>2,000
PS026C3	N	15	N	7,000	N	100	N	300	N	>2,000
PS027C3	N	15	150	3,000	N	70	N	300	N	>2,000
PS028C3	N	<10	N	2,000	N	150	N	150	N	>2,000
PS029C3	N	10	N	2,000	N	150	N	300	N	>2,000
PS030C3	N	20	N	3,000	N	150	N	500	N	>2,000
PS031C3	N	<10	N	3,000	N	100	N	200	N	>2,000
PS032C3	N	15	N	7,000	N	70	N	150	N	>2,000
PS033C3	N	10	N	5,000	N	70	N	150	N	>2,000
PS034C3	N	15	N	7,000	N	70	N	300	N	>2,000
PS035C3	N	<10	N	500	N	150	N	70	N	>2,000
PS036C3	N	15	N	1,500	N	150	N	300	N	>2,000
PS037C3	N	15	N	3,000	N	150	N	500	N	>2,000
PS038C3	N	15	N	1,000	N	150	N	200	N	>2,000
PS039C3	N	<10	N	1,500	N	150	N	100	N	>2,000
PS040C3	N	15	N	1,500	N	150	N	300	N	>2,000
PS041C3	N	15	N	1,500	N	150	N	300	N	>2,000
PS042C3	N	15	N	1,000	N	150	N	500	N	>2,000
PS043C3	N	10	N	2,000	N	150	N	500	N	>2,000
PS044C3	N	15	N	3,000	N	200	N	500	N	>2,000
PS045C3	N	10	N	5,000	N	150	N	300	N	>2,000
PS046C3	N	15	N	3,000	N	150	N	300	N	>2,000
PS047C3	N	10	N	2,000	N	150	N	70	N	>2,000
PS048C3	N	15	N	700	N	150	N	70	N	>2,000
PS049C3	N	10	N	1,500	N	100	N	500	N	>2,000
PS050C3	N	15	N	5,000	N	70	N	200	N	>2,000
PS051C3	N	<10	N	5,000	N	50	N	150	N	>2,000
PS052C3	N	10	N	3,000	N	50	N	150	N	>2,000
PS053C3	N	10	N	5,000	N	<20	N	100	N	>2,000
PS054C3	N	10	N	7,000	N	50	N	200	N	>2,000
PS055C3	N	10	N	5,000	N	30	N	150	N	>2,000
PS057C3	N	30	N	2,000	N	70	N	700	N	>2,000
PS063C3	N	10	N	1,500	N	30	N	100	N	>2,000
PS064C3	N	10	N	1,500	N	70	N	200	N	>2,000
PS065C3	N	<10	N	1,000	N	30	N	150	N	>2,000
PS066C3	N	N	N	3,000	N	30	N	150	N	>2,000
PS067C3	N	10	N	7,000	N	30	N	200	N	>2,000

TABLE 4--ANALYTICAL RESULTS OF HEAVY-MINERAL-CONCENTRATE SAMPLES FROM THE WESTERN PART OF THE PALISADES ROADLESS STUDY AREA, BONNEVILLE COUNTY, IDAHO.--Continued

Sample	Latitude	Longitude	Ca-pct. s	Fe-pct. s	Mg-pct. s	Na-pct. s	P-pct. s	Ti-pct. s	Ag-ppm s
PS068C3	43 21 18	111 23 59	7	.3	.2	N	2	.2	N
PS071C3	43 16 41	111 9 51	15	1	.3	N	10	.7	N
PS073C3	43 17 21	111 9 59	20	2	.3	N	10	2	N
PS074C3	43 13 26	111 13 1	20	2	.7	N	7	.5	N
PS075C3	43 13 27	111 13 7	7	5	.7	N	3	.7	N
PS076C3	43 13 30	111 13 2	30	.7	1.5	N	7	.3	N

TABLE 4--ANALYTICAL RESULTS OF HEAVY-MINERAL-CONCENTRATE SAMPLES FROM THE WESTERN PART OF THE PALISADES ROADLESS STUDY AREA, BONNEVILLE COUNTY, IDAHO.--Continued

