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Analytical results and sample locality map of heavy-mineral
concentrates of ridge-top soil samples from the
Morgan Pass Region of the Goshute Peak and
Blue Bell Wilderness Study Areas, Elko County, Nevada

By

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This report is preliminary and has not been reviewed for conformity with U.S. Geological Survey editorial standards and stratigraphic nomenclature. Any use of trade names is for descriptive purposes only and does not imply endorsement by the USGS.

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STUDIES RELATED TO WILDERNESS

Bureau of Land Management Wilderness Study Areas

The Federal Land Policy and Management Act (Public Law 94-579, October 21, 1976) requires the U.S. Geological Survey and the U.S. Bureau of Mines to conduct mineral surveys on certain areas to determine their mineral values, if any. Results must be made available to the public and be submitted to the President and the Congress. This report presents the results of a geochemical survey of the northern part of the Goshute Peak Wilderness Study Area and the southern part of the Blue Bell Wilderness Study Area, Elko County, Nevada, and is referred to hereafter in this report as the Morgan Pass Study Area.

INTRODUCTION

In October 1984, personnel of the U.S. Geological Survey conducted a detailed geochemical survey of the Morgan Pass Study Area, Elko County, Nevada, because a previous stream-sediment geochemical survey of the Goshute Peak Wilderness Study Area (Day and Barton, 1986) revealed that some samples in the vicinity of Morgan Pass contained anomalous concentrations of antimony and tungsten.

The Morgan Pass Study Area comprises about 10,000 acres, 16 mi² (41 km²) in the southeastern portion of Elko County, Nevada, and lies about 10 mi (16 km) southwest of Wendover, Nevada (see fig. 1). The Morgan Pass Study Area includes a portion of the northern part of the Goshute Peak Wilderness Study Area (NV-010-033), a portion of the southern part of the Blue Bell Wilderness Study Area (NV-010-027), and some of the shared boundary between the wilderness study areas (fig. 1). Access to the study area is provided by roads and jeep trails branching from U.S. alternate 93.

The Morgan Pass Study Area is in the southern part of the Goshute-Toano Range. The geologic setting is described by Ketner and others (1986) as follows: a typical block-faulted range in the center of the Great Basin geomorphic province and the Basin and Range structural province. The range is bounded by steep basin range faults on the west which produce impressively high west-facing cliffs. Its eastern margin, defined by erosional patterns, is more subdued and indefinite. Rocks exposed in and near the wilderness study area are shallow water marine formations of Middle Cambrian to Triassic age, mostly limestone, dolomite, shale, and quartzite; igneous, mostly rhyolitic rocks of Tertiary age; and terrestrial sediments of Tertiary and Quaternary age.

The lower Paleozoic sequence is folded in the form of a subdued anticline whose axis trends north through the wilderness study area but veers westward under Goshute Valley just north of the area. Two styles of brittle extension are displayed in the study area. Extension within the Middle Cambrian to Devonian sequence was accommodated by younger-on-older low-angle planar faults that caused thinning or elimination of stratigraphic units. These faults are concentrated mainly in the Ordovician rocks. Extension within the overlying strata was accommodated by high-angle listric faults that flattened downward nearly parallel to bedding in, or sporadically below, Mississippian shale. Blocks of upper Paleozoic rocks have rotated as much as 90 degrees and have spread apart leaving the lower Paleozoic sequence almost completely denuded.

Figure 1. Location of the Morgan Pass Study Area, Elko County, Nevada.

METHODS OF STUDY

Sample Media

Ridge-top soil samples were taken at approximately 200-yard intervals to provide more detailed sampling than is possible with stream-sediment sampling. The residual ridge-top soils are derived from the mechanical and chemical weathering of the parent rock/ore material and contain some of the elements found in the parent rock/ore material.

Soil samples are particularly useful in detecting immobile elements that are concentrated by residual enrichment of insoluble minerals during weathering. These elements can be used to pinpoint the source of minerals (Andrews-Jones, 1968). Very low to immobile elements in a neutral to alkaline environment, such as occurs in the Morgan Pass Wilderness Study Area, include: Sn, Nb, Cr, Zr, Th, Zn, Cu, Co, Ni, Au, Pt, and rare earths (Andrew-Jones, 1968). Heavy-mineral concentrates were separated from the ridge-top soil samples in order to concentrate most elements of interest to levels high enough to permit their determination by the analytical techniques available.

Sample Collection

Ridge-top soil samples were collected at 166 sites (plate 1). The average sample density was about one per 0.1 mi². The soil samples were collected on ridge tops as shown on USGS topographical maps (scale = 1:24,000) by digging with a pick and trowel to a depth of about 4 in (10 cm). All of the soil material including the surface layer was retained for sample preparation.

Sample Preparation

The ridge-top soil samples were sieved using 1-mm stainless-steel sieves. The portion of the soil passing through the sieve was panned until most of the quartz, organic, and clay-sized material was removed.

After drying the panned-concentrate sample, heavy minerals were further concentrated by separation in bromoform (specific gravity 2.8). The resultant heavy-mineral sample was separated into three fractions using a large electromagnet (in this case a modified Frantz Isodynamic Separator). The most magnetic material, primarily magnetite, was not analyzed. The second fraction, largely ferromagnesian silicates and iron oxides, was saved for archival storage. The third fraction (the least magnetic material including the nonmagnetic ore minerals, zircon, sphene, etc.) was split using a Jones splitter. One split was hand ground for spectrographic analysis; the other split was saved for mineralogical analysis. These magnetic separates are the same separates that would be produced by using a Frantz Isodynamic Separator set at a slope of 15° and a tilt of 10° with a current of 0.1 ampere to remove the magnetite and ilmenite, and a current of 1.0 ampere to split the remainder of the sample into paramagnetic and nonmagnetic fractions.

Sample Analysis

Spectrographic method

The heavy-mineral-concentrate samples were analyzed for 31 elements using a semiquantitative, direct-current arc emission spectrographic method (Grimes and Marranzino, 1968). The elements analyzed and their lower limits of determination are listed in table 1. Spectrographic results were obtained by visual comparison of sample spectra with 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. Analytical data for samples from the Morgan Pass Study Area are listed in table 2. 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).

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 map plotting, computerized statistical analysis, or publication (VanTrump and Miesch, 1977).

DESCRIPTION OF DATA TABLE

The results of the spectrographic analyses of the nonmagnetic fraction of the heavy-mineral-concentrate samples are listed in table 2. Column 1 contains the USGS-assigned sample numbers which correspond to the numbers shown on the site location maps (plate 1). The letter "s" below the element symbol indicates emission spectrographic analyses. A letter "N" in the tables indicates that a given element was looked for but not detected at the lower limit of determination shown for that element in table 1. A "less than" symbol (<) indicates that an element was observed but was below the lowest reporting value shown. A "greater than" symbol (>) indicates that an element was observed but was above the highest reporting value shown. Because of the formatting used in the computer program that produced the table, some of the elements listed in these tables (Fe, Mg, Ca, Ti, Ag, and Be) carry one or more nonsignificant digits to the right of the significant digits. The analysts did not determine these elements to the accuracy suggested by the extra zeros.

