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Analysis of soil samples from the San Joaquin Valley of California

by

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INTRODUCTION

Between 1979 and 1984 a geochemical reconnaissance survey of southern California was undertaken by the U.S. Geological Survey. At the time, the principal focus was on stream sediments and the information they may provide in assessing the mineral potential of the surrounding areas. Upon arriving at the San Joaquin Valley (figure 1) investigators were forced to reevaluate the sample collection methodology, and switch from stream sediments to surface soil samples. The samples were submitted to the laboratory and analyzed using standard mineral assessment methodology.

In 1984, there was renewed interest in samples from the San Joaquin Valley due to observations by the Fish and Wildlife Division that birds at the Kestersen National Wildlife Refuge (KNWR) which is located in the San Joaquin Valley, were being adversely affected by high selenium concentration in the water, sediments and vegetation. It was proposed that selenium was being deposited in the refuge from agricultural return flow waters that, from previous agreements, were being sent to the refuge. In order to evaluate this possibility, and examine the potential long term effects of selenium and other elements in the valley soils, a selected group of samples that were collected as part of the initial California survey were retrieved and resubmitted for chemical analysis. The chemical analyses performed on these samples utilized a variety of trace and major element techniques, including inductively coupled argon plasma atomic emission spectroscopy (major and trace metals) , hydride generation atomic absorption spectroscopy (arsenic and selenium) and cold vapor atomic absorption spectroscopy (mercury). This combination of improved (precision, detection limits) analytical methodology provided investigators with the opportunity to develope a detailed understanding of the geochemical distribution of elements in the valley soils.

FIELD SAMPLING

Soil samples were collected on a 10 x 10 Km grid, with individual locations within the grid identified using random coordinates (figure 2). At each sample site, three individual samples were collected within 100 meters of each other and composited in the field. The collected samples were from the 0-12 inch soil depth, and the final sample sieved through an 80-mesh screen. Soil samples that were collected underneath a vegetation mat were physically separated from the vegetation, and the vegetation disaggregated to release any residual soil material. Samples (approx. 1 lb) were then placed in soil samples bags and sent directly to the laboratory.

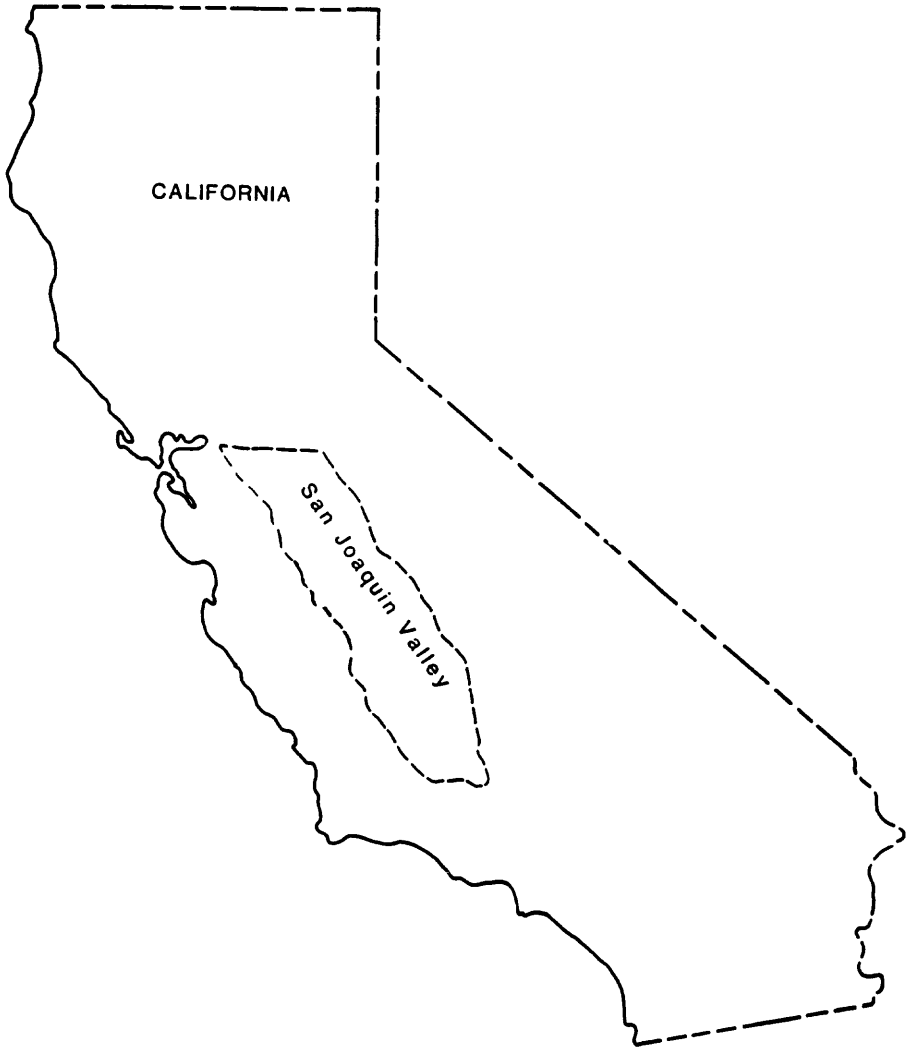

Figure 1. Map showing general location of San Joaquin Valley

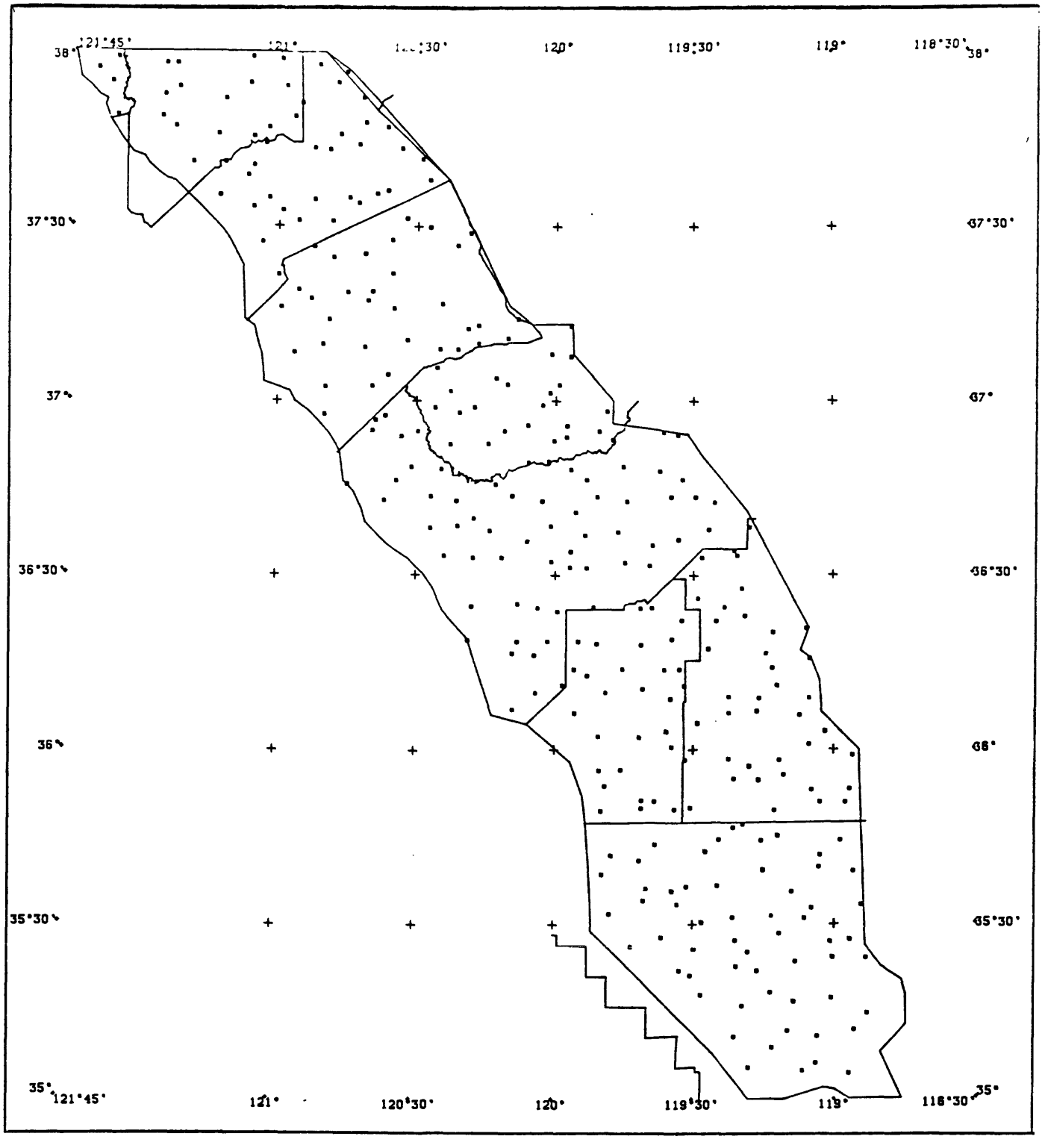

Figure 2. Map showing San Joaquin Valley and sample collection sites.

SAMPLE PREPARATION

Samples were mailed to the Geologic Division Laboratories without any further field drying or crushing. The samples were split using a Jones splitter and submitted directly to the laboratory for chemical analysis.

ANALYTICAL TECHNIQUES

The following discussion of analytical techniques provides an overview of the methods used in this study. In addition to the references cited under each method, details for all methods are given in U.S. Geological Survey Bulletin 1770, (Baedecker, ed. 1987).

Inductively-Coupled Argon Plasma Atomic Emission Spectroscopy (ICAP)

Samples were analyzed simultaneously for 30 elements (table 1) using ICAP. Each sample (0.200 g) was dissolved, using a low-temperature digestion with concentrated hydrochloric, hydrofluoric, nitric, and perchloric acids (Crock et al. 1983). Lutetium was added at the start of the digestion to serve as an internal standard (5 ppm in the final solution). The acidic sample solution was taken to dryness and the residue was redissolved with 1 mL of aqua regia and then diluted to 10 g. Reagent blanks, reference materials, and sample replicates were all digested by the same procedure and analyzed at the same time as the samples. Lower limits of determination are shown in table 1. The relative standard deviation (RSD) for replicate determinations of most elements is about 5 percent.

Cold vapor Atomic Absorption Spectroscopy (CV-AAS)

Cold vapor atomic absorption spectroscopy was used to determine mercury (Kennedy and Crock 1987). A 0.1 g sample was digested with nitric acid and a 25% (W/V) sodium dichromate solution in an aluminum heating block for three hours at 110 C. The sample is allowed to cool (overnight) and the contents quantitatively transferred to a 16 mm x 100 mm disposable glass test tube. The mass is adjusted to 12.00 g with deionized water.

An aliquot of the sample is removed and combined with a solution of hydroxylamine hydrochloride followed by stannous chloride in a continuous flow system to produce a vapor of elemental mercury. The mercury vapor is separated from the aqueous phase using a specially designed phase separator and swept into the cold vapor cell, which is situated in the light path of the atomic absorption spectrometer. Quantification of mercury is performed using a series of external aqueous standards and the appropriate

linear regression procedures. The lower limit of determination is given in table 1. The RSD for the method is about 10 percent.

Continuous-Flow Hydride Generation Atomic Absorption Spectroscopy (HG-AAS)

Arsenic and selenium were determined by HG-AAS (Briggs and Crock 1986; Crock and Lichte 1982). One gram of sample was digested with nitric, perchloric, sulfuric and hydrofluoric acids. After digestion, the sample was diluted to 100 mL with 10% hydrochloric acid and allowed to sit overnight, to ensure the conversion of Se-VI to Se-IV. The sample was reacted with sodium borohydride in a continuous flow system to generate the appropriate gaseous hydride compound. The hydride gas was separated from the aqueous phase using a specially designed phase separator, and the gas swept into a quartz atomization cell (Hatfield, D.B. 1987) positioned in the light path of the atomic absorption spectrometer. Arsenic was quantified using a series of external standards and the appropriate liner regression procedure. Selenium was quantified using the method of standard additions. The lower limit of determination for arsenic and selenium are shown in table 1. The RSD for the determination of both elements is about 10 percent.

Combustion Infrared Absorption Spectroscopy (CIRAS)

Total carbon determinations were performed using a Leco model CR12 total carbon analyzer. The sample (0.1 g) is mixed with vanadium pentoxide (2 g) and then placed in a high frequency induction furnace. The sample is heated to 1000-1600 C in an oxygen atmosphere. The carbon dioxide generated during the heating process is swept into a infrared detector after passing through a specially designed scrubbing system. The scrubbing system removes interfering compounds from the gas stream. Instrument calibration is accomplished using standards that closely approximate the analyte concentration and sample matrix. The RSD for the determination of total carbon is 10%.

Semiquantitative Optical Emission Spectroscopy (SQOES)

The quantification of boron in the San Joaquin samples was accomplished using a fluoride-volatilization arc spectrography procedure (Golightly, Dorrzapf, Berman, 1987). The sample is mixed with copper hydroxyfluoride (CuOHF), a volatilization buffer which inhibits the formation of the boron carbide during the operation of the arc. In addition, the buffer provides reactive fluorine, which reacts with sample boron to produce boron trifluoride. The boron trifuloride readily volatilizes out of the electrode and into the high temperature arc column. The

spectra for samples and standards are recorded on a 111-0 photographic emulsion. The transmissions of the boron line at 249.68 nm and the adjacent background are both read for samples and standards. Standards are then plotted and a calibration plot developed which is then used to quantitate the boron in samples.

PRESENTATION OF RESULTS

Information on the analytical methods used and the lower limits of determination for each method and each element are presented in table 1. Table 2 provides information on the elements analyzed and the analytical limitations associated with those analyses. Table 3 contains information on the sample location and elemental composition of the sample.

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Baedecker, P.A., 1987, Methods for Geochemical Analysis, U.S. Geological Survey Bulletin 1770, 125pp.