Sample	As-ppm s	Au-ppm s	B-ppm s	Ba-ppm s	Be-ppm s	Bi-ppm s	Cd-ppm s	Co-ppm s	Cr-ppm s	Cu-ppm s
PS068C3	N	N	N	>10,000	<2	N	N	N	N	<10
PS071C3	N	N	20	7,000	<2	N	N	N	70	15
PS073C3	N	N	30	3,000	<2	N	N	N	50	15
PS074C3	N	N	<20	>10,000	<2	N	N	N	50	15
PS075C3	N	N	20	>10,000	<2	N	N	<20	<20	70
PS076C3	N	N	<20	>10,000	<2	N	N	N	<20	15

TABLE 4--ANALYTICAL RESULTS OF HEAVY-MINERAL-CONCENTRATE SAMPLES FROM THE WESTERN PART OF THE PALISADES ROADLESS STUDY AREA, BONNEVILLE COUNTY, IDAHO.--Continued

Sample	Ga-ppm s	Ge-ppm s	La-ppm s	Mn-ppm s	Mo-ppm s	Nb-ppm s	Ni-ppm s	Pb-ppm s	Pd-ppm s	Pt-ppm s
PS068C3	N	N	<100	70	N	N	N	70	N	N
PS071C3	N	N	300	300	N	N	15	100	N	N
PS073C3	<10	N	300	300	N	<50	15	70	N	N
PS074C3	N	N	150	500	N	N	30	50	N	N
PS075C3	N	N	100	70	N	N	150	100	N	N
PS076C3	N	N	200	300	N	N	<10	50	N	N

TABLE 4--ANALYTICAL RESULTS OF HEAVY-MINERAL-CONCENTRATE SAMPLES FROM THE WESTERN PART OF THE PALISADES ROADLESS STUDY AREA, BONNEVILLE COUNTY, IDAHO.--Continued

Sample	Sb-ppm s	Sc-ppm s	Sn-ppm s	Sr-ppm s	Th-ppm s	V-ppm s	W-ppm s	Y-ppm s	Zn-ppm s	Zr-ppm s
PS068C3	N	10	N	3,000	N	20	N	100	N	>2,000
PS071C3	N	20	N	700	N	70	N	300	N	>2,000
PS073C3	N	30	N	1,000	N	100	N	500	N	>2,000
PS074C3	N	30	N	5,000	N	70	N	300	N	>2,000
PS075C3	N	10	N	1,500	N	30	N	100	1,500	1,000
PS076C3	N	20	N	3,000	N	50	N	150	N	>2,000

TABLE 5--ANALYTICAL RESULTS OF ROCK SAMPLES FROM THE WESTERN PART OF THE PALISADES ROADLESS STUDY AREA,
BONNEVILLE COUNTY, IDAHO.

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

Sample	Latitude	Longitude	Ca-pct. s	Fe-pct. s	Mg-pct. s	Na-pct. s	P-pct. s	Ti-pct. s	Ag-ppm s	As-ppm s	Au-ppm s
PS005R1	43 19 46	111 13 44	15	1	1.5	.3	N	.15	N	N	N
PS005R2	43 19 46	111 13 44	>20	.7	1	.3	N	.03	N	N	N
PS013R1	43 18 25	111 12 14	15	.7	5	1	N	.07	N	N	N
PS013R2	43 18 25	111 12 14	20	.5	.5	1	1	.1	N	N	N
PS013R3	43 18 25	111 12 14	.7	2	1.5	.5	N	.15	N	N	N
PS024R	43 12 45	111 11 31	.5	3	1	.5	N	.7	N	N	N
PS031R1	43 9 24	111 15 57	7	1	1	.7	<.2	.15	N	N	N
PS031R2	43 9 24	111 15 57	20	.3	.5	<.2	N	.015	N	N	N
PS056R1	43 12 10	111 6 27	>20	.7	.5	N	N	.02	<.5	N	N
PS056R2	43 12 10	111 6 27	15	1.5	1	N	N	.05	<.5	N	N
PS058R	43 14 7	111 8 0	>20	1	3	N	N	.003	N	N	N
PS060R	43 13 16	111 7 5	3	2	.5	.2	1	1	N	N	N
PS061R1	43 13 18	111 6 58	3	1.5	.7	1.5	<.2	.3	7	N	N
PS061R2	43 13 18	111 6 58	.15	20	.2	<.2	N	.1	10	300	N
PS061R4	43 13 18	111 6 58	10	2	1	1.5	N	.7	5	N	N
PS062R	43 12 57	111 6 36	10	1	3	1	N	.2	N	N	N
PS069R	43 22 6	111 25 8	.1	.7	.07	N	N	.05	<.5	N	N
PS070R	43 22 25	111 25 25	.3	.7	.1	N	<.2	.07	<.5	N	N
PS072R	43 16 23	111 9 21	20	1	.5	.3	.3	.3	N	N	N
PS075R	43 13 27	111 13 7	7	1.5	.7	.7	<.2	.15	N	N	N