REFERENCES CITED

- Andrews-Jones, D. A., 1968, The application of geochemical techniques to mineral exploration: Colorado School of Mines Bulletin, v. 11, no. 6, p. 4, 8, and 15.
- Day, G. W., and Barton, H. N., 1986, Analytical results and sample locality map of heavy-mineral-concentrate samples from the Goshute Peak Wilderness Study Area (NV-010-033), Elko County, Nevada: U.S. Geological Survey Open-File Report 86-357, p. 7-8 and 10-11.

- 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.
- Ketner, Keith B., Day, Warren C., Elrick, Maya, Vaag, Myra K., Gerlitz, Carol N., Barton, Harlan N., Saltus, Richard W., Brown, S., Don, 1986, Mineral Resources of the Bluebell and Goshute Peak Wilderness Study Area, Elko County, Nevada: U.S. Geological Survey Bulletin (in press).
- VanTrump, 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 the spectrographic analysis of heavy-mineral concentrates of ridge-top soil samples based on a 5-mg sample

Elements	Lower determination limit	Upper determination limit
Percent		
Iron (Fe)	0.1	50
Magnesium (Mg)	.05	20
Calcium (Ca)	.1	50
Titanium (Ti)	.005	2
Parts per million		
Manganese (Mn)	20	10,000
Silver (Ag)	1	10,000
Arsenic (As)	500	20,000
Gold (Au)	20	1,000
Boron (B)	20	5,000
Barium (Ba)	50	10,000
Beryllium (Be)	2	2,000
Bismuth (Bi)	20	2,000
Cadmium (Cd)	50	1,000
Cobalt (Co)	10	5,000
Chromium (Cr)	20	10,000
Copper (Cu)	10	50,000
Lanthanum (La)	50	2,000
Molybdenum (Mo)	10	5,000
Niobium (Nb)	50	5,000
Nickel (Ni)	10	10,000
Lead (Pb)	20	50,000
Antimony (Sb)	200	20,000
Tin (Sn)	20	2,000
Strontium (Sr)	200	10,000
Vanadium (V)	20	20,000
Tungsten (W)	100	20,000
Yttrium (Y)	20	5,000
Zinc (Zn)	500	20,000
Zirconium (Zr)	20	2,000
Thorium (Th)	200	5,000

TABLE 2.--Results of spectrographic analyses of heavy-mineral concentrates of ridge top soil samples from the Morgan Pass Study Area, Elko County, Nevada
[N, not detected; <, detected but below the limit of determination shown; >, determined to be greater than the value shown.]

Sample	Latitude	Longitude	Fe-pct. S	Mg-pct. S	Ca-pct. S	Ti-pct. S	Mn-ppm S	Ag-ppm S	As-ppm S	Au-ppm S	B-ppm S	Ba-ppm S	Be-ppm S
GA101H	40 37 14	114 17 42	2.0	1.0	5.0	2.00	700	N	N	N	20	>10,000	2
GA102H	40 37 8	114 17 39	1.5	2.0	>50.0	.50	700	N	N	N	20	2,000	N
GA103H	40 37 5	114 17 36	2.0	1.0	50.0	.50	1,000	N	N	N	50	2,000	N
GA104H	40 37 1	114 17 33	2.0	1.0	10.0	1.00	500	N	N	N	50	500	5
GA105H	40 36 57	114 17 30	1.0	2.0	>50.0	.50	2,000	N	N	N	20	500	N
GA106H	40 36 51	114 17 27	1.5	1.0	>50.0	2.00	500	N	N	N	20	500	N
GA108H	40 36 40	114 17 18	1.5	1.0	20.0	.30	500	N	N	N	20	700	N
GA110H	40 36 26	114 16 59	2.0	1.0	50.0	.50	1,000	N	N	N	50	1,000	N
GA111H	40 36 26	114 16 51	2.0	.5	5.0	1.00	500	N	N	N	50	1,500	N
GA112H	40 36 24	114 16 43	2.0	.5	10.0	>2.00	500	N	N	N	50	N	5
GA113H	40 36 20	114 16 35	2.0	2.0	>50.0	.20	1,000	N	N	N	20	1,500	N
GA114H	40 36 16	114 16 28	5.0	2.0	>50.0	.50	700	N	N	N	50	700	N
GA115H	40 36 12	114 16 26	2.0	2.0	>50.0	1.00	500	N	N	N	50	500	N
GA116H	40 36 8	114 16 25	2.0	2.0	50.0	.20	500	N	N	N	30	1,500	N
GA117H	40 36 35	114 18 23	.5	.5	>50.0	.07	500	N	N	N	20	700	N
GA120H	40 36 39	114 18 45	1.0	1.5	50.0	2.00	1,000	N	N	N	100	500	10
GA121H	40 38 11	114 16 40	.5	.2	2.0	.05	200	N	N	N	<20	700	N
GA122H	40 38 18	114 16 42	.5	.1	2.0	.10	150	N	N	N	<20	1,000	2
GA123H	40 38 22	114 16 50	1.5	.5	>50.0	.10	500	N	N	N	20	700	N
GA124H	40 38 21	114 16 47	1.0	.5	>50.0	.05	700	N	N	N	20	700	N
GA125H	40 38 23	114 17 9	5.0	1.0	50.0	1.00	500	N	N	N	30	5,000	N
GA127H	40 38 23	114 17 27	5.0	1.0	>50.0	.50	2,000	N	N	N	30	1,000	N
GA130H	40 38 28	114 17 52	5.0	1.0	50.0	.20	500	N	N	N	50	10,000	N
GA131H	40 38 30	114 17 57	5.0	1.0	>50.0	.20	500	N	N	N	50	2,000	N
GA132H	40 38 36	114 18 2	.7	.5	>50.0	.05	500	N	N	N	<20	2,000	N
GA133H	40 38 42	114 18 5	1.0	1.0	>50.0	.50	500	N	N	N	<20	700	N
GA134H	40 38 26	114 17 55	1.0	2.0	50.0	.70	500	N	N	N	50	5,000	N
GA136H	40 38 17	114 18 7	.5	1.0	50.0	.70	300	300	N	N	20	700	N
GA138H	40 38 11	114 18 21	1.0	5.0	>50.0	.20	700	N	N	N	20	1,500	N
GA139H	40 38 8	114 18 27	2.0	2.0	>50.0	1.50	300	N	N	N	50	700	N
GA141H	40 38 6	114 18 44	2.0	2.0	50.0	.15	700	N	N	N	20	700	N
GA142H	40 38 24	114 16 45	.5	7.0	>50.0	.02	500	N	N	N	<20	7,000	N
GA143H	40 38 28	114 16 45	.5	5.0	>50.0	.10	300	N	N	N	20	700	N
GA144H	40 38 33	114 16 45	1.0	.5	50.0	.05	200	N	N	N	20	>10,000	N
GA145H	40 38 40	114 16 44	.3	10.0	>50.0	.05	300	N	N	N	20	>10,000	N
GA146H	40 38 46	114 16 44	1.0	10.0	>50.0	.07	500	N	N	N	<20	5,000	N
GA147H	40 38 52	114 16 44	.7	5.0	>50.0	.07	700	N	N	N	<20	5,000	N
GA148H	40 38 57	114 16 40	2.0	.2	1.5	.70	1,500	N	N	N	20	700	N
GA150H	40 37 31	114 17 17	5.0	2.0	10.0	1.00	3,000	N	N	N	70	2,000	N
GA152H	40 37 19	114 17 10	2.0	1.5	>50.0	.50	700	N	N	N	50	1,500	N
GA153H	40 37 14	114 17 7	3.0	1.5	10.0	>2.00	500	N	N	N	100	200	2
GA154H	40 37 9	114 17 2	1.0	2.0	>50.0	.50	700	N	N	N	20	700	N
GA155H	40 37 4	114 16 57	1.0	2.0	>50.0	.70	1,000	N	N	N	<20	1,000	N
GA156H	40 36 57	114 16 52	.5	1.0	50.0	.50	500	N	N	N	20	1,000	N
GA159H	40 36 31	114 17 58	1.0	2.0	50.0	.20	500	N	N	N	20	2,000	N