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Table 1.--Lower limits of determination for analytical methods used to analyze for total elemental composition

Element	Analysis Code	Method *	Lower limit ** of Determination
Aluminum	Al-I	ICAP-OES	0.05 %
Arsenic	As-H	HYG-AAS	0.1 ppm
Boron	B-Q	SQOES	10 ppm
Barium	Ba-I	ICAP-OES	1 ppm
Beryllium	Be-I	ICAP-OES	1 ppm
Calcium	Ca-I	ICAP-OES	0.05 %
Carbon	C-IR	CIRAS	0.01 %
Cerium	Ce-I	ICAP-OES	4 ppm
Chromium	Cr-I	ICAP-OES	1 ppm
Cobalt	Co-I	ICAP-OES	1 ppm
Copper	Cu-I	ICAP-OES	1 ppm
Gallium	Ga-I	ICAP-OES	4 ppm
Iron	Fe-I	ICAP-OES	0.05 %
Lanthanum	La-I	ICAP-OES	2 ppm
Lead	Pb-I	ICAP-OES	4 ppm
Lithium	Li-I	ICAP-OES	2 ppm
Magnesium	Mg-I	ICAP-OES	0.005 %
Manganese	Mn-I	ICAP-OES	4 ppm
Mercury	Hg-C	CV-AAS	0.02 ppm
Neodymium	Nd-I	ICAP-OES	4 ppm
Niobium	Nb-I	ICAP-OES	4 ppm
Nickel	Ni-I	ICAP-OES	2 ppm
Phosphorous	P-I	ICAP-OES	0.005%
Potassium	K-I	ICAP-OES	0.05 %
Scandium	Sc-I	ICAP-OES	2 ppm
Selenium	Se-H	HYG-AAS	0.1 ppm
Silver	Ag-Q	SQOES	0.5 ppm
Sodium	Na-I	ICAP-OES	0.005%
Strontium	Sr-I	ICAP-OES	2 ppm
Thorium	Th-I	ICAP-OES	4 ppm
Titanium	Ti-I	ICAP-OES	0.005%
Vanadium	V-I	ICAP-OES	2 ppm
Ytterbium	Yb-I	ICAP-OES	1 ppm
Yttrium	Yt-I	ICAP-OES	2 ppm
Zinc	Zn-I	ICAP-OES	2 ppm
Zirconium	Zr-I	SQOES	10 ppm

* ICAP-OES Inductively Coupled Argon Plasma Atomic Emission Spectroscopy, SQOES Semiquantative Optical Emission Spectroscopy, HYG-AAS Hydride Generation Atomic Absorption Spectroscopy, CV-AAS Cold Vapor Atomic Absorption Spectroscopy, CIRAS Combustion Infrared Absorption Spectrophotometry.
** %, percent; ppm parts per million

Table 2.--Number of samples with qualifying codes and minimum and maximum unqualified values in 297 soil samples from the San Joaquin Valley, California.

[B, no determination; N, not detected; L, less than lower limit of determination; G, greater than upper limit of determination; parts per million except as noted, percent.]

Element	Number of samples					Minimum unqualified value	Maximum unqualified value
	B	N	L	G	Unqualified		
Ag	0	288	6	0	3	0.5	1.0
Al, percent	1	0	0	0	296	4.3	9.4
As	0	0	0	0	297	.8	20.0
B	0	0	0	0	297	10	300
Ba	1	0	0	0	296	16	2800
Be	1	0	42	0	254	1	2
C	0	0	0	0	297	.04	6.40
Ca, percent	1	0	0	0	296	.46	7.8
Ce	1	0	0	0	296	13	590
Co	1	0	0	0	296	4	31
Cr	1	0	0	0	296	11	770
Cu	1	0	0	0	296	3	160
Fe, percent	1	0	0	0	296	1.2	11.0
Ga	1	0	0	0	296	9	24
Hg	0	0	98	0	199	.02	9.40
K, percent	1	0	0	0	296	.3	2.6
La	1	0	0	0	296	8	360
Li	1	0	0	0	296	7	91
Mg, percent	1	0	0	0	296	.2	2.8
Mn	1	0	0	0	296	270	2300
Na, percent	1	0	0	0	296	.5	8.4
Nb	239	0	4	0	54	4	13
Nd	1	0	0	0	296	9	200
Ni	1	0	0	0	296	5	160
P, percent	1	0	0	0	296	.01	.22
Pb	1	0	0	0	296	5	99
Sc	1	0	0	0	296	3	44
Se	0	0	81	0	216	.1	2.8
Sr	1	0	0	0	296	83	1000
Th	1	0	7	0	289	4	99
Ti, percent	1	0	0	0	296	.19	3.1
V	1	0	0	0	296	31	300
Y	1	0	0	0	296	8	39
Yb	1	0	0	0	296	1	4
Zn	1	0	0	0	296	21	140
Zr	0	1	1	1	294	15	700

Table 3.--Total chemical analyses and locations of soil samples 0-12-inch (0-30-cm) depth from the San Joaquin valley, California.

[N, not detected; <, detected but below the limit of determination shown; B, not determined; C, cold-vapor atomic absorption; H, hydride-generation atomic absorption; I, inductively-coupled-plasma atomic emission spectroscopy; IR, infrared absorption spectrophotometry; Q, semi-quantitative emission spectroscopy.]

Sample	Latitude	Longitude	Ag ppm-Q	Al %-I	As ppm-H	B ppm-Q	Ba ppm-I
23399	36 6 20	119 55 40	N	8.0	11.0	100	640
23400	36 11 5	119 58 18	N	7.3	10.0	70	650
23401	36 13 49	119 55 49	N	7.2	7.8	100	640
23402	36 18 36	119 54 59	N	7.2	7.4	70	680
23403	36 23 48	119 59 25	N	7.3	8.2	200	620
23404	36 31 18	119 56 49	N	7.4	1.9	10	780
23405	36 34 2	119 56 39	N	7.6	2.9	20	760
23406	36 40 51	119 55 37	N	7.9	3.5	20	530
23407	36 48 14	119 56 41	N	7.6	3.4	50	760
23408	36 53 50	119 57 35	N	7.7	2.9	30	750
23409	36 55 43	119 57 36	N	8.0	3.0	50	760
23410	37 2 45	119 59 15	N	7.9	2.7	20	700
23411	37 7 35	119 56 47	N	4.9	.9	70	210
23412	37 12 50	119 56 45	1.0	6.0	7.8	10	310
24393	35 31 47	119 48 3	N	6.5	14.0	100	1,000
24394	35 38 34	119 49 43	N	6.8	7.7	100	610
24395	35 41 50	119 47 45	N	6.1	11.0	100	2,800
24396	35 49 26	119 49 58	N	5.8	5.0	50	220
24397	35 53 47	119 49 11	N	7.2	4.6	50	660
24398	35 56 28	119 50 24	N	7.0	2.2	70	690
24399D1	36 2 23	119 50 38	N	6.3	9.1	100	510
24400	36 9 52	119 49 6	N	7.6	2.1	50	690
24401	36 12 45	119 53 3	N	7.4	7.7	150	630
24402	36 18 7	119 51 2	N	7.9	4.9	15	720
24403	36 24 27	119 51 46	N	7.4	3.3	30	700
24404	36 31 14	119 53 16	N	7.5	3.0	20	760
24405	36 36 54	119 53 40	N	7.3	1.7	15	760
24406	36 43 30	119 51 4	N	8.2	3.8	20	530
24407	36 46 29	119 53 23	N	7.4	2.9	20	750
24408	36 54 47	119 50 34	N	7.5	1.9	20	690
24409	36 58 14	119 48 58	N	6.7	1.8	20	340
25392	35 26 11	119 43 22	N	6.2	5.7	50	870
25393	35 34 7	119 40 43	N	5.9	5.7	30	760
25394	35 36 12	119 40 8	<.5	6.1	6.5	70	660
25395	35 41 0	119 41 41	N	6.5	4.7	200	720

Table 3.--Continued

Sample	Latitude	Longitude	Ag ppm-Q	Al %-I	As ppm-H	B ppm-Q	Ba ppm-I
25396	35 49 54	119 41 15	N	7.2	1.7	20	740
25397	35 51 13	119 41 12	N	5.8	6.0	200	16
25398	35 56 36	119 45 43	N	7.4	4.1	15	690
25399	36 2 11	119 41 44	N	6.6	8.1	100	560
25400	36 10 29	119 41 2	N	7.5	4.2	20	650
25401	36 13 56	119 45 29	N	7.4	2.9	50	650
25402	36 18 4	119 41 25	N	8.4	5.8	20	700
25403	36 24 20	119 41 28	N	8.4	6.2	10	670
25404	36 32 9	119 44 57	N	7.6	4.8	20	770
25405	36 37 31	119 46 32	N	7.4	1.9	10	770
25406	36 42 48	119 44 32	N	8.2	2.5	30	590
25407	36 48 47	119 45 26	N	8.0	3.4	30	750
25408D1	36 53 17	119 47 40	N	6.8	1.6	20	650
26391	3 22 3	119 32 51	N	6.8	5.5	70	880
26392	35 27 44	119 36 40	N	6.5	9.8	150	650
26393	35 33 28	119 33 24	.5	6.3	6.8	70	480
26394	35 35 41	119 34 30	N	7.4	7.7	30	670
26395	35 43 43	119 38 12	N	6.9	8.6	70	710
26396	35 49 41	119 34 3	N	7.4	4.7	50	720
26397	35 51 3	119 38 19	N	7.5	2.4	20	710
26398	36 0 29	119 34 40	N	6.9	9.7	70	590
26399	36 3 9	119 35 46	N	8.0	5.6	30	670
26400	36 8 42	119 34 56	N	7.8	9.6	30	650
26401	36 13 44	119 36 13	N	7.9	4.0	50	710
26402	36 18 57	119 34 37	N	7.8	5.0	20	620
26403D1	36 24 28	119 38 58	N	7.9	2.8	50	690
26404	36 31 41	119 39 31	N	7.5	2.7	20	780
26405D1	36 35 8	119 38 52	N	7.3	2.9	15	760
26406	36 43 27	119 34 48	N	7.9	3.1	20	750
26407	36 47 55	119 37 20	N	8.5	1.4	20	360
26408	36 54 28	119 36 26	N	7.4	.8	20	140
27390	35 17 51	119 28 8	N	6.8	4.8	50	1,300
27391	35 21 12	119 30 31	N	6.8	4.3	20	730
27392	35 25 45	119 29 42	N	7.7	11.0	50	620
27393	35 30 21	119 28 8	N	7.7	9.2	50	640
27394	35 36 30	119 31 22	N	7.5	9.5	50	720
27395	35 42 28	119 27 19	N	8.5	14.0	70	640
27396	35 49 58	119 30 35	N	6.8	6.3	50	620
27398	35 58 13	119 31 47	N	7.5	7.0	100	670
27399	36 4 32	119 29 0	N	7.2	3.6	70	680

Table 3.--Continued

Sample	Latitude	Longitude	Ag ppm-Q	Al %-I	As ppm-H	B ppm-Q	Ba ppm-I
27400D1	36 10 56	119 31 56	N	8.1	3.5	30	640
27401	36 13 46	119 32 55	N	8.0	5.8	30	660
27402	36 22 11	119 32 28	N	7.6	2.2	30	790
27403	36 25 57	119 28 55	N	7.5	3.8	20	810
27404	36 32 59	119 28 0	N	7.3	4.4	30	710
27405	36 36 7	119 33 16	N	7.6	2.1	15	760
27406	36 43 26	119 29 29	N	8.0	3.5	30	650
27407	36 46 32	119 32 25	N	8.1	5.1	30	280
27408	36 54 4	119 33 21	N	8.1	1.1	30	160
28389	35 10 39	119 21 10	N	6.7	11.0	30	810
28390	35 15 55	119 19 22	N	6.8	5.1	20	860
28391	35 22 48	119 20 42	N	8.5	7.4	50	690
28392	35 27 13	119 20 51	N	8.0	8.6	150	730
28393	35 31 13	119 21 27	N	8.2	5.2	70	680
28394	35 36 38	119 24 40	N	8.0	6.0	100	640
28395	35 44 32	119 24 19	N	7.8	20.0	70	690
28396	35 46 33	119 21 20	N	7.4	12.0	100	700
28397	35 55 0	119 21 13	N	8.8	7.2	50	730
28398	35 58 25	119 22 22	N	8.3	4.8	50	740
28399	36 6 21	119 22 15	N	8.2	3.6	50	710
28400	36 9 7	119 22 17	N	8.0	4.7	30	670
28401	36 17 16	119 26 43	N	8.0	4.4	50	600
28402	36 22 6	119 24 56	N	8.1	4.5	20	690
28403	36 24 28	119 23 11	N	8.1	4.5	20	700
28404	36 34 8	119 21 7	N	8.0	4.0	30	450
28405	36 37 46	119 26 37	N	8.1	11.0	30	400
28406	36 42 30	119 25 20	N	8.5	3.1	15	340
29388	35 5 23	119 17 58	N	7.3	8.8	50	750
29389	35 8 48	119 12 53	N	7.9	12.0	200	200
29390	35 18 16	119 13 15	N	8.0	3.2	20	620
29391	35 21 58	119 16 13	N	8.7	5.8	20	640
29392	35 25 16	119 18 8	N	8.1	4.2	50	670
29393	35 31 27	119 13 7	N	8.0	3.9	50	530
29394	35 39 17	119 14 57	N	8.3	2.4	70	600
29395	35 44 21	119 15 17	N	8.0	4.4	30	650
29396	35 47 9	119 19 14	N	7.9	15.0	70	700
29397	35 54 46	119 15 50	N	8.5	4.9	50	630
29398	35 57 7	119 17 50	N	8.5	3.7	30	610
29399	36 6 36	119 16 11	N	8.1	6.6	70	750
29400	36 8 52	119 15 44	N	7.7	4.5	30	670