TABLE 5--ANALYTICAL RESULTS OF ROCK SAMPLES FROM THE WESTERN PART OF THE PALISADES ROADLESS STUDY AREA,
BONNEVILLE COUNTY, IDAHO.--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	Ge-ppm s	La-ppm s	Mn-ppm s	Mo-ppm s
PS005R1	50	100	1	N	N	<10	50	20	20	N	<50	700	N
PS005R2	<10	<20	<1	N	N	N	15	<5	N	N	<50	1,000	N
PS013R1	15	150	<1	N	N	10	<10	7	<5	N	N	700	N
PS013R2	10	70	<1	N	N	N	15	5	<5	N	<50	1,000	N
PS013R3	70	150	2	N	N	15	30	20	10	N	N	150	N
PS024R	100	300	2	N	N	15	100	30	30	N	70	150	N
PS031R1	30	700	1	N	N	<10	50	15	7	N	<50	700	N
PS031R2	N	5,000	N	N	N	N	<10	<5	N	N	<50	1,500	N
PS056R1	N	100	<1	N	N	N	15	7	N	N	<50	700	N
PS056R2	15	700	1.5	N	N	N	50	20	N	N	N	500	N
PS058R	N	<20	<1	N	N	N	<10	N	N	N	N	>5,000	N
PS060R	50	500	1	N	N	15	100	20	20	N	70	2,000	N
PS061R1	30	100	1	N	N	30	50	700	10	N	50	700	N
PS061R2	20	20	1	N	N	100	20	7,000	15	N	200	200	100
PS061R4	30	100	<1	N	N	20	70	700	10	N	70	1,000	N
PS062R	30	300	<1	N	N	N	50	30	7	N	<50	700	N
PS069R	10	100	N	N	N	N	N	15	N	N	N	100	<5
PS070R	10	100	N	N	N	N	10	15	N	N	N	200	N
PS072R	30	200	1	N	N	N	50	15	7	N	<50	2,000	N
PS075R	50	300	1	N	N	<10	50	30	10	N	<50	700	N

TABLE 5--ANALYTICAL RESULTS OF ROCK SAMPLES FROM THE WESTERN PART OF THE PALISADES ROADLESS STUDY AREA,
BONNEVILLE COUNTY, IDAHO.--Continued

Sample	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	Zn-ppm s	Zr-ppm s
PS005R1	N	15	70	N	10	N	300	N	70	N	20	N	150
PS005R2	N	<5	50	N	5	N	700	N	30	N	50	N	70
PS013R1	N	10	20	N	<5	N	1,000	N	15	N	15	N	100
PS013R2	N	<5	30	N	5	N	200	N	30	N	20	N	200
PS013R3	N	30	20	N	5	N	N	N	70	N	N	N	100
PS024R	20	30	70	N	20	N	200	N	300	N	50	N	200
PS031R1	N	7	30	N	7	N	200	N	100	N	20	N	500
PS031R2	N	N	100	N	<5	N	1,000	N	15	N	10	N	20
PS056R1	N	<5	150	N	<5	N	200	N	20	N	10	N	15
PS056R2	N	15	70	N	<5	N	100	N	70	N	<10	N	30
PS058R	N	N	N	N	<5	N	300	N	15	N	<10	N	<10
PS060R	20	10	50	N	10	N	<100	N	150	N	70	N	700
PS061R1	N	50	30	N	7	N	N	N	100	N	50	N	500
PS061R2	N	50	200	N	7	N	N	N	100	N	100	N	70
PS061R4	<20	20	30	N	10	N	150	N	70	N	50	N	500
PS062R	N	<5	30	N	7	N	150	N	70	N	15	N	300
PS069R	N	<5	N	N	N	N	N	N	70	N	<10	N	50
PS070R	N	<5	<10	N	<5	N	N	N	100	N	15	N	150
PS072R	N	5	30	N	10	N	300	N	70	N	50	N	300
PS075R	N	30	20	N	7	N	N	N	150	N	30	N	300