TABLE 2.--Continued

Sample	Bi-ppm S	Cd-ppm S	Co-ppm S	Cr-ppm S	Cu-ppm S	La-ppm S	Mo-ppm S	Nb-ppm S	Ni-ppm S	Pb-ppm S	Sb-ppm S	Sc-ppm S	Sn-ppm S	Sr-ppm S
GA101H	N	N	N	50	15	100	N	70	N	<20	1,500	10	N	1,000
GA102H	N	N	N	150	<10	150	N	N	N	20	N	20	N	700
GA103H	N	N	N	150	<10	100	N	N	N	N	N	20	N	500
GA104H	N	N	N	N	<10	N	N	N	N	50	N	50	N	N
GA105H	N	N	N	150	15	50	N	N	N	30	N	20	N	700
GA106H	N	N	N	150	10	150	N	100	N	<20	N	10	N	700
GA108H	N	N	N	100	<10	50	N	N	N	50	N	10	N	200
GA110H	N	N	N	150	10	100	N	N	N	50	N	10	N	500
GA111H	N	N	N	150	<10	100	N	N	N	50	N	20	N	500
GA112H	N	N	N	N	<10	N	N	150	N	N	N	20	N	500
GA113H	N	N	N	100	15	70	N	N	N	200	N	20	N	500
GA114H	N	N	20	100	20	1,000	N	N	N	100	3,000	20	N	500
GA115H	N	N	N	150	<10	100	<10	50	N	50	N	20	50	500
GA116H	N	N	N	100	10	50	N	N	N	70	N	10	N	500
GA117H	N	N	N	70	10	300	N	N	N	20	N	10	N	5,000
GA120H	N	N	10	50	<10	500	N	70	N	20	200	10	N	700
GA121H	N	N	N	N	<10	200	N	N	N	N	N	50	N	N
GA122H	N	N	N	20	<10	100	N	N	N	N	N	50	500	200
GA123H	N	N	N	100	<10	150	N	N	N	50	200	20	N	7,000
GA124H	N	N	N	50	<10	100	10	N	N	20	N	10	N	10,000
GA125H	N	N	10	200	20	70	N	N	N	500	N	10	300	5,000
GA127H	N	N	20	150	15	200	N	N	N	70	1,500	50	N	5,000
GA130H	N	N	10	200	20	100	N	N	50	70	N	30	N	5,000
GA131H	N	N	N	100	<10	100	N	N	N	50	N	20	N	10,000
GA132H	N	N	N	20	<10	50	N	N	N	20	N	10	N	500
GA133H	N	N	N	150	10	50	N	N	N	20	N	10	N	>10,000
GA134H	N	N	10	200	10	70	N	N	N	50	500	20	200	1,500
GA136H	N	N	N	100	<10	50	N	N	N	N	N	10	N	500
GA138H	N	N	N	150	10	50	N	N	N	20	N	20	N	1,000
GA139H	N	N	N	300	<10	150	N	N	N	N	<200	50	200	2,000
GA141H	N	N	10	150	15	100	N	N	N	70	N	10	N	1,000
GA142H	N	N	N	N	<10	100	N	N	N	30	500	10	N	200
GA143H	N	N	N	50	<10	150	N	N	N	700	N	20	N	N
GA144H	N	N	N	100	<10	100	N	N	N	20	N	10	N	7,000
GA145H	N	N	N	50	<10	50	N	N	N	N	N	10	N	1,500
GA146H	20	N	N	50	10	70	N	N	N	20,000	<200	10	N	1,000
GA147H	N	N	N	70	<10	50	N	N	N	20	N	10	N	200
GA148H	N	N	N	20	100	50	N	N	N	50	N	70	N	N
GA150H	N	N	N	150	20	300	20	N	N	50	N	20	N	1,000
GA152H	N	N	N	150	10	500	N	N	N	70	N	20	N	500
GA153H	N	N	N	70	10	700	N	100	N	30	N	10	N	N
GA154H	N	N	N	150	10	100	N	N	N	20	N	10	N	500
GA155H	N	N	N	150	<10	150	N	N	N	20	N	10	N	1,000
GA156H	N	N	N	150	<10	100	N	N	N	20	N	10	N	500
GA159H	N	N	N	100	<10	150	N	N	N	<20	N	10	N	500

TABLE 2.---Continued.

Sample	V-ppm S	H-ppm S	Y-ppm S	Zn-ppm S	Zr-ppm S	Th-ppm S
GA101H	150	N	200	N	>2,000	N
GA102H	20	N	100	N	>2,000	N
GA103H	<20	N	100	N	>2,000	N
GA104H	50	N	200	N	>2,000	N
GA105H	20	N	70	N	1,500	N
GA106H	150	N	150	N	>2,000	N
GA108H	20	N	100	N	>2,000	N
GA110H	70	N	70	N	2,000	N
GA111H	<20	N	150	N	>2,000	N
GA112H	150	N	150	N	>2,000	N
GA113H	20	N	50	N	2,000	N
GA114H	150	N	150	N	>2,000	N
GA115H	20	N	70	N	>2,000	N
GA116H	50	N	30	N	700	N
GA117H	<20	N	200	N	1,500	N
GA120H	100	N	200	N	>2,000	N
GA121H	<20	N	500	N	>2,000	N
GA122H	<20	N	500	N	>2,000	N
GA123H	20	N	150	N	>2,000	N
GA124H	<20	N	70	N	1,000	N
GA125H	50	N	70	N	>2,000	N
GA127H	150	N	200	N	>2,000	N
GA130H	50	N	50	N	>2,000	N
GA131H	<20	N	50	N	2,000	N
GA132H	<20	N	30	N	1,500	N
GA133H	20	N	70	N	>2,000	N
GA134H	20	N	100	N	>2,000	N
GA136H	20	1,000	100	N	>2,000	N
GA138H	20	700	70	N	2,000	N
GA139H	<20	3,000	300	N	>2,000	N
GA141H	50	N	50	N	2,000	N
GA142H	<20	N	50	N	2,000	N
GA143H	<20	N	300	N	>2,000	N
GA144H	20	N	20	N	2,000	N
GA145H	20	N	<20	N	500	N
GA146H	20	N	100	N	>2,000	N
GA147H	<20	N	20	N	1,500	N
GA148H	20	N	700	N	>2,000	N
GA150H	150	N	300	N	>2,000	1,000
GA152H	50	N	100	N	>2,000	N
GA153H	150	N	200	N	>2,000	N
GA154H	20	N	50	N	2,000	N
GA155H	70	N	200	N	2,000	N
GA156H	50	N	150	N	2,000	N
GA159H	N	N	70	N	>2,000	N