Table 3.--Continued

Sample	Latitude	Longitude	Ag ppm-Q	Al %-I	As ppm-H	B ppm-Q	Ba ppm-I
29401	36 16 28	119 14 16	N	8.1	4.2	50	670
29402	36 22 56	119 18 44	N	7.9	4.7	20	630
29403	36 27 37	119 19 29	N	7.9	3.8	30	690
29404	36 33 18	119 20 29	N	8.7	2.9	30	440
29405	36 38 10	119 17 45	N	8.7	4.2	30	540
30388	35 4 51	119 6 34	N	7.0	8.3	50	780
30389	35 11 43	119 9 40	N	7.6	8.1	70	660
30390	35 16 39	119 8 25	N	8.3	7.0	30	650
30391	35 23 37	119 8 2	N	8.2	4.1	30	630
30392	35 28 24	119 11 20	N	8.4	4.3	50	580
30393	35 31 6	119 6 9	N	8.1	4.8	30	630
30394	35 35 38	119 8 47	N	8.1	5.1	50	640
30395	35 45 12	119 11 45	N	8.0	6.1	50	620
30396	35 49 31	119 12 25	N	8.3	17.0	50	580
30397D1	35 55 40	119 10 26	N	8.4	4.4	50	590
30398	35 58 14	119 11 24	N	9.2	3.8	50	630
30399	36 5 58	119 7 4	N	8.4	5.1	70	730
30400	36 11 2	119 11 50	N	8.0	3.7	50	700
30401	36 13 59	119 12 50	N	8.3	4.2	50	660
30402	36 20 5	119 12 40	N	8.5	11.0	30	730
31388	35 6 2	119 3 47	N	7.0	13.0	70	140
31389	35 10 44	119 3 31	N	8.3	5.0	50	640
31390	35 17 14	119 0 37	N	8.0	6.4	70	620
31391	35 24 16	119 0 16	<.5	7.8	10.0	50	570
31392	35 27 6	119 0 49	N	7.8	6.5	50	700
31393	35 32 49	119 4 39	N	8.6	2.7	50	660
31394	35 39 50	119 3 7	N	8.7	1.6	50	520
31395	35 41 52	119 2 50	N	9.0	3.6	30	550
31396	35 50 53	119 2 50	N	7.8	4.0	30	550
31397	35 53 4	119 4 35	N	8.0	4.5	20	570
31398	36 0 54	119 5 6	N	7.8	2.5	30	490
31399	36 3 8	119 1 43	N	7.8	4.5	30	680
31400	36 8 53	119 5 4	N	7.4	8.7	50	650
31401	36 15 39	119 4 51	N	6.9	1.8	30	480
31402	36 20 47	119 5 36	N	8.5	1.5	20	390
32388	35 4 16	118 56 55	N	7.3	12.0	30	770
32389	35 11 50	118 55 50	N	8.0	10.0	100	710
32390	35 14 36	118 53 3	N	8.2	9.7	20	670
32391	35 24 5	118 53 15	N	7.9	18.0	30	690
32392	35 27 21	118 56 38	N	8.2	4.6	30	650

Table 3.--Continued

Sample	Latitude	Longitude	Ag ppm-Q	Al %-I	As ppm-A	B ppm-Q	Ba ppm-I
32393	35 33 15	118 54 15	N	6.8	7.2	50	660
32394	35 39 1	118 55 55	N	6.8	1.7	30	940
32395	35 44 27	118 58 37	N	8.5	1.9	50	560
32396	35 50 53	118 57 28	N	8.0	4.0	30	520
32397	35 53 10	118 56 32	N	7.7	2.1	30	500
32398	35 58 58	118 55 59	N	6.3	1.7	30	440
61420	37 56 56	121 39 57	N	7.8	13.0	70	720
62418	37 48 50	121 35 38	N	6.8	12.0	70	750
62419	37 54 39	121 36 53	N	6.8	9.2	70	640
62420	37 58 55	121 35 42	N	7.5	3.3	20	640
63418	37 48 40	121 25 49	N	7.9	6.5	70	720
63419	37 52 29	121 25 24	N	7.7	4.9	30	870
63420D1	37 57 56	121 25 4	N	7.7	8.8	50	710
64417	37 41 0	121 18 57	N	7.3	7.2	100	800
64418	37 47 5	121 22 56	N	7.9	9.4	50	720
64419	37 53 54	121 22 14	N	8.0	9.0	30	680
64420	37 57 58	121 22 48	N	7.4	19.0	50	670
65416	37 35 17	121 13 6	N	5.6	6.0	70	790
65417	37 41 0	121 11 59	N	8.0	7.5	30	780
65418	37 45 51	121 13 36	N	8.0	2.3	15	670
65419	37 51 49	121 12 7	N	8.0	2.3	30	650
66415	37 33 15	121 5 38	N	7.8	1.6	30	640
66416	37 38 43	121 6 54	N	7.7	4.4	30	740
66417	37 40 27	121 5 39	N	7.9	5.2	15	710
66418	37 45 27	121 5 45	N	8.2	3.8	20	730
66419	37 54 34	121 6 36	N	8.0	2.3	50	700
66420	37 59 6	121 6 11	N	7.4	16.0	50	820
67412	37 16 8	120 59 21	N	7.3	11.0	70	630
67413	37 21 41	120 59 56	N	7.3	4.1	50	680
67414	37 27 19	121 3 38	N	7.2	9.5	50	760
67415	37 32 48	120 59 17	N	7.7	1.9	30	740
67416	37 34 52	121 2 15	N	7.8	1.9	15	720
67417	37 44 12	121 3 7	N	8.2	6.0	15	770
67418	37 46 57	121 2 28	N	7.9	3.7	15	730
67419	37 54 11	120 58 40	N	7.1	3.2	50	810
67420	37 58 50	120 59 41	N	4.9	2.5	50	690
68411	37 8 20	120 56 25	N	6.9	6.3	70	550
68412D1	37 17 34	120 52 55	N	7.2	3.4	70	830
68413	37 19 9	120 55 35	N	7.1	1.9	30	680
68414	37 26 29	120 52 23	N	7.5	1.5	20	690

Table 3.--Continued

Sample	Latitude	Longitude	Ag ppm-Q	Al %-I	As ppm-A	B ppm-Q	Ba ppm-I
68415	37 30 58	120 55 45	N	8.0	10.0	10	680
68416	37 34 34	120 52 25	N	7.9	3.8	15	690
68417	37 43 24	120 52 30	N	7.2	3.4	50	670
68418	37 48 49	120 56 44	N	7.8	2.5	20	730
68419	37 51 9	120 55 13	N	7.2	2.6	30	730
68420	37 57 51	120 51 35	N	9.2	.8	15	940
69409	36 57 37	120 49 51	N	7.3	9.4	100	750
69410	37 2 23	120 49 40	N	7.0	9.8	50	540
69411	37 9 37	120 50 16	N	7.2	5.0	50	780
69412	37 13 59	120 48 57	N	7.0	3.6	30	740
69413	37 18 38	120 45 2	N	7.3	1.8	20	630
69414	37 24 35	120 48 10	N	7.6	2.3	20	700
69415	37 30 51	120 48 23	N	7.7	2.8	20	650
69416	37 34 57	120 44 53	N	7.6	3.7	20	700
69417	37 43 6	120 49 9	N	7.2	3.0	30	830
69418	37 45 47	120 46 52	N	9.4	2.1	15	620
69419	37 54 43	120 47 32	N	7.7	2.0	15	700
69420	37 56 31	120 45 42	N	7.1	3.7	10	430
70407	36 45 38	120 44 51	.5	6.4	7.6	70	700
70408	36 54 54	120 39 30	N	7.0	8.1	300	620
70409	36 56 40	120 38 53	<.5	7.9	16.0	300	740
70410	37 2 31	120 39 38	N	7.3	6.3	50	730
70411	37 9 13	120 41 16	N	6.9	3.2	20	690
70412	37 17 12	120 40 42	N	7.6	3.0	20	700
70413	37 18 47	120 39 45	N	7.4	1.8	15	680
70414	37 25 15	120 41 24	N	7.7	2.9	30	700
70415	37 33 56	120 42 55	N	7.4	5.1	30	780
70416	37 35 38	120 38 59	N	8.1	3.0	30	760
70417	37 44 1	120 42 55	N	8.7	1.9	20	880
70418	37 47 47	120 41 29	N	9.2	1.1	15	1,400
70419	37 52 3	120 42 11	N	6.6	3.7	30	780
71406	36 42 55	120 36 54	N	5.5	7.9	100	2,600
71407	36 46 21	120 34 24	N	7.8	10.0	200	860
71408D1	36 53 55	120 33 13	N	8.1	10.0	200	850
71409	36 57 25	120 36 50	N	7.6	5.3	100	750
71410	37 4 29	120 36 20	N	7.3	19.0	70	590
71411	37 10 23	120 32 14	N	6.9	5.6	50	590
71412	37 15 53	120 35 8	N	7.6	5.1	30	640
71413	37 21 59	120 35 27	N	7.4	2.0	20	730
71414	37 27 36	120 35 37	N	7.2	5.8	50	930

Table 3.--Continued

Sample	Latitude	Longitude	Ag ppm-Q	Al %-I	As ppm-A	B ppm-Q	Ba ppm-I
71415	37 31 22	120 32 25	N	7.8	4.3	20	680
71416	37 36 7	120 36 40	N	8.1	1.4	20	760
71417	37 43 24	120 33 42	N	7.2	5.4	20	700
71418	37 47 3	120 36 46	N	7.6	3.3	10	450
72405	36 38 10	120 26 51	N	7.1	8.9	150	910
72406	36 43 38	120 26 45	N	6.9	9.4	100	1,100
72407	36 48 40	120 31 2	N	7.7	12.0	150	850
72408D1	36 54 45	120 29 42	N	8.5	8.9	30	650
72409	36 58 52	120 26 1	N	6.6	4.3	30	740
72410	37 5 39	120 25 39	N	8.2	4.1	20	590
72411	37 8 50	120 25 2	N	8.1	5.1	20	670
72412	37 16 37	120 24 38	N	7.3	3.8	50	480
72414	37 27 41	120 26 35	N	B	2.7	50	B
72415	37 29 50	120 27 16	N	8.5	4.1	15	1,000
72416	37 38 1	120 27 25	N	8.1	1.8	15	310
72417	37 41 38	120 29 6	N	6.5	1.7	15	290
73404	36 33 20	120 23 50	N	6.9	1.3	100	970
73405	36 38 29	120 21 1	N	6.7	7.5	200	280
73406	36 42 53	120 21 17	<.5	6.9	10.0	100	970
73407	36 48 16	120 24 37	N	7.3	12.0	100	890
73408	36 52 36	120 22 36	N	8.2	5.5	30	670
73409	36 58 0	120 20 45	N	7.7	3.3	30	720
73410	37 1 43	120 22 38	N	8.2	2.9	30	610
73411	37 8 51	120 21 11	N	8.5	2.3	30	630
73412	37 12 24	120 18 57	N	7.1	5.0	30	580
73414	37 26 48	120 21 20	N	7.4	3.3	20	800
73415	37 28 52	120 18 35	N	5.0	1.7	50	790
74402	36 18 51	120 18 41	N	7.9	5.3	50	850
74403	36 24 39	120 17 51	N	7.0	10.0	70	940
74404	36 32 58	120 17 39	N	7.6	11.0	100	840
74405	36 37 40	120 14 11	<.5	7.5	5.7	50	660
74406	36 39 48	120 17 35	N	7.1	4.6	70	740
74407	36 45 36	120 13 0	N	8.2	6.6	50	730
74408	36 52 40	120 14 32	N	7.3	2.8	30	770
74409	36 58 53	120 17 33	N	8.1	3.1	30	740
74410	37 3 54	120 12 55	N	7.8	3.4	30	590
74411	37 9 48	120 16 44	N	7.8	1.7	50	550
74412	37 12 59	120 16 45	N	7.1	4.3	50	530
75400	36 6 59	120 9 4	N	7.1	7.3	50	610
75401	36 16 34	120 9 12	N	6.8	8.2	50	720

Table 3.--Continued

Sample	Latitude	Longitude	Ag ppm-Q	Al %-I	As ppm-A	B ppm-Q	Ba ppm-I
75402	36 18 35	120 8 12	N	7.8	11.0	100	630
75403	36 25 4	120 8 5	N	7.8	11.0	100	630
75404	36 32 58	120 11 33	N	7.9	14.0	150	720
75405	36 35 48	120 6 7	N	7.4	2.5	50	730
75406	36 43 39	120 9 24	N	7.2	3.9	50	760
75407	36 49 25	120 5 54	N	7.3	2.0	20	730
75408	36 54 49	120 11 8	N	8.4	4.3	30	710
75409	36 55 49	120 6 7	N	9.4	4.2	20	740
75410	37 2 49	120 10 34	N	8.1	6.8	50	560
75411	37 10 42	120 10 26	N	7.5	2.3	30	520
75412	37 14 5	120 8 20	N	4.3	6.5	100	380
76400	36 9 48	120 4 9	N	7.5	8.6	70	650
76401	36 16 12	120 4 24	N	7.4	5.2	100	620
76402	36 18 38	120 1 35	<.5	6.8	9.9	100	490
76403	36 24 20	120 3 44	N	7.5	9.4	100	650
76404	36 32 19	120 0 50	N	7.3	7.7	30	790
76405	36 38 27	120 1 3	N	7.1	4.6	30	790
76406	36 42 44	120 2 54	N	7.5	3.6	20	770
76407	36 49 38	120 1 34	N	7.4	3.2	20	750
76408	36 53 9	120 0 21	N	7.6	2.6	10	760
76409	36 59 17	120 2 52	N	7.7	2.1	30	710
76410	37 1 22	120 1 19	N	7.5	1.3	50	690
76411	37 8 0	120 0 55	N	5.2	2.0	70	400

Table 3.--Continued

Sample	Be ppm-I	C %-IR	Ca %-I	Ce ppm-I	Co ppm-I	Cr ppm-I	Cu ppm-I
23399	1	.58	1.7	40	19	140	41
23400	1	.87	1.6	34	19	160	35
23401	<1	.61	1.5	31	15	140	30
23402	<1	.85	1.4	37	16	140	35
23403	1	.75	1.7	36	18	140	37
23404	2	.46	2.5	65	6	25	22
23405	1	.77	2.6	64	7	26	21
23406	1	.69	3.1	42	18	190	15
23407	2	.67	2.2	63	8	36	22
23408	2	.70	1.6	53	10	42	15
23409	2	1.16	1.7	54	11	43	13
23410	1	.76	2.2	74	11	45	12
23411	<1	.25	1.9	13	7	44	8
23412	<1	.74	2.2	28	14	65	160
24393	1	1.45	4.7	35	10	90	28
24394	1	.92	2.1	36	12	86	33
24395	<1	1.96	1.8	27	10	62	45
24396	<1	.43	1.5	24	10	99	19
24397	<1	.43	2.1	24	12	110	22
24398	<1	.47	2.8	24	9	93	8
24399D1	1	3.80	7.1	48	16	82	34
24400	1	.75	2.6	51	13	55	12
24401	1	.37	1.5	32	17	140	36
24402	2	.94	2.6	58	12	50	19
24403	1	1.76	2.5	59	12	55	17
24404	2	.55	2.5	69	7	23	12
24405	2	.32	2.7	74	7	21	6
24406	1	.74	3.0	36	18	90	23
24407	1	.78	1.9	59	10	49	17
24408	2	.49	1.8	53	7	24	14
24409	2	.29	1.6	590	21	80	9
25392	1	1.24	2.2	32	8	61	20
25393	<1	.33	1.4	25	8	49	18
25394	1	1.84	3.2	30	10	61	23
25395	1	.46	2.0	30	8	58	20
25396	2	.38	3.0	69	5	20	3
25397	1	.41	1.6	46	9	29	20
25398	2	.19	2.3	43	7	21	8
25399	1	3.58	7.0	49	16	77	38
25400	1	.55	3.9	48	13	56	17