TABLE 5--ANALYTICAL RESULTS OF ROCK SAMPLES FROM THE WESTERN PART OF THE PALISADES ROADLESS STUDY AREA,
BONNEVILLE COUNTY, IDAHO.--Continued

Sample	Au-ppm aa	Hg-ppm aa	Ag-ppm icp	As-ppm icp	Au-ppm icp	Bi-ppm icp	Cd-ppm icp	Cu-ppm icp	Mo-ppm icp	Pb-ppm icp	Sb-ppm icp	Zn-ppm icp
PS005R1	N	N	N	1.7	N	N	.15	14	N	29	N	23
PS005R2	N	N	N	N	N	N	.3	2.1	.27	12	N	23
PS013R1	N	N	N	N	N	N	.098	3.1	N	5.4	N	11
PS013R2	N	N	N	2.1	N	N	N	1.8	.1	6.6	N	3.2
PS013R3	N	N	N	N	N	N	N	2.9	.19	8.7	N	13
PS024R	N	N	.15	.97	N	N	.46	32	.44	20	.76	93
PS031R1	N	N	.045	N	N	N	1.4	5.3	.097	9.8	N	37
PS031R2	N	N	N	N	N	N	1.9	.75	N	30	N	4.2
PS056R1	N	N	.13	6.4	N	N	4.9	5.1	.77	43	N	36
PS056R2	N	N	.21	13	N	N	3.7	23	.77	26	.85	89
PS058R	N	N	N	.98	N	N	N	.98	N	1.1	N	1.5
PS060R	N	N	N	10	N	N	.2	6.9	.75	8.9	N	15
PS061R1	N	N	1	7.5	N	1.9	.17	1,200	.69	14	2.1	27
PS061R2	N	.06	15	570	N	N	N	14,000	110	440	N	190
PS061R4	N	N	1.3	3.7	N	1.3	.33	830	.95	11	1.3	29
PS062R	N	N	N	1.3	N	N	N	11	.2	3.4	N	2.8
PS069R	N	N	.094	7.7	N	N	.096	4.6	3.3	3.8	.76	5.6
PS070R	N	N	.048	7.2	N	N	.12	9.6	.87	4.4	.79	6
PS072R	N	N	N	7.2	N	N	.1	7.5	.17	9.1	N	12
PS075R	N	N	N	2.1	N	N	.79	9.4	.44	8.8	.85	27

TABLE 6--ANALYTICAL RESULTS OF SOIL SAMPLES FROM THE WESTERN PART OF THE PALISADES ROADLESS STUDY AREA,
BONNEVILLE COUNTY, IDAHO.

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

Sample	Latitude	Longitude	Ca-pct. s	Fe-pct. s	Mg-pct. s	Na-pct. s	P-pct. s	Ti-pct. s	Ag-ppm s	As-ppm s	Au-ppm s
PS031D	43 9 24	111 15 57	10	3	1	1	<.2	.3	.7	N	N
PS058D	43 14 7	111 8 0	1.5	2	.5	1	<.2	.2	N	N	N
PS059D	43 13 46	111 7 31	5	3	.7	1.5	<.2	.5	N	N	N
PS060D	43 13 16	111 7 5	2	3	.7	1	<.2	.5	N	N	N
PS062D	43 12 57	111 6 36	.3	3	.7	.7	<.2	.3	N	N	N
PS072D	43 16 23	111 9 21	7	3	1	1	.2	.5	N	N	N