TABLE 2.---Continued:

Sample	Latitude	Longitude	Fe-pct. S	Mg-pct. S	Ca-pct. S	Ti-pct. S	Mn-ppm S	Ag-ppm S	As-ppm S	Au-ppm S	B-ppm S	Ba-ppm S	Be-ppm S
GA161H	40 36 29	114 17 43	1.0	1.0	>50.0	.50	700	N	N	N	20	2,000	N
GA162H	40 36 26	114 17 37	1.0	2.0	50.0	1.00	300	N	N	N	<20	700	N
GA166H	40 36 17	114 17 4	2.0	1.0	50.0	.20	500	N	N	N	20	700	N
GH101H	40 37 19	114 17 38	1.0	2.0	>50.0	.20	700	N	N	N	20	>10,000	N
GH102H	40 36 40	114 18 16	2.0	1.0	>50.0	.10	1,500	N	N	N	20	5,000	N
GH103H	40 36 43	114 18 13	1.0	5.0	50.0	.05	200	N	N	N	20	>10,000	N
GH104H	40 36 47	114 18 10	.5	1.0	50.0	.50	200	N	N	N	50	1,000	N
GH105H	40 36 52	114 18 6	1.0	5.0	>50.0	.15	700	N	N	N	20	>10,000	N
GH106H	40 36 59	114 18 3	.5	2.0	>50.0	.10	500	N	N	N	20	1,500	N
GH107H	40 37 3	114 18 2	1.0	2.0	>50.0	.50	500	N	N	N	20	3,000	N
GH108H	40 37 7	114 18 0	2.0	1.0	>50.0	.20	700	N	N	N	20	1,500	N
GH109H	40 37 10	114 17 56	.7	2.0	>50.0	.20	1,000	N	N	N	20	7,000	N
GH110H	40 37 19	114 17 38	5.0	2.0	50.0	.50	1,500	N	N	N	50	5,000	N
GH111H	40 37 23	114 17 33	2.0	20.0	>50.0	.10	300	N	N	N	<20	500	N
GH112H	40 37 28	114 17 29	1.0	2.0	>50.0	.20	500	N	N	N	20	5,000	N
GH114H	40 37 36	114 17 23	2.0	2.0	30.0	.20	1,000	N	N	N	20	2,000	N
GH115H	40 37 41	114 17 23	2.0	2.0	>50.0	.20	700	N	N	N	30	700	N
GH116H	40 37 40	114 17 16	5.0	1.0	50.0	1.00	1,500	N	N	N	20	1,500	N
GH117H	40 37 40	114 17 9	.3	.7	20.0	.50	150	N	N	N	<20	5,000	N
GH119H	40 37 45	114 16 59	3.0	3.0	50.0	.50	1,000	N	N	N	<20	5,000	N
GH120H	40 37 51	114 16 57	1.0	7.0	>50.0	.10	1,000	N	N	N	20	700	N
GH121H	40 37 55	114 16 52	1.0	2.0	>50.0	.15	500	N	N	N	20	>10,000	N
GH123H	40 38 3	114 16 46	1.0	10.0	>50.0	.20	200	N	N	N	<20	700	N
GH124H	40 38 59	114 16 43	1.0	1.0	30.0	.10	500	N	N	N	20	3,000	N
GH127H	40 36 42	114 18 49	1.0	2.0	>50.0	.50	700	N	N	N	20	7,000	N
GH128H	40 36 40	114 18 45	2.0	1.5	20.0	.70	700	N	N	N	30	500	N
GH129H	40 36 43	114 18 53	1.0	.5	>50.0	1.50	1,000	N	N	N	20	10,000	N
GH130H	40 36 45	114 18 59	5.0	2.0	20.0	1.00	500	N	N	N	20	5,000	N
GH131H	40 36 46	114 19 6	2.0	1.0	50.0	.50	700	N	N	N	20	1,000	N
GH133H	40 36 49	114 19 17	2.0	1.0	>50.0	.50	700	N	N	N	50	10,000	N
GH134H	40 36 52	114 19 23	1.0	2.0	>50.0	.50	200	N	N	N	20	>10,000	N
GH136H	40 36 56	114 19 34	1.5	.5	>50.0	.10	200	N	N	N	20	200	N
GH138H	40 36 55	114 19 46	1.5	2.0	20.0	2.00	200	N	N	N	70	10,000	2
GH139H	40 36 56	114 19 50	3.0	1.5	7.0	>2.00	500	N	N	N	150	N	2
GH140H	40 36 59	114 19 55	1.0	2.0	>50.0	.50	500	N	N	N	20	3,000	N
GH141H	40 37 2	114 20 2	2.0	2.0	20.0	1.50	700	N	N	N	20	2,000	N
GH142H	40 37 3	114 20 10	1.0	5.0	50.0	.20	500	N	N	N	<20	>10,000	N
GH143H	40 39 25	114 18 33	1.5	2.0	>50.0	.20	500	N	N	N	50	>10,000	N
GH144H	40 39 20	114 18 33	2.0	2.0	>50.0	.20	700	N	N	N	50	5,000	N
GH145H	40 39 16	114 18 33	1.5	2.0	>50.0	.20	500	N	N	N	20	>10,000	N
GH146H	40 39 12	114 18 30	.5	1.0	>50.0	.20	500	N	N	N	<20	>10,000	N
GH148H	40 39 3	114 18 29	2.0	1.0	10.0	.50	1,000	N	N	N	100	10,000	N
GH149H	40 38 57	114 18 33	1.5	1.0	>50.0	.50	200	N	N	N	<20	5,000	N
GH151H	40 38 48	114 18 40	5.0	2.0	50.0	.20	1,500	N	N	N	30	>10,000	N
GH153H	40 39 22	114 18 55	5.0	1.0	10.0	2.00	2,000	N	N	N	100	1,500	5