Table 3.--Continued

Sample	Be ppm-I	C %-IR	Ca %-I	Ce ppm-I	Co ppm-I	Cr ppm-I	Cu ppm-I
25401	1	1.49	3.7	52	13	63	13
25402	1	1.18	3.0	57	15	75	20
25403	2	1.37	2.5	60	18	81	48
25404	2	.48	2.4	75	7	21	10
25405	2	.38	2.2	69	7	24	9
25406	1	.66	2.8	49	19	120	25
25407	1	.98	1.9	52	10	48	14
25408D1	2	.04	2.5	99	11	48	10
26391	1	.87	1.7	40	8	55	14
26392	1	2.48	6.7	42	10	71	26
26393	1	3.45	7.6	51	12	55	32
26394	1	.64	2.8	68	9	53	14
26395	1	1.07	2.5	46	6	25	7
26396	1	1.63	4.7	48	8	30	14
26397	2	.10	2.5	71	5	12	4
26398	1	2.75	5.5	50	13	61	29
26399	1	.66	2.8	43	10	41	13
26400	1	.85	2.9	45	9	25	9
26401	2	.92	3.0	56	14	55	17
26402	1	.87	2.8	58	14	65	16
26403D1	2	.73	3.1	52	15	61	15
26404	2	.58	2.2	61	8	22	8
26405D1	1	1.00	2.2	76	9	28	16
26406	1	.76	2.0	57	11	56	16
26407	<1	.38	4.2	32	23	170	15
26408	<1	.81	4.0	23	23	85	14
27390	1	.96	3.0	47	8	42	13
27391	1	.06	2.7	20	7	48 1	11
27392	2	1.34	2.5	56	10	44	21
27393	1	1.08	2.3	59	13	57	28
27394	2	.86	3.1	56	12	54	20
27395	1	1.69	2.4	54	14	66	22
27396	1	3.26	7.8	49	12	51	21
27398	1	1.55	3.7	52	12	58	27
27399	1	1.38	4.7	54	13	42	17
27400D1	1	1.83	3.0	59	13	45	20
27401	2	1.37	2.7	63	13	43	23
27402	2	.41	2.3	65	8	25	8
27403	2	.60	2.3	70	9	31	14
27404	2	1.83	2.4	71	11	40	28

Table 3.--Continued

Sample	Be ppm-I	C %-IR	Ca %-I	Ce ppm-I	Co ppm-I	Cr ppm-I	Cu ppm-I
27405	2	.72	2.3	74	8	28	22
27406	1	.83	3.2	58	16	97	17
27407	<1	.49	4.3	27	24	400	15
27408	<1	.45	5.5	21	25	59	6
28389	1	1.30	2.0	96	7	41	10
28390	1	.37	2.5	66	7	32	10
28391	2	.57	2.6	54	13	35	19
28392	1	.57	3.2	55	12	62	18
28393	1	.54	2.7	45	13	47	15
28394	1	.60	2.6	39	11	41	11
28395	1	1.13	3.7	41	11	53	18
28396	1	1.88	5.3	42	11	50	20
28397	1	.75	2.8	48	16	48	18
28398	2	1.66	2.3	60	15	55	20
28399	1	1.08	2.5	60	12	50	16
28400	1	1.21	2.5	63	14	48	21
28401	1	1.39	2.7	59	14	45	21
28402	2	.60	2.9	61	10	30	11
28403	2	.75	2.8	67	11	31	10
28404	<1	1.38	2.6	38	20	130	38
28405	<1	.86	4.6	36	18	79	29
28406	<1	.93	5.8	27	26	84	41
29388	2	.83	2.2	86	13	62	20
29389	2	.61	2.4	58	14	68	27
29390	2	.33	3.3	63	10	30	6
29391	2	.32	3.3	59	11	28	9
29392	2	.49	2.8	61	12	45	18
29393	1	.35	2.9	45	11	46	13
29394	1	.61	2.6	47	11	43	12
29395	1	.62	2.7	41	10	40	10
29396	1	.49	3.4	36	8	32	7
29397	1	.72	3.7	41	14	37	13
29398	1	.57	3.3	43	15	39	13
29399	2	1.96	2.7	58	14	55	21
29400	1	.53	2.6	44	12	44	9
29401	1	1.50	3.2	57	16	45	24
29402	2	1.03	2.6	62	12	38	17
29403	1	1.04	3.2	45	14	47	23
29404	<1	.68	3.5	36	20	52	40
29405	1	.84	2.8	32	13	30	33

Table 3.--Continued

Sample	Be ppm-I	C %-IR	Ca %-I	Ce ppm-I	Co ppm-I	Cr ppm-I	Cu ppm-I
30388	1	.82	2.6	46	9	57	14
30389	2	.92	3.1	66	12	38	18
30390	2	.78	3.2	57	11	35	14
30391	1	.46	3.2	64	10	33	10
30392	1	.45	3.2	41	12	47	14
30393	1	1.06	2.6	45	14	49	18
30394	1	.55	2.4	46	12	51	26
30395	1	1.31	2.5	45	11	51	18
30396	1	1.46	3.0	42	13	48	24
30397D1	1	1.30	2.5	42	15	52	23
30398	1	.60	3.3	48	15	39	15
30399	2	1.41	2.7	63	15	56	22
30400	1	.93	2.2	52	13	56	17
30401	2	.58	3.0	61	15	35	16
30402	2	1.08	2.6	67	16	51	29
31388	2	1.08	3.3	53	11	63	19
31389	2	.84	3.2	47	12	31	14
31390	2	1.11	3.7	50	13	40	16
31391	1	1.18	3.4	50	12	48	21
31392	1	1.17	2.8	48	10	34	11
31393	1	.45	2.2	41	11	36	15
31394	1	.28	3.3	25	7	23	6
31395	1	.64	3.1	35	12	36	16
31396	1	2.52	2.5	43	11	47	18
31397	1	.80	2.4	39	12	45	18
31398	1	1.51	3.4	39	14	38	14
31399	1	.65	2.7	46	12	40	11
31400	1	1.55	2.0	51	15	100	22
31401	1	1.70	2.4	82	20	770	24
31402	<1	.43	3.9	31	17	56	24
32388	1	.81	2.5	57	13	97	19
32389	1	.74	3.9	43	12	40	12
32390	1	.26	3.4	44	13	42	10
32391	1	1.20	3.1	49	13	44	14
32392	2	.57	2.8	71	11	32	13
32393	2	2.70	2.3	81	7	31	10
32394	1	.90	1.9	68	4	22	3
32395	1	1.66	3.0	31	10	27	11
32396	1	1.14	2.2	37	12	42	12
32397	1	.59	2.4	37	11	34	13

Table 3.--Continued

Sample	Be ppm-I	C %-IR	Ca %-I	Ce ppm-I	Co ppm-I	Cr ppm-I	Cu ppm-I
32398	<1	2.35	4.0	33	17	230	17
61420	1	1.69	1.2	35	20	110	77
62418	1	1.31	1.4	45	12	59	28
62419	<1	1.01	1.3	31	18	94	45
62420	1	.52	2.8	68	9	56	9
63418	1	.73	2.5	46	15	80	22
63419	1	1.32	2.2	45	15	74	32
63420D1	1	4.26	1.7	49	15	94	37
64417	1	1.06	1.6	40	14	73	34
64418	1	1.76	1.6	51	16	100	38
64419	1	2.63	1.9	55	14	83	47
64420	1	6.40	1.6	52	18	110	67
65416	<1	.22	.9	26	9	60	22
65417	1	1.19	2.5	58	17	86	31
65418	1	.45	2.9	55	11	38	23
65419	1	.48	3.3	49	10	37	32
66415	1	.78	2.8	64	8	23	10
66416	1	1.27	2.4	53	13	44	19
66417	1	1.26	2.7	65	13	47	24
66418	1	1.29	2.5	64	15	53	120
66419	1	.44	2.9	45	19	68	23
66420	1	1.58	1.7	51	23	140	87
67412	1	1.20	1.0	41	15	110	39
67413	1	.39	2.9	60	11	55	11
67414	1	1.20	1.0	44	12	60	31
67415	1	.74	2.7	64	10	30	13
67416	1	1.14	2.6	59	10	28	70
67417	1	1.04	2.6	59	12	39	33
67418	1	.58	2.9	64	11	37	56
67419	1	3.00	2.0	49	14	77	26
67420	<1	6.25	1.1	37	13	64	22
68411	<1	.97	1.3	35	13	120	29
68412D1	1	1.75	2.0	41	11	56	28
68413	1	.78	2.2	51	6	31	9
68414	1	.57	2.2	53	5	20	7
68415	1	.82	2.6	62	10	27	11
68416	1	.86	2.6	54	8	20	14
68417	1	3.22	1.6	43	9	51	20
68418	1	.94	2.5	60	12	41	31
68419	1	2.71	1.9	47	11	34	17

Table 3.--Continued

Sample	Be ppm-I	C %-IR	Ca %-I	Ce ppm-I	Co ppm-I	Cr ppm-I	Cu ppm-I
68420	1	.55	4.8	45	23	110	22
69409	1	.83	1.2	39	13	83	29
69410	1	.84	1.6	36	18	210	32
69411	1	.26	2.2	46	8	52	11
69412	1	.26	2.2	46	8	47	10
69413	2	1.26	2.4	52	5	14	5
69414	2	.74	2.4	57	6	11	36
69415	1	1.11	2.6	60	8	21	13
69416	1	.78	2.6	54	8	19	68
69417	1	1.63	1.8	60	11	51	15
69418	1	.55	2.5	74	18	77	27
69419	<1	.43	3.8	34	18	67	24
69420	<1	1.61	2.6	30	20	74	52
70407	1	.38	1.5	33	9	64	19
70408	1	.55	2.1	36	15	98	34
70409	1	2.49	1.2	47	18	130	51
70410	1	1.31	2.6	50	10	53	21
70411	1	1.56	3.9	52	9	36	14
70412	1	.38	2.2	43	5	14	7
70413	1	.36	2.3	47	6	16	5
70414	2	.70	2.3	59	9	23	47
70415	2	1.08	2.0	42	9	28	10
70416	2	.57	2.2	57	8	20	12
70417	1	1.68	3.2	55	24	78	32
70418	1	.27	5.0	65	31	69	34
70419	1	1.71	1.7	64	13	69	16
71406	<1	.25	1.6	44	9	120	12
71407	1	1.19	1.7	44	15	110	42
71408D1	1	1.22	1.7	47	17	140	47
71409	1	1.51	1.7	48	14	110	37
71410	1	2.04	1.9	55	10	47	21
71411	1	.76	2.7	36	13	95	20
71412	1	1.59	1.8	42	20	94	43
71413	1	.46	2.2	42	8	29	9
71414	1	1.86	2.0	48	19	97	56
71415	1	.44	2.3	51	8	27	16
71416	1	.47	2.8	51	12	28	15
71417	2	.42	2.0	63	19	24	16
71418	<1	.87	2.4	30	29	60	55
72405	1	.87	1.9	36	12	110	36

Table 3.--Continued

Sample	Be ppm-I	C %-IR	Ca %-I	Ce ppm-I	Co ppm-I	Cr ppm-I	Cu ppm-I
72406	1	.62	1.8	37	13	100	29
72407	1	1.68	1.8	41	14	120	46
72408D1	2	.95	2.3	49	11	41	16
72409	1	2.12	4.2	47	7	37	14
72410	1	1.14	3.0	32	15	72	18
72411	<1	1.05	3.1	35	14	57	16
72412	1	1.80	2.7	34	20	140	48
72414	B	.55	B	B	B	B	B
72415	1	.54	3.7	52	16	53	28
72416	<1	1.11	5.2	24	17	55	23
72417	<1	.52	2.0	19	23	77	35
73404	1	.94	1.9	39	11	94	28
73405	1	.39	2.3	33	12	100	29
73406	1	.67	1.8	38	13	93	32
73407	1	1.49	1.4	44	13	110	38
73408	1	.77	3.2	49	11	33	14
73409	1	1.70	3.5	49	10	43	15
73410	1	.98	3.4	39	16	64	20
73411	1	.95	3.0	32	16	63	20
73412	1	.97	1.8	40	16	120	34
73414	1	.42	3.4	48	25	150	18
73415	<1	1.31	1.0	26	7	46	11
74402	<1	.31	3.6	31	17	100	19
74403	1	.63	1.3	40	13	98	31
74404	1	1.26	1.2	39	17	170	35
74405	1	1.37	1.7	44	12	91	28
74406	1	1.08	3.1	44	10	61	19
74407	2	.62	2.9	64	10	38	15
74408	2	.83	3.2	64	7	29	11
74409	1	1.71	2.7	50	12	53	23
74410	1	.96	2.5	41	13	62	16
74411	1	.40	2.8	34	13	57	12
74412	1	.66	2.0	34	16	120	27
75400	<1	.36	2.5	35	17	120	25
75401	<1	.22	1.7	35	15	150	22
75402	<1	.83	1.8	37	19	150	37
75403	1	.61	1.6	34	20	150	42
75404	1	.81	1.3	44	21	160	45
75405	1	.96	3.1	51	10	45	17
75406	2	.82	2.6	55	6	31	7

Table 3.--Continued

Sample	Be ppm-I	C %-IR	Ca %-I	Ce ppm-I	Co ppm-I	Cr ppm-I	Cu ppm-I
75407	2	.33	2.2	68	7	31	7
75408	1	.42	3.2	35	14	46	12
75409	1	.90	2.9	40	15	55	23
75410	1	1.05	2.6	36	13	60	26
75411	<1	.72	2.7	32	12	53	11
75412	<1	1.69	.5	41	11	61	19
76400	<1	.35	1.8	33	15	130	31
76401	1	1.02	1.6	33	18	150	34
76402	<1	.59	3.5	37	17	140	36
76403	1	.75	1.9	34	19	130	39
76404	1	.46	2.5	69	7	28	14
76405	1	1.00	3.6	60	8	38	11
76406	2	.58	2.4	61	8	31	9
76407	2	.34	2.4	68	7	29	8
76408	2	.52	2.2	63	10	43	14
76409	1	.83	2.2	34	10	37	12
76410	<1	1.00	2.6	27	6	25	5
76411	<1	.93	1.5	46	9	64	15