TABLE 6--ANALYTICAL RESULTS OF SOIL SAMPLES FROM THE WESTERN PART OF THE PALISADES ROADLESS STUDY AREA,
BONNEVILLE COUNTY, IDAHO.--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	Ge-ppm s	La-ppm s	Mn-ppm s	Mo-ppm s
PS031D	50	300	1	N	N	10	100	30	15	N	<50	500	N
PS058D	30	300	2	N	N	7	50	30	10	N	<50	>5,000	N
PS059D	50	700	1	N	N	10	100	20	20	N	50	2,000	N
PS060D	50	700	1.5	N	N	10	100	30	20	N	50	2,000	N
PS062D	50	500	1.5	N	N	10	100	15	20	N	<50	700	N
PS072D	50	500	1.5	N	N	15	100	20	30	N	50	1,500	N

TABLE 6--ANALYTICAL RESULTS OF SOIL SAMPLES FROM THE WESTERN PART OF THE PALISADES ROADLESS STUDY AREA,
BONNEVILLE COUNTY, IDAHO.--Continued

Sample	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	Zn-ppm s	Zr-ppm s	Au-ppm aa
PS031D	N	30	30	N	10	N	200	N	150	N	20	N	200	N
PS058D	N	10	100	N	7	N	150	N	70	N	20	N	150	N
PS059D	<20	15	50	N	10	N	300	N	150	N	50	N	300	N
PS060D	<20	20	50	N	15	N	300	N	150	N	50	N	300	N
PS062D	N	20	50	N	7	N	<100	N	150	N	30	N	500	N
PS072D	<20	30	50	N	15	N	300	N	150	N	30	N	500	N

TABLE 6--ANALYTICAL RESULTS OF SOIL SAMPLES FROM THE WESTERN PART OF THE PALISADES ROADLESS STUDY AREA,
BONNEVILLE COUNTY, IDAHO.--Continued

Sample	Hg-ppm aa	Th-ppm dna	U-ppm dna	Ag-ppm icp	As-ppm icp	Au-ppm icp	Bi-ppm icp	Cd-ppm icp	Cu-ppm icp	Mo-ppm icp	Pb-ppm icp	Sb-ppm icp	Zn-ppm icp
PS031D	.02	10.1	3.13	.13	5.3	N	.7	.89	20	.75	22	1.3	69
PS058D	.1	11.6	2.78	.1	24	N	1.4	1.8	21	1.3	96	1.1	100
PS059D	N	9.54	2.66	N	11	N	N	.5	13	.75	20	N	51
PS060D	.02	9.93	2.51	.051	7.7	N	N	.49	12	.52	17	N	52
PS062D	N	8.98	2.36	N	2.8	N	N	.31	7.3	.38	14	N	27
PS072D	N	9.69	3.58	.054	17	N	N	.33	16	.45	14	N	53

Table 7.--Rock descriptions

[O, outcrop; F, float]

Sample no.	Type	Description
PS005R1	O	Siltstone, green
PS005R2	F	Limestone, medium dark gray, calcite veinlets
PS013R1	O	Siltstone breccia, pale purple, calcareous cement
PS013R2	O	Limestone, pale yellowish brown
PS013R3	O	Siltstone, grayish red
PS024R	F	Shale, dark gray
PS031R1	O	Sandstone, light brownish gray, weathers pale red
PS031R2	O	Calcite, vein about 2-cm thick
PS056R1	O	Calcite, vuggy, disseminated limonite
PS056R2	F	(same as above)
PS058R	F	Limestone, medium gray
PS060R	F	Sandstone, pale reddish brown
PS061R1	F	Sandstone, light gray, calcareous, disseminated limonite, trace of malachite
PS061R2	F	Limonite, with a trace of malachite
PS061R4	O	Limestone and calcareous sandstone, pale yellowish brown
PS062R	O	Sandstone, pale red
PS069R	O	Sandstone, medium light gray, rusty fracture surfaces, slickensides

Table 7.--Rock descriptions (Continued)

Sample no.	Type	Description
PS070R	F	Sandstone, medium light gray to pinkish gray, limonite on fracture surfaces and disseminated, slickensides
PS072R	F	Limestone, silty, yellowish gray
PS075R	O	Siltstone, calcareous, grayish red