TABLE 2.--Continued

Sample	Bi-ppm S	Cd-ppm S	Co-ppm S	Cr-ppm S	Cu-ppm S	La-ppm S	Mo-ppm S	Nb-ppm S	Ni-ppm S	Pb-ppm S	Sb-ppm S	Sc-ppm S	Sn-ppm S	St-ppm S
GA161H	N	N	N	70	10	200	N	N	N	100	N	20	N	5,000
GA162H	N	N	N	150	<10	150	N	N	N	500	N	50	N	500
GA166H	N	N	10	100	10	70	N	N	N	70	N	20	N	700
GH101H	N	N	N	50	10	500	N	N	N	150	N	20	N	2,000
GH102H	N	N	N	100	<10	70	10	N	N	70	N	10	N	1,000
GH103H	N	N	N	100	<10	100	N	N	N	20	N	10	N	1,500
GH104H	N	N	N	150	<10	100	N	N	N	N	N	20	N	700
GH105H	N	N	N	70	<10	100	N	N	N	20	200	10	N	1,000
GH106H	N	N	N	50	<10	150	N	N	N	20	N	10	150	10,000
GH107H	N	N	N	70	<10	150	N	N	N	20	N	20	N	2,000
GH108H	N	N	N	100	10	300	N	N	N	50	N	10	N	2,000
GH109H	N	N	N	300	<10	150	N	N	N	20	N	20	N	1,500
GH110H	N	N	20	200	20	150	N	50	N	100	N	20	N	500
GH111H	N	N	N	50	10	70	150	N	N	50	N	10	N	200
GH112H	N	N	N	100	<10	100	N	N	N	20	N	10	N	500
GH114H	N	N	N	150	15	100	N	N	70	100	N	10	N	700
GH115H	N	N	20	100	15	100	N	N	N	70	N	10	N	500
GH116H	N	N	10	150	<10	70	N	N	N	20	300	10	N	300
GH117H	N	N	N	70	<10	50	N	N	N	50	N	10	N	500
GH119H	N	N	N	200	<10	200	N	N	N	50	N	20	N	500
GH120H	N	N	N	100	10	50	10	N	N	2,000	300	10	150	500
GH121H	N	N	N	100	<10	100	N	N	N	50	N	10	N	1,000
GH123H	N	N	N	70	<10	150	N	N	N	70	N	10	N	200
GH124H	N	N	N	20	<10	50	N	N	N	20	700	20	N	500
GH127H	N	N	N	70	<10	100	N	N	N	20	N	20	N	1,000
GH128H	N	N	20	100	15	150	N	N	N	30	N	20	N	500
GH129H	N	N	N	150	<10	50	N	50	N	20	N	20	N	1,500
GH130H	N	N	10	100	15	100	N	N	N	50	N	50	N	200
GH131H	N	N	N	100	<10	70	N	N	N	20	N	20	N	500
GH133H	N	N	10	150	10	700	N	N	N	500	N	20	N	1,500
GH134H	N	N	N	300	15	100	N	N	N	30	700	20	N	2,000
GH136H	N	N	N	50	<10	1,500	N	N	N	20	N	10	N	10,000
GH138H	N	N	N	70	<10	150	N	70	N	20	500	10	N	10,000
GH139H	N	N	10	100	200	2,000	N	100	50	30	N	10	N	700
GH140H	N	N	N	150	<10	70	N	N	N	<20	N	20	N	2,000
GH141H	N	N	N	200	30	70	N	70	N	70	N	10	N	700
GH142H	N	N	N	70	10	70	N	N	N	50	N	10	N	5,000
GH143H	N	N	N	100	10	50	N	N	N	30	N	10	N	500
GH144H	N	N	20	150	10	100	N	N	N	50	N	20	N	1,500
GH145H	N	N	N	70	10	70	N	N	N	20	N	10	N	1,000
GH146H	N	N	N	100	10	70	N	N	N	50	N	10	N	700
GH148H	N	N	N	150	<10	100	N	N	N	N	N	20	N	1,000
GH149H	N	N	N	100	10	100	N	N	N	20	N	20	N	>10,000
GH151H	N	N	20	300	20	100	N	N	70	70	N	20	N	2,000
GH153H	N	N	N	N	<10	N	N	N	N	N	N	50	N	N

TABLE 2.--Continued.

Sample	V-ppm S	W-ppm S	Y-ppm S	Zn-ppm S	Zr-ppm S	Th-ppm S
GA161H	<20	N	300	N	>2,000	N
GA162H	50	N	200	N	>2,000	N
GA166H	20	N	100	N	>2,000	N
GH101H	N	N	200	N	>2,000	N
GH102H	20	N	100	N	1,000	N
GH103H	20	N	20	N	2,000	N
GH104H	<20	N	100	N	>2,000	N
GH105H	<20	N	100	N	2,000	N
GH106H	<20	100	150	N	1,500	N
GH107H	20	N	70	N	2,000	N
GH108H	<20	N	200	N	1,500	N
GH109H	20	<100	100	N	2,000	N
GH110H	70	N	100	N	>2,000	N
GH111H	<20	N	30	N	700	N
GH112H	20	N	70	N	>2,000	N
GH114H	50	N	70	N	>2,000	N
GH115H	50	N	70	N	2,000	N
GH116H	50	N	100	N	2,000	N
GH117H	<20	N	100	N	>2,000	N
GH119H	50	N	200	N	>2,000	N
GH120H	20	N	20	N	500	N
GH121H	<20	N	50	N	2,000	N
GH123H	20	N	150	N	>2,000	N
GH124H	<20	N	200	N	>2,000	N
GH127H	20	N	100	N	>2,000	N
GH128H	100	N	150	N	>2,000	N
GH129H	50	N	200	N	>2,000	N
GH130H	50	N	150	N	>2,000	N
GH131H	<20	N	70	N	>2,000	N
GH133H	20	N	70	N	2,000	N
GH134H	20	N	100	N	>2,000	N
GH136H	<20	N	70	N	1,500	N
GH138H	70	500	200	N	>2,000	N
GH139H	150	N	300	N	>2,000	N
GH140H	20	N	70	N	>2,000	N
GH141H	20	N	100	N	>2,000	N
GH142H	<20	N	50	N	>2,000	N
GH143H	<20	N	30	N	1,000	N
GH144H	20	N	50	N	>2,000	N
GH145H	20	N	100	N	>2,000	N
GH146H	<20	N	70	N	>2,000	N
GH148H	50	N	100	N	>2,000	N
GH149H	50	N	150	N	>2,000	N
GH151H	50	N	50	N	1,500	N
GH153H	100	N	100	N	>2,000	N