Table 3.--Continued

Sample	Fe %-I	Ga ppm-I	Hg ppm-C	K %-I	La ppm-I	Li ppm-I	Mg %-I
23399	4.2	17	.03	1.8	21	50	2.4
23400	3.9	17	.05	1.6	19	43	2.2
23401	3.4	16	.02	1.7	18	35	1.8
23402	3.6	16	.06	1.7	19	39	1.8
23403	3.7	15	.02	1.9	20	43	2.1
23404	2.6	15	<.02	2.2	35	13	.6
23405	2.6	15	.02	2.6	36	14	.7
23406	3.8	16	.02	1.5	22	16	1.8
23407	2.8	16	<.02	2.0	37	18	.7
23408	2.7	17	.04	2.3	28	18	.5
23409	2.7	19	.02	2.0	30	25	.6
23410	2.5	16	.05	1.6	39	17	.7
23411	2.4	9	<.02	.4	8	8	.6
23412	3.4	12	.06	.4	16	12	1.2
24393	2.8	15	.03	1.6	21	43	1.0
24394	3.1	14	.03	1.3	22	40	1.3
24395	2.5	12	.02	1.9	14	30	1.0
24396	2.3	12	.05	1.5	14	25	1.5
24397	2.9	14	.02	1.7	15	27	1.3
24398	1.9	12	.02	1.6	14	17	1.0
24399D1	3.8	16	.04	1.6	25	67	2.1
24400	2.9	15	<.02	1.9	27	24	1.1
24401	3.7	15	.02	1.8	19	43	2.0
24402	3.2	17	<.02	1.9	33	29	1.1
24403	3.1	17	.02	1.9	32	25	1.2
24404	2.9	16	<.02	2.0	40	16	.7
24405	2.9	15	.02	2.0	40	10	.6
24406	4.1	18	<.02	1.6	20	19	1.5
24407	2.8	16	<.02	2.3	30	18	.6
24408	2.0	16	<.02	2.3	29	15	.4
24409	11.0	18	<.02	1.4	360	20	.8
25392	2.4	13	<.02	2.3	20	31	.8
25393	2.0	12	<.02	1.7	14	23	.7
25394	2.5	14	.07	1.8	18	33	1.0
25395	2.2	13	.03	2.0	17	30	1.1
25396	1.2	14	<.02	2.3	34	10	.6
25397	2.3	15	.22	1.8	26	37	1.2
25398	1.5	16	.03	1.9	22	18	.6
25399	3.7	15	.03	1.6	26	63	1.9
25400	3.3	17	.02	1.8	26	31	1.5

Table 3.--Continued

Sample	Fe %-I	Ga ppm-I	Hg ppm-C	K %-I	La ppm-I	Li ppm-I	Mg %-I
25401	4.0	17	<.02	1.7	29	26	1.6
25402	3.6	18	<.02	2.1	32	30	1.5
25403	4.4	20	.02	1.4	34	39	1.5
25404	2.8	16	<.02	2.4	44	14	.6
25405	2.7	16	<.02	2.5	38	16	.6
25406	4.1	19	.02	1.6	28	19	1.5
25407	2.7	17	.02	2.4	26	16	.6
25408D1	7.7	18	.02	2.1	45	9	.6
26391	2.2	14	.03	1.6	21	23	.8
26392	2.6	15	.02	1.6	23	67	1.5
26393	3.3	15	.03	1.7	30	91	2.1
26394	3.1	15	.02	2.2	38	20	1.0
26395	1.7	13	.06	2.3	25	21	.8
26396	1.8	16	.02	2.3	25	31	1.1
26397	1.3	16	<.02	2.5	36	13	.6
26398	3.1	15	.03	1.7	28	42	1.3
26399	2.4	16	<.02	2.2	24	25	.9
26400	2.4	16	<.02	2.1	25	20	1.0
26401	3.5	18	.02	2.0	35	30	1.2
26402	4.0	18	<.02	2.0	33	31	1.5
26403D1	3.8	18	<.02	2.0	33	28	1.4
26404	2.4	15	<.02	2.5	34	17	.6
26405D1	2.9	15	<.02	2.4	43	19	.7
26406	2.9	15	.02	2.4	29	15	.7
26407	5.2	18	.02	1.0	17	17	2.3
26408	7.3	19	<.02	.3	12	7	2.3
27390	1.9	14	.02	2.4	28	20	.8
27391	2.8	16	.02	2.1	55	12	.8
27392	2.8	17	.02	1.7	33	55	.9
27393	3.4	17	.02	2.0	34	45	1.2
27394	2.9	17	.02	2.3	33	28	1.3
27395	3.7	19	.03	2.2	30	44	1.5
27396	2.7	15	.02	2.0	26	51	2.0
27398	3.3	17	.04	2.1	31	43	1.3
27399	3.2	16	.02	1.8	32	49	1.5
27400D1	3.6	18	.02	2.0	35	34	1.4
27401	3.9	19	.02	1.9	37	37	1.2
27402	2.7	17	<.02	1.9	37	18	.8
27403	3.4	17	<.02	2.6	40	21	.9
27404	3.6	15	<.02	2.3	42	19	.9

Table 3.--Continued

Sample	Fe %-I	Ga ppm-I	Hg ppm-C	K %-I	La ppm-I	Li ppm-I	Mg %-I
27405	3.3	16	<.02	2.5	46	18	.7
27406	4.1	20	.10	1.8	30	27	1.7
27407	5.2	17	.02	.8	15	10	2.4
27408	5.7	18	<.02	.4	9	8	2.8
28389	1.9	14	.03	2.1	47	19	.6
28390	1.8	14	<.02	2.2	34	16	.6
28391	3.6	20	.02	2.0	32	48	1.3
28392	3.0	17	.02	2.3	30	32	1.4
28393	3.4	18	.02	2.1	27	30	1.2
28394	2.9	16	.02	1.9	22	23	1.1
28395	3.0	17	<.02	2.2	23	37	1.3
28396	2.9	17	.02	2.1	24	42	1.4
28397	4.5	21	<.02	2.1	30	45	1.6
28398	4.2	20	.03	2.1	36	52	1.4
28399	3.2	18	<.02	2.2	33	34	1.3
28400	3.8	19	<.02	1.9	36	36	1.3
28401	3.9	18	<.02	2.1	34	35	1.4
28402	3.0	16	<.02	2.4	34	22	1.1
28403	3.2	17	<.02	2.4	37	24	1.2
28404	3.6	16	<.02	1.2	20	18	1.4
28405	4.3	16	.02	1.2	23	15	1.6
28406	5.9	18	<.02	.8	14	19	2.5
29388	3.4	18	.05	2.2	48	30	1.3
29389	3.7	20	.05	2.5	32	46	2.1
29390	3.0	18	<.02	1.9	33	22	1.2
29391	3.1	20	.02	2.0	32	28	1.2
29392	3.4	19	.02	2.3	36	36	1.4
29393	3.1	17	.02	1.8	24	24	1.2
29394	3.0	17	.02	1.8	26	23	1.0
29395	2.5	16	<.02	1.8	22	19	.9
29396	2.0	15	<.02	1.8	21	15	.8
29397	4.0	20	.03	1.9	25	35	1.4
29398	4.5	20	<.02	1.5	24	32	1.5
29399	3.8	19	.02	1.8	35	54	1.4
29400	3.5	17	<.02	1.9	25	31	1.3
29401	4.4	19	<.02	2.0	33	35	1.5
29402	3.6	18	<.02	2.2	35	31	1.3
29403	3.2	16	<.02	1.7	24	21	1.5
29404	5.0	19	.03	1.2	19	19	1.7
29405	3.6	18	.02	1.4	18	18	1.0

Table 3.--Continued

Sample	Fe %-I	Ga ppm-I	Hg ppm-C	K %-I	La ppm-I	Li ppm-I	Mg %-I
30388	2.3	15	.04	2.2	26	28	1.0
30389	3.2	19	.05	2.1	36	44	1.1
30390	3.2	20	.02	2.2	29	37	1.3
30391	3.1	18	<.02	1.9	33	22	1.1
30392	3.4	18	.02	1.5	21	21	1.3
30393	3.6	18	.04	2.0	27	28	1.3
30394	3.2	17	.05	2.1	28	26	1.2
30395	2.7	18	.02	1.8	24	25	.9
30396	3.3	18	.02	1.7	21	23	1.1
30397D1	3.6	18	.19	1.6	24	31	1.2
30398	4.2	21	<.02	1.7	26	30	1.5
30399	4.1	21	.02	1.4	35	57	1.3
30400	3.4	18	<.02	1.8	29	37	1.2
30401	4.3	19	<.02	1.9	37	30	1.5
30402	4.5	20	.02	2.1	37	40	1.5
31388	3.0	17	.06	1.9	30	39	1.3
31389	3.4	19	.02	2.3	30	39	1.3
31390	3.7	19	.02	2.1	30	45	1.6
31391	3.3	17	.06	1.8	28	32	1.3
31392	2.7	16	.02	1.7	25	19	.8
31393	2.7	17	.02	1.7	22	21	.7
31394	1.8	17	<.02	1.2	14	11	.7
31395	3.3	20	.02	1.1	19	28	1.1
31396	3.2	17	<.02	1.5	23	23	.9
31397	3.0	16	.03	1.5	22	21	.9
31398	4.3	18	.02	1.6	20	23	1.4
31399	3.5	18	<.02	1.7	26	30	1.1
31400	3.6	17	.02	1.6	26	25	1.1
31401	3.5	17	.02	1.2	44	16	1.5
31402	4.9	18	.04	1.1	17	15	1.7
32388	3.2	17	.02	2.2	31	32	1.4
32389	3.3	17	.02	1.7	24	21	1.4
32390	3.8	19	.04	1.5	22	24	1.4
32391	3.6	18	.02	1.6	27	28	1.4
32392	3.1	20	.02	1.9	38	28	1.0
32393	2.1	15	.02	2.4	47	21	.9
32394	1.2	13	<.02	2.0	43	10	.3
32395	2.3	17	.02	1.6	16	14	.7
32396	2.9	16	.02	1.4	21	22	.9
32397	2.8	16	.02	1.0	21	20	.8

Table 3.--Continued

Sample	Fe %-I	Ga ppm-I	Hg ppm-C	K %-I	La ppm-I	Li ppm-I	Mg %-I
32398	3.7	14	.02	1.2	18	15	1.9
61420	4.5	16	.06	1.6	20	57	1.3
62418	2.5	14	.02	1.8	25	29	.6
62419	3.6	14	.04	1.3	15	42	1.0
62420	2.7	15	.02	1.9	35	12	.9
63418	3.3	17	.02	1.6	26	25	1.2
63419	3.5	16	.03	1.5	27	32	1.2
63420D1	3.4	18	.06	1.4	29	35	1.1
64417	3.2	16	.02	1.8	24	29	1.0
64418	3.9	17	.07	1.3	30	35	1.2
64419	3.3	17	.05	1.4	31	34	1.0
64420	3.8	17	.10	1.0	29	35	.9
65416	2.0	10	.02	1.8	14	23	.6
65417	3.9	19	.05	1.8	32	23	1.2
65418	4.0	17	<.02	1.8	32	15	.9
65419	2.7	17	<.02	1.9	28	20	1.3
66415	2.5	16	<.02	1.9	34	14	.7
66416	3.1	17	.02	1.7	26	15	.7
66417	4.4	17	.04	1.8	36	19	1.0
66418	4.8	19	.03	1.8	37	22	1.1
66419	4.4	18	<.02	1.2	26	19	.9
66420	4.6	18	.07	1.5	27	25	1.2
67412	3.5	15	.03	1.9	24	48	1.4
67413	3.1	15	.02	1.8	31	19	1.2
67414	2.9	15	.02	1.5	24	42	.8
67415	3.1	17	.02	2.2	38	18	.9
67416	2.8	17	<.02	1.9	31	15	.7
67417	3.3	19	.02	2.2	37	22	.9
67418	3.8	18	.02	2.0	33	15	.8
67419	3.4	15	.03	1.4	29	17	.7
67420	2.6	11	.06	1.1	27	12	.4
68411	3.1	15	.04	1.3	19	29	1.2
68412D1	3.0	16	<.02	1.6	24	22	.9
68413	2.3	15	<.02	2.0	27	11	.5
68414	1.7	15	<.02	2.5	31	14	.5
68415	3.0	17	<.02	1.9	33	15	.8
68416	2.7	16	.02	1.9	29	14	.7
68417	2.3	14	.03	1.8	23	14	.4
68418	3.4	16	.02	1.9	32	14	.7
68419	2.4	16	.02	1.6	27	14	.4

Table 3.--Continued

Sample	Fe %-I	Ga ppm-I	Hg ppm-C	K %-I	La ppm-I	Li ppm-I	Mg %-I
68420	5.1	21	<.02	1.2	27	15	1.5
69409	3.3	16	.02	2.0	24	46	1.2
69410	3.6	15	.37	1.4	20	36	1.9
69411	1.8	14	<.02	2.3	26	19	.9
69412	1.9	13	<.02	2.1	25	15	.8
69413	1.9	15	<.02	1.6	30	13	.4
69414	2.3	16	<.02	2.2	33	17	.5
69415	3.0	17	.02	2.0	32	16	.7
69416	2.5	16	.04	1.9	28	13	.6
69417	2.9	15	.02	2.1	29	12	.4
69418	6.5	21	.03	1.3	46	24	1.5
69419	4.7	19	.02	.9	19	9	.6
69420	4.5	16	.05	.6	14	10	.8
70407	2.2	12	<.02	1.9	19	31	.8
70408	3.1	14	.10	1.5	21	39	1.4
70409	4.6	18	.10	1.3	26	66	1.8
70410	2.9	16	<.02	1.6	29	35	1.2
70411	2.4	16	.03	2.0	31	30	1.3
70412	1.9	15	<.02	2.4	25	11	.4
70413	2.5	15	<.02	2.2	25	11	.5
70414	2.8	17	.02	2.1	33	19	.6
70415	2.1	15	<.02	2.1	24	12	.4
70416	2.6	18	<.02	2.0	32	23	.5
70417	4.0	20	.02	1.2	30	16	1.1
70418	7.1	24	<.02	.9	31	14	2.1
70419	3.7	15	.02	1.4	33	11	.4
71406	2.3	12	9.40	2.3	23	22	.6
71407	4.0	18	.08	1.9	26	61	1.4
71408D1	4.3	19	.64	1.7	26	66	1.8
71409	3.5	16	.06	1.7	26	47	1.4
71410	2.8	17	.06	1.7	31	39	1.0
71411	3.1	14	.09	1.5	20	22	1.7
71412	3.9	16	.03	1.3	24	24	1.1
71413	2.9	15	.02	2.0	22	9	.5
71414	4.0	16	.02	1.5	26	28	1.3
71415	3.1	17	<.02	2.0	27	9	.4
71416	3.3	18	.02	1.9	27	12	.9
71417	3.3	18	<.02	1.5	26	16	.4
71418	5.3	15	.02	.6	21	12	.8
72405	3.2	14	.08	2.0	21	52	1.5