TABLE 2.--Continued

Sample	Latitude	Longitude	Fe-ppt. S	Mg-ppt. S	Ca-ppt. S	Ti-pct. S	Mn-ppt. S	Ag-ppt. S	As-ppt. S	Au-ppt. S	B-ppt. S	Ba-ppt. S	Be-ppt. S
GH154H	40 37 46	114 17 33	2.0	2.0	>50.0	.50	700	N	N	N	30	1,000	N
GH155H	40 37 48	114 17 39	2.0	1.5	>50.0	.20	700	N	N	N	30	700	N
GH156H	40 37 48	114 17 46	5.0	2.0	>50.0	1.00	1,000	N	N	N	30	5,000	N
GH157H	40 37 50	114 17 52	3.0	2.0	>50.0	.50	1,500	N	N	N	50	2,000	N
GH158H	40 37 53	114 17 57	2.0	2.0	20.0	2.00	500	N	N	N	50	7,000	2
GH160H	40 39 8	114 19 17	2.0	1.5	20.0	2.00	500	N	N	N	70	7,000	2
GH161H	40 39 3	114 19 18	5.0	2.0	20.0	2.00	500	N	N	N	20	2,000	N
GH162H	40 38 57	114 19 20	.5	2.0	>50.0	.10	1,000	N	N	N	20	7,000	N
GH164H	40 38 48	114 19 30	.5	1.0	20.0	1.00	500	N	N	N	20	5,000	N
GH165H	40 38 42	114 19 35	1.5	1.5	>50.0	.20	700	N	N	N	<20	2,000	N
GH166H	40 38 39	114 19 40	10.0	2.0	50.0	.50	1,500	N	N	N	50	1,000	N
GH167H	40 38 37	114 19 48	2.0	2.0	>50.0	.50	1,500	N	N	N	20	200	N
GH168H	40 38 34	114 19 55	1.0	2.0	50.0	1.00	700	N	N	N	<20	5,000	N
GH169H	40 38 34	114 20 3	1.0	2.0	>50.0	.50	1,000	N	N	N	20	700	N
GH170H	40 38 32	114 20 10	1.5	2.0	20.0	1.00	700	N	N	N	50	700	N
GH171H	40 38 24	114 16 37	.5	2.0	20.0	.10	200	N	N	N	<20	>10,000	N
GH172H	40 38 25	114 16 29	1.0	.2	2.0	.20	200	N	N	N	<20	2,000	N
GH103H	40 37 16	114 17 55	2.0	1.0	>50.0	.20	500	N	N	N	20	2,000	N
GR104H	40 37 20	114 18 1	.2	.2	>50.0	.05	200	N	N	N	20	1,500	N
GR105H	40 37 22	114 18 9	5.0	2.0	>50.0	.70	700	N	N	N	30	1,000	N
GR106H	40 37 25	114 18 19	2.0	.5	50.0	.50	700	N	N	N	70	500	5
GR107H	40 37 26	114 18 26	2.0	1.5	50.0	1.00	500	N	N	N	30	1,000	N
GR108H	40 37 28	114 18 36	5.0	.5	>50.0	.50	1,500	N	N	N	50	1,500	N
GR109H	40 37 31	114 18 43	1.0	.5	>50.0	1.50	700	N	N	N	20	700	N
GR110H	40 37 34	114 18 51	3.0	1.0	15.0	.50	1,000	N	N	N	50	>10,000	N
GR111H	40 37 39	114 19 2	2.0	2.0	50.0	1.50	300	N	N	N	20	7,000	N
GR112H	40 37 41	114 19 11	2.0	1.0	30.0	.20	700	N	N	N	70	5,000	N
GR115H	40 37 39	114 19 40	1.0	2.0	>50.0	.50	700	7	N	N	20	10,000	N
GR117H	40 37 51	114 20 1	1.0	1.5	50.0	1.00	300	N	N	N	<20	5,000	N
GR118H	40 37 54	114 20 13	1.5	2.0	>50.0	.20	500	N	N	N	50	700	N
GR119H	40 38 57	114 16 35	.5	.2	2.0	.20	500	N	N	N	<20	1,500	N
GR120H	40 38 50	114 16 25	.7	.2	.2	1.50	700	N	N	N	<20	700	5
GR121H	40 38 44	114 16 17	1.0	1.0	2.0	.10	200	N	N	N	<20	700	N
GR122H	40 38 38	114 16 11	1.0	2.0	10.0	.20	500	N	N	N	<20	1,500	N
GR123H	40 38 52	114 15 54	1.5	.2	1.0	.20	300	N	N	N	<20	3,000	N
GR124H	40 38 55	114 16 5	1.5	.5	2.0	.20	500	N	N	N	<20	1,500	N
GR125H	40 39 8	114 16 6	2.0	.2	1.0	.50	700	N	N	N	20	2,000	N
GR126H	40 39 7	114 16 21	.5	2.0	50.0	.05	300	N	N	N	20	700	N
GR127H	40 39 37	114 17 18	5.0	1.5	30.0	1.00	1,000	N	N	N	50	1,500	N
GR128H	40 39 31	114 17 11	1.0	1.0	>50.0	.50	200	N	N	N	20	>10,000	N
GR129H	40 39 23	114 17 4	1.5	1.0	50.0	.50	500	N	N	N	20	7,000	N
GR131H	40 39 7	114 16 51	.3	10.0	>50.0	.10	200	N	N	N	<20	1,500	N
GR132H	40 39 3	114 16 57	2.0	1.0	20.0	.50	700	N	N	N	30	>10,000	N
GR133H	40 38 59	114 17 4	1.0	2.0	>50.0	.50	500	N	N	N	50	700	N
GR134H	40 38 54	114 17 10	1.0	1.5	>50.0	.10	500	N	N	N	20	700	N