Table 3.--Continued

Sample	Fe %-I	Ga ppm-I	Hg ppm-C	K %-I	La ppm-I	Li ppm-I	Mg %-I
72406	3.0	15	.08	2.2	22	46	1.3
72407	3.9	17	.27	2.1	24	65	1.6
72408D1	3.2	18	.02	1.8	28	39	1.0
72409	2.2	15	.02	1.9	25	40	1.8
72410	4.1	17	<.02	1.6	18	34	1.8
72411	3.7	18	.02	1.6	18	27	1.6
72412	4.0	14	.02	.9	18	18	1.4
72414	B	B	.02	B	B	B	B
72415	3.9	19	.03	1.4	29	15	1.3
72416	5.5	20	.02	.6	14	11	.6
72417	5.2	15	<.02	.6	9	14	.8
73404	2.9	14	.04	2.1	23	43	1.2
73405	2.9	15	.06	2.1	20	44	1.5
73406	3.1	15	.09	2.1	21	47	1.6
73407	3.6	17	.75	2.0	23	57	1.5
73408	3.1	18	<.02	2.1	28	40	1.2
73409	2.6	16	.02	2.3	27	34	1.4
73410	4.2	18	<.02	1.7	22	40	1.9
73411	4.2	19	<.02	1.1	18	32	1.7
73412	3.4	16	<.02	1.3	21	20	1.4
73414	7.8	20	.02	1.2	32	14	1.5
73415	2.5	10	.02	1.7	17	9	.2
74402	3.2	15	.02	1.4	18	22	1.3
74403	3.0	14	.02	2.1	22	47	1.3
74404	3.5	15	.05	2.0	21	54	2.3
74405	3.0	16	.02	1.8	25	29	1.0
74406	2.3	15	.02	1.8	23	24	1.1
74407	3.2	19	.10	2.4	38	39	1.2
74408	2.6	16	<.02	2.4	36	25	1.1
74409	3.4	18	.02	2.2	31	50	1.5
74410	3.1	16	.02	1.5	20	20	1.1
74411	3.2	16	.02	1.3	19	18	1.3
74412	3.6	15	<.02	1.1	18	18	1.3
75400	3.5	14	.02	1.5	20	32	1.5
75401	3.2	14	.03	1.8	19	30	1.5
75402	3.9	16	.05	1.7	19	46	2.1
75403	4.4	16	.05	1.6	19	50	2.1
75404	4.5	18	.03	1.8	24	63	2.5
75405	2.8	16	<.02	2.3	30	27	1.4
75406	2.2	14	.04	2.5	31	17	.8

Table 3.--Continued

Sample	Fe %-I	Ga ppm-I	Hg ppm-C	K %-I	La ppm-I	Li ppm-I	Mg %-I
75407	3.0	15	<.02	2.5	39	13	.6
75408	3.6	19	<.02	1.8	19	29	1.5
75409	3.8	21	.02	2.0	22	41	1.5
75410	2.9	16	.02	1.4	19	16	1.0
75411	2.8	14	<.02	1.1	18	10	.9
75412	2.8	9	.04	.7	22	11	.3
76400	3.4	15	.04	1.7	17	34	1.7
76401	3.8	15	.05	1.6	19	42	2.0
76402	3.8	15	.06	1.5	27	44	1.9
76403	4.1	16	.04	1.8	20	46	2.0
76404	2.2	15	<.02	2.5	38	16	.8
76405	2.4	15	.02	2.6	32	24	1.2
76406	2.8	16	<.02	2.1	34	17	.7
76407	2.7	16	<.02	2.4	40	16	.6
76408	4.2	17	<.02	2.5	36	21	.8
76409	2.3	15	<.02	1.6	19	13	.6
76410	1.5	14	<.02	1.8	14	8	.6
76411	2.5	10	<.02	.7	27	14	.8

Table 3.--Continued

Sample	Mn ppm-I	Na %-I	Nb ppm-I	Nd ppm-I	Ni ppm-I	P %-I	Pb ppm-I
23399	580	1.4	<4	21	120	.09	9
23400	510	1.4	B	19	140	.07	12
23401	500	1.6	5	18	110	.07	13
23402	540	1.5	B	17	110	.06	13
23403	660	1.6	B	20	120	.07	16
23404	510	2.7	B	31	10	.08	16
23405	510	2.6	11	27	11	.17	17
23406	780	2.4	B	22	130	.06	18
23407	560	2.6	B	30	17	.07	32
23408	630	2.0	B	26	24	.03	17
23409	660	2.1	B	25	26	.03	21
23410	660	2.1	B	36	19	.03	13
23411	840	1.7	B	9	14	.02	<4
23412	560	1.9	7	16	22	.05	49
24393	290	1.3	B	16	49	.09	11
24394	390	1.6	B	19	53	.08	11
24395	320	1.6	B	13	41	.08	16
24396	360	5.5	B	12	61	.04	7
24397	440	2.0	B	13	67	.05	7
24398	380	2.2	<4	14	34	.06	9
24399D1	700	.7	B	20	71	.14	10
24400	650	2.2	B	23	34	.05	14
24401	520	1.6	B	20	120	.06	10
24402	570	2.2	B	25	42	.05	16
24403	700	2.1	B	24	38	.10	17
24404	540	2.7	B	30	12	.08	18
24405	510	2.8	B	33	9	.08	16
24406	900	2.3	B	21	64	.04	15
24407	560	2.1	B	26	22	.05	28
24408	490	2.4	B	24	13	.03	18
24409	2,300	1.8	B	200	20	.01	18
25392	300	1.5	B	17	37	.11	14
25393	270	1.7	B	13	34	.05	11
25394	350	2.2	B	16	38	.07	18
25395	360	2.4	B	14	43	.09	11
25396	370	2.8	B	34	8	.05	12
25397	440	8.4	B	20	20	.05	11
25398	350	2.7	B	19	18	.05	13
25399	680	.9	B	18	66	.11	13
25400	590	2.1	B	21	35	.06	11

Table 3.--Continued

Sample	Mn ppm-I	Na %-I	Nb ppm-I	Nd ppm-I	Ni ppm-I	P %-I	Pb ppm-I
25401	810	2.2	B	27	37	.10	16
25402	740	2.1	11	26	47	.12	21
25403	770	1.8	B	29	73	.07	23
25404	530	2.7	B	32	11	.06	29
25405	530	2.6	B	28	11	.05	17
25406	840	2.3	B	27	120	.05	35
25407	590	2.1	7	25	22	.03	99
25408D1	800	2.4	B	52	12	.02	15
26391	500	2.0	B	20	36	.11	14
26392	400	1.6	6	19	42	.11	12
26393	580	1.9	B	23	34	.19	13
26394	590	2.3	6	32	28	.10	15
26395	420	2.6	8	22	13	.05	18
26396	340	2.3	5	22	19	.09	14
26397	350	2.8	B	33	6	.05	13
26398	530	1.5	8	22	47	.13	13
26399	510	2.4	7	20	23	.07	16
26400	560	2.5	8	22	12	.07	17
26401	690	2.1	B	29	38	.08	14
26402	800	2.2	B	28	35	.09	20
26403D1	810	2.3	B	27	41	.09	16
26404	520	2.5	B	25	12	.05	17
26405D1	610	2.4	B	31	14	.07	25
26406	650	2.1	11	27	25	.04	21
26407	1,100	2.3	B	20	96	.04	8
26408	1,400	2.2	B	18	27	.04	5
27390	350	2.3	B	23	28	.08	12
27391	690	2.4	B	57	16	.07	13
27392	420	2.0	9	26	22	.08	17
27393	620	1.8	9	29	30	.09	15
27394	590	2.2	B	27	40	.10	10
27395	720	1.8	8	25	31	.11	15
27396	500	1.5	7	20	33	.11	12
27398	490	2.0	B	24	40	.11	12
27399	550	3.1	B	26	24	.09	11
27400D1	570	1.8	10	27	21	.08	15
27401	590	1.8	B	29	25	.08	18
27402	590	2.7	B	28	16	.09	16
27403	680	2.5	B	29	14	.07	20
27404	670	2.4	B	32	17	.10	29

Table 3.--Continued

Sample	Mn ppm-I	Na %-I	Nb ppm-I	Nd ppm-I	Ni ppm-I	P %-I	Pb ppm-I
27405	600	2.6	B	33	14	.05	19
27406	870	2.2	B	29	48	.08	23
27407	1,100	2.3	B	19	93	.04	11
27408	1,300	2.4	B	17	26	.02	6
28389	450	2.1	B	44	23	.09	13
28390	370	2.4	B	32	21	.10	16
28391	710	2.4	B	28	17	.11	13
28392	670	2.3	8	28	33	.12	14
28393	670	2.2	B	25	22	.07	11
28394	640	2.2	8	23	17	.06	14
28395	680	2.5	B	20	28	.11	12
28396	710	2.2	B	23	27	.14	16
28397	830	2.5	B	27	20	.08	12
28398	720	1.7	B	31	32	.06	12
28399	670	2.1	9	27	24	.06	18
28400	640	1.7	B	29	23	.07	13
28401	670	2.0	B	30	22	.10	17
28402	600	2.5	10	27	12	.06	16
28403	640	2.3	10	30	12	.06	16
28404	820	1.8	B	16	110	.06	20
28405	900	2.0	B	22	29	.12	32
28406	1,100	1.8	B	19	49	.11	12
29388	510	1.7	B	39	32	.10	15
29389	650	1.6	13	28	42	.11	14
29390	680	2.7	B	33	11	.08	10
29391	680	2.7	10	31	11	.08	13
29392	680	2.7	B	32	21	.11	14
29393	600	2.4	B	27	22	.04	12
29394	670	2.2	6	26	17	.04	15
29395	590	2.3	B	20	15	.05	16
29396	500	3.8	B	21	12	.07	16
29397	760	2.5	B	24	16	.08	12
29398	900	2.3	B	26	17	.07	11
29399	690	1.5	11	30	28	.07	15
29400	740	2.2	B	24	17	.03	13
29401	860	1.9	B	26	21	.11	22
29402	700	2.2	B	29	19	.05	24
29403	760	2.3	B	22	21	.05	12
29404	1,000	2.0	B	21	24	.05	14
29405	880	2.4	B	20	16	.06	13

Table 3.--Continued

Sample	Mn ppm-I	Na %-I	Nb ppm-I	Nd ppm-I	Ni ppm-I	P %-I	Pb ppm-I
30388	360	1.9	B	23	25	.10	11
30389	600	2.2	B	29	17	.08	11
30390	640	2.6	B	26	15	.10	10
30391	660	2.5	B	31	15	.08	14
30392	730	2.6	B	23	21	.07	13
30393	670	2.2	B	25	28	.04	12
30394	620	2.0	B	24	33	.05	11
30395	640	2.3	B	21	25	.06	17
30396	750	2.3	B	19	21	.08	29
30397D1	770	2.1	B	21	36	.06	16
30398	840	2.2	7	27	18	.05	11
30399	740	1.7	B	29	29	.10	16
30400	580	1.8	B	23	30	.03	14
30401	840	2.3	B	31	16	.08	16
30402	870	1.9	B	31	26	.09	46
31388	440	3.0	B	27	30	.11	9
31389	670	2.6	B	24	15	.09	10
31390	780	2.3	B	26	18	.14	12
31391	600	2.0	B	27	29	.09	34
31392	590	2.3	B	24	22	.06	27
31393	710	2.3	B	22	22	.05	12
31394	460	3.0	B	15	9	.04	18
31395	630	2.4	B	21	18	.07	13
31396	760	1.7	B	21	23	.05	16
31397	720	2.1	B	20	27	.04	17
31398	1,000	2.3	B	26	16	.09	18
31399	790	2.1	B	22	15	.08	29
31400	890	1.5	B	27	46	.05	34
31401	970	2.0	B	43	150	.07	12
31402	1,100	2.5	B	22	20	.03	12
32388	600	1.9	7	28	58	.08	15
32389	720	2.6	7	25	15	.12	12
32390	710	2.5	B	26	12	.07	10
32391	640	2.0	B	26	21	.07	17
32392	630	1.9	B	34	16	.08	11
32393	470	1.9	B	35	14	.13	18
32394	300	2.2	B	26	7	.04	13
32395	660	2.7	B	17	13	.09	13
32396	700	1.8	B	18	21	.04	14
32397	650	1.9	B	18	20	.02	12

Table 3.--Continued

Sample	Mn ppm-I	Na %-I	Nb ppm-I	Nd ppm-I	Ni ppm-I	P %-I	Pb ppm-I
32398	930	1.6	B	20	89	.05	7
61420	950	1.3	B	20	82	.07	23
62418	720	1.8	B	23	34	.06	19
62419	970	1.4	B	16	65	.05	10
62420	530	2.5	11	33	23	.06	18
63418	600	1.9	6	22	45	.07	17
63419	570	1.8	B	23	57	.08	16
63420D1	410	1.4	B	22	58	.09	18
64417	730	1.9	B	21	56	.06	16
64418	610	1.3	7	27	66	.08	14
64419	510	1.4	7	27	61	.11	21
64420	800	.8	B	25	79	.16	16
65416	580	1.6	<4	12	45	.03	11
65417	790	2.0	B	29	54	.12	15
65418	640	2.6	9	31	17	.09	20
65419	550	2.7	B	24	16	.09	19
66415	550	2.7	B	31	12	.05	17
66416	770	2.3	B	26	21	.07	72
66417	710	2.5	B	30	22	.08	19
66418	750	2.5	B	32	27	.12	27
66419	900	1.8	B	24	31	.04	11
66420	960	1.0	B	25	82	.10	49
67412	560	1.6	B	23	76	.05	17
67413	720	2.9	9	31	26	.04	12
67414	530	1.4	B	21	50	.04	18
67415	630	2.5	B	31	17	.07	35
67416	580	2.4	B	25	14	.08	29
67417	620	2.7	B	32	21	.11	35
67418	580	2.7	B	27	17	.11	27
67419	570	1.7	B	27	36	.06	15
67420	750	1.0	B	24	37	.09	23
68411	490	2.1	B	16	73	.10	10
68412D1	700	1.9	B	21	31	.06	14
68413	530	2.3	6	24	12	.04	22
68414	350	2.7	B	26	5	.04	19
68415	640	2.5	9	30	13	.06	17
68416	560	2.5	11	26	9	.06	31
68417	550	1.8	7	23	25	.13	22
68418	570	2.4	B	28	19	.08	14
68419	640	1.9	B	26	17	.13	15