TABLE 2.---Continued

Sample	Bi-ppm S	Cd-ppm S	Co-ppm S	Cr-ppm S	Cu-ppm S	La-ppm S	Mo-ppm S	Nb-ppm S	Ni-ppm S	Pb-ppm S	Sb-ppm S	Sc-ppm S	Sn-ppm S	Str-ppm S
GH154H	N	N	N	150	20	200	N	N	N	50	N	20	N	700
GH155H	N	N	N	150	15	100	N	N	N	70	N	10	N	1,500
GH156H	N	N	20	150	15	70	N	N	N	100	N	50	N	10,000
GH157H	N	N	N	700	200	300	N	N	N	100	N	50	N	1,500
GH158H	N	N	N	100	10	200	N	70	N	30	N	20	N	1,000
GH160H	N	N	10	50	10	700	N	70	N	30	N	10	100	1,000
GH161H	N	N	30	200	15	150	N	50	N	100	N	10	N	1,000
GH162H	N	N	N	100	<10	100	N	N	N	70	N	10	N	1,000
GH164H	N	N	N	150	<10	100	N	<50	N	20	N	50	<20	200
GH165H	N	N	N	100	10	50	N	N	N	50	N	20	N	1,000
GH166H	N	N	20	150	15	150	20	N	N	100	N	20	N	500
GH167H	N	N	N	100	<10	70	N	N	N	100	N	10	N	1,000
GH168H	N	N	N	150	<10	150	N	N	N	150	N	20	N	500
GH169H	N	N	N	300	<10	100	N	N	N	20	N	30	N	1,500
GH170H	N	N	10	300	10	70	N	N	50	50	N	50	20	200
GH171H	N	N	N	50	<10	150	N	N	N	20	N	10	N	5,000
GH172H	N	N	N	50	<10	100	N	N	N	70	N	50	N	200
GR103H	N	N	N	700	15	50	N	N	N	50	500	10	N	700
GR104H	N	N	N	50	<10	100	N	N	N	50	N	10	N	10,000
GR105H	N	N	20	200	50	100	N	N	70	70	N	50	N	700
GR106H	N	N	N	N	30	500	<10	N	N	30	N	10	N	1,000
GR107H	N	N	N	100	10	150	N	N	N	50	N	30	N	500
GR108H	N	N	20	500	30	200	N	N	N	300	<200	20	N	2,000
GR109H	N	N	N	150	20	100	N	N	N	20	N	20	N	1,000
GR110H	N	N	N	150	20	200	N	N	N	100	N	20	N	10,000
GR111H	N	N	N	150	10	100	N	N	N	70	20,000	50	<20	700
GR112H	N	N	10	150	15	100	N	N	N	70	N	30	N	500
GR115H	N	N	N	200	10	100	N	N	N	70	15,000	20	N	2,000
GR117H	N	N	N	300	20	100	N	N	N	200	200	10	N	1,500
GR118H	N	N	10	150	10	150	N	N	N	50	N	20	N	1,000
GR119H	N	N	N	N	<10	70	N	N	N	50	N	10	N	200
GR120H	N	N	N	N	<10	N	N	N	50	N	N	10	N	N
GR121H	N	N	N	20	<10	100	N	N	N	70	N	50	N	200
GR122H	N	N	N	70	<10	70	N	N	N	70	N	20	N	200
GR123H	N	N	N	70	<10	70	N	N	N	70	N	50	N	N
GR124H	N	N	N	50	50	50	N	N	N	70	N	20	N	N
GR125H	N	N	N	70	<10	50	N	N	N	200	N	50	N	N
GR126H	N	N	N	20	<10	100	N	N	N	50	N	20	150	N
GR127H	N	N	10	150	20	150	N	N	N	100	N	30	N	500
GR128H	N	N	N	70	<10	50	N	N	N	<20	N	10	N	1,000
GR129H	N	N	10	100	10	50	N	N	N	20	N	20	N	500
GR131H	N	N	N	50	<10	70	N	N	N	20	N	10	N	200
GR132H	N	N	N	150	10	50	<10	<50	N	50	<200	20	N	1,500
GR133H	N	N	N	100	<10	100	100	N	N	50	1,500	10	N	700
GR134H	N	N	N	150	<10	50	50	N	N	20	N	20	N	500

TABLE 2.--Continued

Sample	V-ppm S	W-ppm S	Y-ppm S	Zn-ppm S	Zr-ppm S	Th-ppm S
GH154H	50	N	100	N	>2,000	N
GH155H	50	N	30	N	1,000	N
GH156H	150	N	200	N	>2,000	N
GH157H	50	N	300	N	>2,000	N
GH158H	150	150	300	N	>2,000	N
GH160H	100	N	300	N	>2,000	N
GH161H	<20	N	100	N	>2,000	N
GH162H	<20	N	100	N	>2,000	N
GH164H	20	N	300	N	>2,000	N
GH165H	<20	N	100	N	>2,000	N
GH166H	70	N	100	N	>2,000	N
GH167H	20	N	100	N	>2,000	N
GH168H	50	N	200	N	>2,000	N
GH169H	20	N	100	N	>2,000	N
GH170H	<20	N	150	N	>2,000	N
GH171H	<20	N	100	N	2,000	N
GH172H	20	N	300	N	>2,000	N
GR103H	100	N	100	N	>2,000	<200
GR104H	<20	N	70	N	1,000	N
GR105H	70	N	150	N	>2,000	N
GR106H	70	N	300	N	>2,000	N
GR107H	100	100	150	N	>2,000	N
GR108H	100	2,000	150	N	>2,000	N
GR109H	70	N	200	N	2,000	N
GR110H	50	N	150	N	>2,000	N
GR111H	20	N	200	N	>2,000	N
GR112H	20	N	50	N	>2,000	N
GR115H	20	N	70	N	>2,000	N
GR117H	20	N	150	N	>2,000	N
GR118H	50	N	30	N	>2,000	N
GR119H	<20	N	500	N	>2,000	N
GR120H	70	N	1,000	N	>2,000	N
GR121H	<20	N	500	N	>2,000	N
GR122H	<20	N	200	N	>2,000	N
GR123H	<20	N	500	N	>2,000	N
GR124H	<20	N	200	N	>2,000	N
GR125H	50	N	300	N	>2,000	N
GR126H	<20	N	500	N	>2,000	N
GR127H	50	N	100	N	>2,000	N
GR128H	<20	N	70	N	>2,000	N
GR129H	20	N	100	N	>2,000	N
GR131H	<20	N	30	N	2,000	N
GR132H	50	N	100	N	>2,000	N
GR133H	20	N	100	N	>2,000	N
GR134H	<20	N	50	N	>2,000	N

TABLE 2.--Continued.