Table 3.--Continued

Sample	Mn ppm-I	Na %-I	Nb ppm-I	Nd ppm-I	Ni ppm-I	P %-I	Pb ppm-I
68420	890	2.5	B	25	35	.10	11
69409	560	1.5	B	22	52	.06	15
69410	610	1.9	B	19	140	.05	12
69411	450	2.6	B	21	30	.06	20
69412	440	2.7	B	22	30	.05	15
69413	350	2.6	B	26	5	.03	14
69414	440	2.7	B	27	6	.05	20
69415	580	2.6	B	28	11	.07	21
69416	500	2.4	B	24	10	.07	14
69417	720	1.9	B	27	23	.07	17
69418	810	1.7	B	36	42	.07	12
69419	1,200	1.9	B	20	25	.04	14
69420	1,500	1.5	B	17	27	.05	17
70407	420	1.8	B	15	41	.04	14
70408	690	2.3	B	19	80	.06	13
70409	830	1.0	B	23	99	.09	16
70410	470	1.8	B	23	40	.04	18
70411	560	2.1	B	23	23	.09	12
70412	350	2.7	B	20	8	.02	31
70413	410	2.6	B	22	8	.03	15
70414	520	2.5	B	28	13	.10	19
70415	470	2.3	B	21	18	.03	16
70416	450	2.5	B	29	14	.04	18
70417	980	2.2	B	27	31	.08	18
70418	1,400	2.5	B	34	35	.22	11
70419	860	1.5	6	33	20	.04	20
71406	560	1.6	B	19	42	.04	13
71407	600	1.2	B	23	73	.07	16
71408D1	660	.9	B	20	99	.08	15
71409	600	1.3	B	22	72	.12	14
71410	470	1.8	B	25	26	.05	18
71411	650	4.2	B	18	37	.04	10
71412	760	1.6	B	23	44	.03	12
71413	500	2.4	B	23	11	.03	17
71414	880	1.1	B	22	56	.08	11
71415	550	2.5	9	26	10	.04	17
71416	690	2.5	B	27	15	.04	14
71417	1,400	1.7	B	27	15	.02	28
71418	1,300	2.2	B	24	24	.03	7
72405	460	1.2	B	16	80	.06	16

Table 3.--Continued

Sample	Mn ppm-I	Na %-I	Nb ppm-I	Nd ppm-I	Ni ppm-I	P %-I	Pb ppm-I
72406	490	1.5	B	18	87	.07	17
72407	590	1.1	B	19	79	.08	17
72408D1	620	2.1	10	25	20	.04	17
72409	530	1.9	B	21	17	.10	12
72410	800	2.0	B	20	23	.06	15
72411	740	2.1	B	21	21	.04	8
72412	790	1.4	B	17	50	.03	10
72414	B	B	B	B	B	B	B
72415	760	2.4	B	27	25	.14	64
72416	1,300	1.5	B	18	14	.05	10
72417	1,300	1.3	B	16	36	.03	5
73404	410	1.3	B	20	56	.08	13
73405	710	1.5	B	18	78	.06	11
73406	550	1.5	B	19	68	.08	13
73407	560	1.1	B	21	75	.10	17
73408	600	2.5	B	22	14	.10	18
73409	570	2.0	7	24	19	.09	17
73410	750	1.9	B	22	25	.05	14
73411	820	2.0	B	20	24	.09	9
73412	680	1.4	B	21	55	.03	13
73414	1,600	1.7	B	30	28	.06	17
73415	740	1.0	B	16	13	.02	16
74402	790	2.2	B	17	53	.06	12
74403	450	1.5	B	18	75	.07	16
74404	520	1.2	6	17	160	.06	15
74405	290	1.6	6	22	71	.04	14
74406	430	2.1	B	19	45	.06	13
74407	690	3.0	B	29	18	.13	16
74408	560	2.5	B	30	15	.11	15
74409	640	1.9	B	24	23	.07	13
74410	750	2.0	B	22	28	.04	14
74411	760	2.0	6	22	20	.03	10
74412	760	1.5	B	19	63	.03	10
75400	570	1.9	B	19	73	.06	13
75401	470	1.8	B	17	99	.05	10
75402	500	1.4	4	19	130	.07	11
75403	620	1.2	6	20	130	.20	13
75404	860	1.1	B	22	140	.09	14
75405	700	2.8	B	25	43	.13	15
75406	480	2.9	B	26	12	.08	18

Table 3.--Continued

Sample	Mn ppm-I	Na %-I	Nb ppm-I	Nd ppm-I	Ni ppm-I	P %-I	Pb ppm-I
75407	480	2.7	B	33	15	.04	21
75408	790	2.3	B	20	17	.04	16
75409	750	2.1	8	20	25	.05	22
75410	790	2.1	5	21	24	.05	11
75411	830	2.0	5	20	18	.02	14
75412	720	.4	B	20	20	.03	12
76400	460	1.7	<4	16	110	.07	11
76401	530	1.4	5	20	140	.07	11
76402	470	1.2	B	22	120	.09	10
76403	540	1.4	B	20	120	.06	11
76404	530	2.5	B	27	13	.08	14
76405	540	2.7	B	25	18	.09	16
76406	540	2.7	B	28	17	.07	19
76407	530	2.6	B	30	14	.05	15
76408	630	2.6	B	31	19	.06	29
76409	640	2.3	B	19	21	.02	19
76410	420	2.4	4	17	9	.02	20
76411	940	1.0	6	24	24	.02	11

Table 3.--Continued

Sample	Sc ppm-I	Se ppm-H	Sr ppm-I	Th ppm-I	Ti %-I	V ppm-I	Y ppm-I
23399	16	.3	260	8	.34	120	17
23400	14	.3	260	7	.33	110	15
23401	12	.4	270	6	.33	110	14
23402	13	.2	260	5	.35	110	14
23403	13	.2	280	8	.30	100	14
23404	6	<.1	390	12	.28	61	20
23405	6	.1	400	16	.26	63	20
23406	14	<.1	320	8	.40	97	21
23407	8	.1	360	21	.34	70	20
23408	9	.2	270	18	.36	70	17
23409	9	.1	300	18	.34	65	18
23410	12	.1	290	23	.37	66	17
23411	9	<.1	210	<4	.95	47	11
23412	12	1.5	290	4	.53	89	11
24393	10	1.5	280	7	.29	120	14
24394	11	1.2	260	9	.29	100	16
24395	8	.4	320	4	.20	68	11
24396	8	.2	260	<4	.25	66	10
24397	10	.3	370	6	.30	93	12
24398	7	<.1	450	5	.29	64	11
24399D1	11	.3	460	13	.29	100	15
24400	12	.2	330	9	.40	86	19
24401	13	.3	270	7	.29	100	14
24402	11	.1	320	13	.37	83	18
24403	10	.1	340	13	.38	94	19
24404	7	<.1	390	20	.31	69	19
24405	6	<.1	400	13	.30	69	23
24406	17	.1	290	10	.45	110	20
24407	8	2.8	310	15	.37	76	19
24408	6	<.1	300	13	.27	46	17
24409	14	.2	180	99	3.10	140	22
25392	7	1.3	220	7	.22	71	13
25393	6	.3	220	6	.21	59	10
25394	9	.7	310	5	.25	77	13
25395	7	.3	330	6	.23	64	12
25396	6	.1	450	8	.31	39	21
25397	7	<.1	310	11	.25	57	12
25398	5	<.1	420	7	.21	41	13
25399	11	.2	490	13	.33	110	15
25400	11	<.1	390	9	.41	97	17

Table 3.--Continued

Sample	Sc ppm-I	Se ppm-H	Sr ppm-I	Th ppm-I	Ti %-I	V ppm-I	Y ppm-I
25401	12	<.1	370	16	.44	100	21
25402	12	1.0	330	13	.40	87	20
25403	14	.1	280	17	.47	110	21
25404	7	<.1	370	20	.31	66	20
25405	7	.1	360	22	.29	63	18
25406	15	.1	300	18	.46	100	21
25407	8	.1	300	11	.31	63	18
25408D1	9	<.1	330	78	.55	170	36
26391	7	.4	310	6	.27	62	15
26392	8	.2	570	10	.25	89	14
26393	8	.2	590	11	.28	94	13
26394	9	.2	380	10	.33	77	21
26395	6	<.1	350	8	.23	41	16
26396	6	<.1	530	8	.23	53	15
26397	6	<.1	440	11	.33	43	19
26398	10	.2	420	11	.35	95	17
26399	8	.1	370	8	.25	58	15
26400	10	<.1	340	10	.35	71	19
26401	12	.2	300	11	.40	87	22
26402	13	<.1	320	18	.43	96	20
26403D1	13	.1	330	10	.44	94	21
26404	7	<.1	360	23	.32	62	18
26405D1	7	<.1	360	19	.35	74	20
26406	9	.1	290	20	.34	70	21
26407	24	.1	290	5	.58	130	25
26408	27	.1	210	<4	.72	220	30
27390	5	.1	360	7	.26	54	15
27391	10	.1	350	17	.53	79	33
27392	9	.1	360	12	.39	99	17
27393	10	.2	330	13	.41	110	18
27394	10	.5	370	12	.32	79	19
27395	13	.1	300	12	.36	96	21
27396	8	.1	660	11	.28	70	16
27398	10	.1	390	11	.34	86	17
27399	10	.1	410	12	.34	76	20
27400D1	12	<.1	300	14	.38	83	22
27401	12	.1	280	18	.41	89	22
27402	7	<.1	380	14	.30	65	20
27403	8	.1	360	16	.37	92	20
27404	9	.1	360	49	.36	90	22

Table 3.--Continued

Sample	Sc ppm-I	Se ppm-H	Sr ppm-I	Th ppm-I	Ti %-I	V ppm-I	Y ppm-I
27405	7	.2	370	15	.32	75	21
27406	16	.1	310	13	.50	110	20
27407	27	.1	240	7	.57	160	31
27408	35	<.1	250	<4	.74	190	35
28389	5	.3	330	16	.36	53	21
28390	5	.1	360	11	.31	51	20
28391	11	.1	370	13	.40	86	20
28392	11	.2	450	11	.35	80	20
28393	13	.4	310	9	.37	83	23
28394	12	.1	310	9	.42	91	22
28395	11	.1	380	9	.34	100	18
28396	10	.3	440	8	.33	84	17
28397	14	.2	310	12	.46	120	26
28398	13	.2	250	17	.42	91	24
28399	11	.1	310	12	.34	71	22
28400	13	<.1	260	18	.46	96	21
28401	13	<.1	280	17	.42	88	21
28402	9	<.1	380	14	.33	76	22
28403	10	<.1	360	16	.35	85	22
28404	16	<.1	260	6	.46	97	18
28405	21	.5	290	6	.48	130	28
28406	24	<.1	330	6	.86	200	19
29388	10	.5	270	16	.35	82	21
29389	11	.6	300	11	.44	100	18
29390	13	.2	410	12	.45	77	24
29391	12	<.1	440	14	.40	75	22
29392	12	.2	380	12	.43	90	23
29393	14	<.1	310	12	.34	78	23
29394	13	.1	300	14	.43	85	24
29395	11	.1	330	7	.38	75	20
29396	9	<.1	410	6	.30	72	18
29397	13	.1	340	9	.43	100	22
29398	16	<.1	290	10	.48	110	29
29399	12	.2	300	15	.46	98	23
29400	14	.1	250	14	.38	83	24
29401	15	.1	290	13	.55	110	22
29402	11	<.1	330	16	.38	89	21
29403	14	.1	360	9	.44	120	19
29404	21	.1	270	7	.57	150	25
29405	12	.1	340	5	.49	92	18

Table 3.--Continued

Sample	Sc ppm-I	Se ppm-H	Sr ppm-I	Th ppm-I	Ti %-I	V ppm-I	Y ppm-I
30388	7	.5	300	9	.26	62	15
30389	10	.2	370	13	.34	74	19
30390	11	.1	400	10	.39	77	19
30391	12	.1	410	19	.49	90	23
30392	16	.1	330	11	.36	86	26
30393	14	.5	290	12	.38	89	23
30394	12	.2	290	9	.37	80	20
30395	10	.1	330	10	.33	68	17
30396	14	.1	320	11	.45	94	20
30397D1	14	.1	280	12	.39	95	21
30398	16	<.1	300	12	.42	96	28
30399	12	<.1	230	14	.43	86	26
30400	12	<.1	240	11	.38	87	21
30401	16	.2	300	18	.48	110	27
30402	15	.1	250	18	.50	100	24
31388	9	.7	300	10	.34	80	17
31389	11	.2	410	11	.37	75	18
31390	11	.3	440	12	.40	88	19
31391	12	.2	330	11	.38	84	20
31392	9	.3	340	18	.34	71	18
31393	10	<.1	280	19	.44	62	24
31394	9	.1	380	5	.21	51	17
31395	14	.1	320	8	.31	75	21
31396	12	.1	270	26	.51	86	19
31397	12	.1	270	11	.39	79	19
31398	18	<.1	270	15	.56	100	28
31399	13	<.1	250	13	.41	85	22
31400	15	.1	210	9	.42	95	23
31401	13	.1	190	20	.53	92	39
31402	22	.1	310	8	.49	140	29
32388	10	.1	290	10	.33	63	18
32389	14	.2	420	7	.44	100	24
32390	16	.2	320	7	.41	93	24
32391	13	.2	300	9	.40	90	21
32392	9	.1	370	14	.42	72	20
32393	8	.2	330	17	.35	61	19
32394	3	.1	470	9	.23	31	12
32395	9	.2	350	7	.37	62	17
32396	11	.1	250	9	.36	70	17
32397	11	<.1	250	13	.36	68	15