Sample	Latitude	Longitude	Fe-pct. S	Hg-pct. S	Ca-pct. S	Tl-pct. S	Mn-ppm S	Ag-ppm S	As-ppm S	Au-ppm S	B-ppm S	Ba-ppm S	Be-ppm S
GR135H	40 38 54	114 17 12	5.0	5.0	>50.0	.50	1,000	N	700	N	200	5,000	N
GR136H	40 38 50	114 17 17	1.0	2.0	50.0	.20	200	N	N	N	20	>10,000	N
GR138H	40 38 48	114 17 37	2.0	1.5	50.0	.50	700	N	N	N	70	1,500	N
GR139H	40 38 49	114 17 46	1.0	1.0	20.0	.50	200	N	N	N	20	>10,000	N
GR140H	40 38 50	114 17 53	.5	2.0	>50.0	.15	500	10	N	N	20	3,000	N
GR141H	40 39 35	114 17 21	3.0	1.0	>50.0	1.00	1,000	N	N	N	50	1,500	N
GR142H	40 39 33	114 17 25	1.5	1.0	>50.0	.20	500	N	N	N	50	700	N
GR143H	40 39 28	114 17 31	1.0	1.5	50.0	1.00	500	N	N	N	20	2,000	N
GR144H	40 39 26	114 17 37	2.0	5.0	>50.0	.20	300	N	N	N	20	10,000	N
GR145H	40 39 25	114 17 45	5.0	1.0	>50.0	.50	1,000	N	N	N	50	1,500	N
GR146H	40 39 24	114 17 53	5.0	2.0	50.0	1.00	1,000	N	N	N	100	>10,000	N
GR147H	40 39 26	114 18 1	15.0	2.0	7.0	1.50	1,000	N	<500	N	200	10,000	5
GR148H	40 39 27	114 18 11	1.5	2.0	>50.0	.50	500	N	N	N	20	500	N
GR149H	40 39 27	114 18 19	1.0	1.0	20.0	.50	500	N	N	N	70	5,000	2
GR150H	40 39 28	114 18 29	2.0	1.0	>50.0	1.50	1,000	N	N	N	50	>10,000	N
GR151H	40 39 29	114 18 39	.5	.5	>50.0	.10	200	N	N	N	20	300	N
GR152H	40 39 26	114 18 47	7.0	1.5	>50.0	.20	700	N	N	N	30	10,000	N
GR153H	40 39 22	114 18 55	1.0	5.0	>50.0	.20	200	N	N	N	20	>10,000	N
GR154H	40 39 15	114 19 1	2.0	1.5	50.0	1.50	300	N	N	N	20	1,500	N
GR155H	40 39 12	114 19 12	1.5	1.5	>50.0	.20	500	N	N	N	20	2,000	N
GR156H	40 39 11	114 19 22	1.5	1.5	>50.0	.50	1,000	N	N	N	20	10,000	N
GR157H	40 39 10	114 19 31	3.0	2.0	10.0	>2.00	700	N	N	N	150	1,500	2
GR159H	40 39 14	114 19 44	10.0	2.0	>50.0	.70	1,000	N	N	N	50	5,000	N
GR160H	40 39 17	114 19 49	1.0	10.0	>50.0	.50	500	N	N	N	20	300	N
GR161H	40 39 18	114 19 56	.2	10.0	>50.0	.05	150	N	N	N	<20	200	N
GR162H	40 39 15	114 20 5	.3	7.0	50.0	.02	200	N	N	N	<20	500	N
GR163H	40 39 17	114 20 12	5.0	7.0	>50.0	.20	500	N	N	N	50	1,000	N
GR164H	40 39 18	114 20 21	.5	1.5	50.0	.50	200	N	N	N	20	7,000	N
GR165H	40 39 21	114 20 27	.5	5.0	>50.0	1.00	500	N	N	N	20	7,000	N
GR166H	40 39 22	114 20 34	2.0	2.0	20.0	>2.00	700	N	N	N	30	1,000	2
GR167H	40 39 22	114 20 37	5.0	2.0	50.0	1.00	1,000	N	N	N	30	700	N

TABLE 2.--Continued

Sample	Bi-ppm S	Cd-ppm S	Co-ppm S	Cr-ppm S	Cu-ppm S	La-ppm S	Mo-ppm S	Nb-ppm S	Ni-ppm S	Pb-ppm S	Sb-ppm S	Sc-ppm S	Sn-ppm S	Sr-ppm S
GR135H	N	N	30	1,000	20	150	N	N	70	70	7,000	20	N	1,500
GR136H	N	N	N	100	<10	100	N	N	N	20	700	20	N	2,000
GR138H	N	N	10	150	10	100	N	N	N	70	N	10	N	700
GR139H	N	N	N	70	<10	70	N	N	N	N	N	10	N	2,000
GR140H	N	N	N	70	15	50	N	N	N	200	>20,000	10	N	500
GR141H	N	N	N	200	<10	100	N	N	N	50	N	50	300	1,000
GR142H	N	N	10	150	10	100	N	N	N	20	N	20	N	500
GR143H	N	N	N	150	<10	100	N	<50	N	20	200	50	20	1,000
GR144H	N	N	N	150	10	<50	N	N	N	20	700	20	N	700
GR145H	N	N	50	150	20	100	N	N	N	70	700	20	N	1,500
GR146H	N	N	20	300	20	200	N	100	N	50	N	50	300	5,000
GR147H	N	N	30	200	100	N	15	<50	150	100	1,500	10	N	700
GR148H	N	N	N	150	<10	70	N	N	N	150	N	20	N	500
GR149H	N	N	N	20	10	50	N	N	N	20	1,500	10	N	500
GR150H	N	N	N	200	<10	200	N	N	N	50	N	50	N	2,000
GR151H	N	N	N	50	<10	70	N	N	N	<20	N	10	N	700
GR152H	N	N	10	200	50	100	10	N	N	150	N	10	N	1,000
GR153H	N	N	N	70	<10	50	N	N	N	100	N	10	50	1,000
GR154H	N	N	10	150	20	200	N	50	N	100	N	50	20	300
GR155H	N	N	10	150	10	150	N	N	N	50	N	20	N	1,000
GR156H	N	N	10	100	<10	100	N	N	N	70	N	20	20	2,000
GR157H	N	N	N	70	30	700	N	100	N	20	N	10	N	500
GR159H	N	N	50	300	70	200	N	N	100	100	200	70	N	1,500
GR160H	N	N	N	150	<10	150	N	50	N	<20	N	20	N	200
GR161H	N	N	N	N	N	<50	N	N	N	N	N	10	N	N
GR162H	N	N	N	N	<10	<50	N	N	N	20	200	10	N	200
GR163H	N	N	N	150	15	100	N	N	N	150	N	10	N	200
GR164H	N	N	N	100	<10	50	N	<50	N	<20	N	20	N	700
GR165H	N	N	N	100	<10	70	N	N	N	100	N	10	100	1,000
GR166H	N	N	N	70	10	700	N	100	N	20	N	20	30	500
GR167H	N	N	N	100	10	70	N	50	N	150	N	20	N	500

TABLE 2.--Continued

Sample	V-ppm S	W-ppm S	Y-ppm S	Zn-ppm S	Zr-ppm S	Th-ppm S
GR135H	150	700	100	N	>2,000	N
GR136H	20	<100	70	N	>2,000	N
GR138H	70	N	70	N	>2,000	N
GR139H	<20	100	100	N	>2,000	N
GR140H	<20	N	50	1,000	2,000	N
GR141H	50	N	100	N	>2,000	N
GR142H	30	N	20	N	500	N
GR143H	50	N	200	N	>2,000	N
GR144H	20	N	30	N	2,000	N
GR145H	50	N	100	N	>2,000	N
GR146H	100	N	150	N	>2,000	N
GR147H	150	N	200	<500	>2,000	N
GR148H	50	N	150	N	>2,000	N
GR149H	50	N	70	N	>2,000	N
GR150H	50	N	500	N	>2,000	N
GR151H	<20	N	70	N	2,000	N
GR152H	20	N	50	N	500	N
GR153H	<20	N	50	N	2,000	N
GR154H	20	N	150	N	>2,000	N
GR155H	20	N	150	N	>2,000	N
GR156H	20	N	70	N	>2,000	N
GR157H	150	N	500	N	>2,000	N
GR159H	200	N	200	N	2,000	N
GR160H	30	N	70	N	>2,000	N
GR161H	<20	N	N	N	100	N
GR162H	<20	N	N	N	200	N
GR163H	100	N	70	N	2,000	N
GR164H	<20	N	70	N	>2,000	N
GR165H	20	N	100	N	>2,000	N
GR166H	150	100	500	N	>2,000	N
GR167H	50	N	50	N	1,500	1,500