Table 3.--Continued

Sample	Sc ppm-I	Se ppm-H	Sr ppm-I	Th ppm-I	Ti %-I	V ppm-I	Y ppm-I
32398	15	.1	260	5	.51	120	21
61420	18	.3	180	9	.35	130	17
62418	9	.1	280	8	.31	78	14
62419	15	.2	190	6	.35	120	14
62420	9	<.1	400	9	.36	69	21
63418	12	.1	360	9	.34	90	16
63419	13	.2	320	12	.36	100	16
63420D1	15	.5	260	11	.38	120	16
64417	10	.2	330	9	.32	96	15
64418	15	.4	260	12	.45	130	19
64419	13	.5	300	11	.34	120	18
64420	17	.9	220	11	.40	180	19
65416	7	.2	180	6	.25	69	11
65417	12	.1	430	21	.44	110	17
65418	8	<.1	540	12	.51	120	16
65419	8	<.1	590	11	.37	72	13
66415	8	<.1	420	12	.33	64	17
66416	11	.1	430	11	.37	87	18
66417	9	.1	470	25	.44	110	17
66418	10	.3	490	20	.49	130	18
66419	16	<.1	480	6	.49	160	18
66420	18	.2	240	8	.45	140	19
67412	12	.3	200	10	.30	97	15
67413	12	.1	370	21	.38	77	24
67414	10	.6	230	12	.30	91	15
67415	9	.2	410	13	.34	74	18
67416	9	<.1	400	11	.37	76	18
67417	8	.3	540	30	.43	92	16
67418	7	<.1	540	16	.42	98	15
67419	10	<.1	380	9	.46	110	18
67420	9	.2	180	6	.35	84	17
68411	12	.8	180	7	.34	110	16
68412D1	11	.1	290	11	.31	88	14
68413	7	<.1	360	18	.27	57	17
68414	5	.1	410	21	.25	43	16
68415	9	<.1	420	15	.42	88	19
68416	8	<.1	420	11	.39	78	18
68417	8	.2	330	11	.42	80	13
68418	8	.3	450	15	.43	91	16
68419	8	<.1	360	11	.40	70	16

Table 3.--Continued

Sample	Sc ppm-I	Se ppm-H	Sr ppm-I	Th ppm-I	Ti %-I	V ppm-I	Y ppm-I
68420	12	.2	1,000	<4	.65	170	12
69409	12	.7	210	10	.32	97	17
69410	14	.1	200	6	.36	100	15
69411	7	<.1	370	12	.25	54	16
69412	6	.1	340	8	.26	51	15
69413	5	<.1	390	10	.25	47	16
69414	5	<.1	410	18	.28	54	14
69415	8	<.1	410	14	.34	69	17
69416	7	<.1	410	15	.34	69	16
69417	7	.1	340	10	.42	85	14
69418	17	.7	380	18	.52	170	22
69419	16	.1	570	12	.53	190	16
69420	27	.1	170	<4	.38	170	22
70407	7	.6	220	7	.24	65	11
70408	12	.4	260	9	.32	93	15
70409	15	.8	170	12	.35	140	19
70410	8	.1	350	14	.29	82	15
70411	7	.3	410	11	.28	63	16
70412	5	<.1	400	7	.23	50	14
70413	6	.1	380	9	.29	62	15
70414	7	<.1	370	15	.32	68	17
70415	7	.2	360	11	.29	55	14
70416	7	<.1	380	14	.36	67	16
70417	10	.2	780	8	.57	150	16
70418	14	.1	1,000	6	.77	230	14
70419	9	.1	370	26	.56	110	18
71406	6	.6	270	9	.39	57	13
71407	13	1.1	210	12	.34	120	16
71408D1	16	.8	200	14	.39	150	17
71409	13	.3	260	12	.35	110	16
71410	9	.1	290	13	.31	76	16
71411	13	.2	390	7	.39	120	15
71412	16	<.1	250	9	.40	130	19
71413	7	.1	340	17	.35	76	15
71414	17	.3	220	10	.40	140	17
71415	7	<.1	380	18	.41	91	15
71416	11	<.1	400	12	.42	91	18
71417	15	.1	260	12	.40	110	25
71418	34	.4	170	4	.45	210	36
72405	10	1.0	240	9	.29	100	14

Table 3.--Continued

Sample	Sc ppm-I	Se ppm-H	Sr ppm-I	Th ppm-I	Ti %-I	V ppm-I	Y ppm-I
72406	9	.8	260	11	.29	89	14
72407	13	1.3	240	14	.32	130	16
72408D1	12	.1	320	22	.43	94	18
72409	7	.2	490	10	.26	53	14
72410	18	<.1	310	5	.46	110	18
72411	17	.1	310	7	.42	99	17
72412	21	.1	250	4	.47	160	18
72414	B	.1	B	B	B	B	B
72415	10	<.1	750	9	.46	120	15
72416	44	.1	250	12	.41	280	33
72417	27	.1	160	<4	.48	150	32
73404	9	1.3	270	9	.30	110	14
73405	9	.7	280	12	.27	89	14
73406	10	.9	240	10	.29	91	13
73407	12	1.1	200	13	.31	110	15
73408	11	.1	370	12	.41	84	18
73409	9	.1	420	12	.31	60	15
73410	17	<.1	340	8	.45	110	17
73411	18	<.1	310	5	.46	110	19
73412	15	.1	240	8	.44	120	17
73414	19	.2	440	15	1.90	300	17
73415	7	<.1	180	8	.90	81	8
74402	11	.2	560	5	.36	110	12
74403	9	.9	220	10	.28	85	14
74404	12	1.0	200	10	.29	100	15
74405	12	.2	270	10	.34	110	16
74406	8	<.1	380	8	.31	74	15
74407	9	.2	340	15	.36	74	19
74408	7	.1	410	15	.32	60	18
74409	11	.2	350	13	.38	84	17
74410	15	.1	280	6	.39	89	18
74411	17	<.1	310	7	.44	100	18
74412	17	<.1	230	5	.42	110	18
75400	11	.1	360	6	.33	100	13
75401	10	.2	300	7	.32	91	13
75402	14	.2	270	7	.32	110	16
75403	17	.4	250	8	.42	150	16
75404	17	.7	200	12	.35	130	17
75405	8	.1	410	12	.31	66	17
75406	6	.1	380	8	.27	51	18

Table 3.--Continued

Sample	Sc ppm-I	Se ppm-H	Sr ppm-I	Th ppm-I	Ti %-I	V ppm-I	Y ppm-I
75407	6	<.1	370	19	.31	72	22
75408	17	<.1	340	7	.43	110	18
75409	15	<.1	330	10	.40	99	16
75410	15	.1	300	6	.43	95	18
75411	15	<.1	300	8	.52	83	20
75412	9	.2	83	7	.65	92	11
76400	12	.2	300	6	.28	89	14
76401	14	.3	270	7	.38	130	15
76402	14	.7	280	5	.31	110	26
76403	15	.5	270	6	.32	120	15
76404	6	.1	400	9	.32	63	19
76405	7	.1	460	13	.29	64	17
76406	7	<.1	380	12	.30	66	19
76407	7	<.1	360	14	.30	62	19
76408	8	<.1	360	39	.36	99	21
76409	10	.1	300	8	.35	64	14
76410	9	<.1	330	7	.19	35	14
76411	11	<.1	180	8	.72	66	17

Table 3.--Continued

Sample	Yb ppm-I	Zn ppm-I	Zr ppm-Q
23399	2	91	70
23400	2	92	30
23401	2	68	100
23402	2	74	100
23403	2	79	100
23404	2	110	20
23405	2	51	150
23406	2	64	200
23407	2	65	100
23408	2	46	200
23409	2	63	200
23410	2	44	300
23411	2	21	100
23412	1	140	70
24393	2	75	20
24394	2	75	150
24395	1	95	100
24396	1	44	150
24397	2	71	20
24398	1	61	15
24399D1	2	98	20
24400	2	67	150
24401	2	85	100
24402	2	67	100
24403	2	71	100
24404	2	55	200
24405	2	37	150
24406	2	71	70
24407	2	64	100
24408	2	52	100
24409	3	140	500
25392	1	67	30
25393	1	76	70
25394	1	71	150
25395	1	53	50
25396	2	24	50
25397	2	60	100
25398	1	34	20
25399	2	87	50
25400	2	67	150

Table 3.--Continued

Sample	Yb ppm-I	Zn ppm-I	Zr ppm-Q
25401	2	78	100
25402	2	79	70
25403	2	97	70
25404	2	55	200
25405	2	39	50
25406	3	75	150
25407	2	49	70
25408D1	4	42	500
26391	2	58	150
26392	2	61	70
26393	2	88	50
26394	2	48	150
26395	2	34	200
26396	2	39	70
26397	2	30	N
26398	2	82	20
26399	2	52	100
26400	2	62	100
26401	2	80	200
26402	2	78	100
26403D1	2	82	200
26404	2	49	100
26405D1	2	62	150
26406	2	74	200
26407	3	78	500
26408	4	68	100
27390	2	45	70
27391	4	43	700
27392	2	77	100
27393	2	96	50
27394	2	65	150
27395	2	85	70
27396	2	58	50
27398	2	79	100
27399	2	73	70
27400D1	2	83	200
27401	2	85	50
27402	2	54	150
27403	2	69	100
27404	3	75	200

Table 3.--Continued

Sample	Yb ppm-I	Zn ppm-I	Zr ppm-Q
27405	2	130	150
27406	2	78	150
27407	4	99	70
27408	4	79	20
28389	2	45	150
28390	2	36	100
28391	2	100	150
28392	2	65	300
28393	2	78	100
28394	2	60	150
28395	2	71	70
28396	2	71	100
28397	3	94	100
28398	2	94	200
28399	2	69	100
28400	2	88	100
28401	2	100	100
28402	2	54	150
28403	2	56	200
28404	2	93	100
28405	3	78	150
28406	2	95	50
29388	2	90	70
29389	2	95	100
29390	2	62	100
29391	2	68	200
29392	3	80	200
29393	3	63	50
29394	3	61	200
29395	2	60	150
29396	2	42	150
29397	3	84	100
29398	3	95	200
29399	3	79	100
29400	3	74	100
29401	3	110	150
29402	2	74	150
29403	2	60	150
29404	3	99	100
29405	2	98	200

Table 3.--Continued

Sample	Yb ppm-I	Zn ppm-I	Zr ppm-Q
30388	2	66	200
30389	2	73	200
30390	2	74	200
30391	3	67	150
30392	3	93	100
30393	2	77	200
30394	2	97	300
30395	2	99	200
30396	2	120	200
30397D1	2	90	100
30398	3	75	70
30399	3	100	200
30400	2	75	150
30401	3	86	200
30402	3	100	300
31388	2	90	150
31389	2	76	100
31390	2	94	200
31391	2	88	100
31392	2	64	300
31393	3	53	500
31394	2	40	70
31395	2	83	50
31396	2	73	200
31397	2	62	100
31398	3	92	150
31399	3	92	150
31400	3	65	150
31401	4	59	300
31402	3	110	200
32388	2	72	500
32389	2	67	200
32390	3	83	70
32391	2	79	70
32392	2	62	200
32393	2	65	300
32394	1	28	200
32395	2	49	150
32396	2	53	150
32397	2	47	300

Table 3.--Continued

Sample	Yb ppm-I	Zn ppm-I	Zr ppm-Q
32398	2	61	300
61420	2	97	100
62418	2	61	150
62419	2	73	70
62420	2	48	50
63418	2	65	150
63419	2	74	200
63420D1	2	81	70
64417	2	74	300
64418	2	77	150
64419	2	71	150
64420	2	86	100
65416	1	38	30
65417	2	79	100
65418	2	67	100
65419	2	100	100
66415	2	44	150
66416	2	76	70
66417	2	79	200
66418	2	110	100
66419	2	76	200
66420	2	92	150
67412	2	80	70
67413	3	49	150
67414	2	77	<0
67415	2	63	150
67416	2	82	70
67417	2	91	200
67418	2	97	200
67419	2	64	200
67420	2	61	200
68411	2	69	150
68412D1	2	69	100
68413	2	37	150
68414	2	32	100
68415	2	45	200
68416	2	51	150
68417	2	55	100
68418	2	61	150
68419	2	55	100

Table 3.--Continued

Sample	Yb ppm-I	Zn ppm-I	Zr ppm-Q
68420	1	81	50
69409	2	89	200
69410	2	62	50
69411	2	38	100
69412	2	40	50
69413	2	32	100
69414	2	68	70
69415	2	52	100
69416	2	83	100
69417	2	47	200
69418	2	82	200
69419	2	73	150
69420	2	140	100
70407	1	55	50
70408	2	65	100
70409	2	120	100
70410	2	55	100
70411	2	59	100
70412	2	31	100
70413	2	58	150
70414	2	72	200
70415	1	42	200
70416	2	41	70
70417	2	62	300
70418	2	120	50
70419	2	46	200
71406	2	48	200
71407	2	110	100
71408D1	2	120	100
71409	2	99	70
71410	2	67	100
71411	2	64	50
71412	2	82	100
71413	2	40	50
71414	2	96	150
71415	2	39	150
71416	2	50	300
71417	3	53	100
71418	4	77	100
72405	2	93	100

Table 3.--Continued

Sample	Yb ppm-I	Zn ppm-I	Zr ppm-Q
72406	2	79	50
72407	2	110	50
72408D1	2	68	100
72409	2	59	70
72410	2	85	50
72411	2	70	100
72412	2	64	100
72414	B	B	300
72415	2	93	70
72416	4	45	200
72417	3	71	100
73404	2	90	100
73405	2	74	100
73406	2	91	100
73407	2	100	100
73408	2	81	100
73409	2	66	100
73410	2	81	200
73411	2	87	300
73412	2	76	100
73414	3	110	200
73415	1	39	500
74402	2	65	50
74403	2	90	100
74404	2	85	100
74405	2	59	100
74406	2	51	150
74407	2	94	200
74408	2	49	100
74409	2	75	100
74410	2	65	150
74411	2	55	100
74412	2	67	100
75400	2	66	70
75401	2	58	30
75402	2	93	150
75403	2	89	100
75404	2	110	100
75405	2	74	50
75406	2	41	100

Table 3.--Continued

Sample	Yb ppm-I	Zn ppm-I	Zr ppm-Q
75407	3	35	200
75408	2	72	70
75409	2	81	100
75410	2	52	200
75411	2	47	500
75412	2	47	700
76400	2	66	150
76401	2	71	100
76402	2	72	100
76403	2	95	100
76404	2	49	100
76405	2	46	70
76406	2	51	70
76407	2	47	150
76408	2	57	200
76409	2	40	300
76410	2	31	100
76411	2	46	500