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Analyses and description of geochemical samples Mill Creek Wilderness Study Area Giles County, Virginia

by

Leung Mei and Frank G. Lesure

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Abstract

Semiquantitative emission spectrographic analyses for 64 elements on 62 stream sediment and 71 rock samples from Mill Creek Wilderness Study area, Giles County, Virginia, are reported here in detail. Locations for all samples are given in Universal Transverse Mercator (UTM) coordinates. Brief descriptions of rock samples are also included. Rocks analysed are mostly sandstone. Samples of hematitic sandstone of the Rose Hill Formation and limonite-cemented sandstone of the Rocky Gap Sandstone contain high values of iron; these rocks are submarginal iron resources. Some of the same iron-rich samples have a little more barium, copper, cobalt, lead, silver, and/or zinc then is in average sandstone, but they do not suggest the presence of economic deposits of these metals. No other obviously anomalous values related to mineralized rock are present in the data.

Introduction

The analyses reported in this open-file report are on samples from the Mill Creek Wilderness Study area and vicinity, Giles County, Virginia, collected by M.P. Foose, F.G. Lesure, D.R. McQueen, P.L. Weis, and Helmuth Wedow in April, 1975. The samples include 62 stream sediments from the study area and vicinity, and 71 rock samples. The rock samples, which are described briefly, are for the most part chip samples of representative materials collected from outcrop or road cut. A few are composite samples of representative float material. Some of the rock is partly weathered, but the freshest material available was generally sampled.

Sample locations and discussion of the results of the analytical work are given by Lesure and others (1978).

Rock samples

Sample No.	Description
VMC 001	Chip sample, 5 m, iron-rich, fine- to coarse-grained sandstone, limonite matrix and thin veins; upper part of Rock Gap Sandstone.
VMC 002	Chip sample, 5 m, iron-rich, porous fine-grained sandstone; lower part Rocky Gap sandstone. Specific gravity (Sp. G.) 2.6.
VMC 003	Chip sample, 1.5 m, clean, fine-grained, well sorted, white sandstone, minor iron stain; Tuscarora Quartzite.
VMC 004	Dark grayish red, fine grained, hematitic sandstone; near base of Rose Hill Formation. Sp. G. 3.12.

VMC 005	Grayish white, medium grained, friable, sandstone, minor iron stain; Keefer Sandstone.
VMC 006	Chip sample, .6 m, dark-grayish-red, hematitic sandstone, contains clay galls; 3 m above base of Rose Hill Formation. Sp. G. 2.90.
VMC 007	Chip sample, 9 m, white, medium-grained, sandstone; Tuscarora Quartzite.
VMC 008	Chip sample, 4.8 m, dark-grayish-red, hematitic sandstone, pale-red clay galls; Rose Hill Formation. Sp. G. 2.96.
VMC 009	Fine- to coarse-grained, hematitic sandstone, above sample 008; Rose Hill Formation. Sp. G. 2.86.
VMC 011	Pale-red, medium- to fine-grained sandstone; upper part of Juniata Formation.
VMC 012	Chip sample, 3 m, sandstone, minor iron stain; near top of Tuscarora Quartzite.
VMC 013	Chip sample, 1.6 m, grayish-brown, very fine-grained sandstone, shaly; upper Juniata Formation.
VMC 014	Chip sample, 0.6 m, reddish-brown, fine-grained sandstone, near middle Juniata Formation.
VMC 016	Chip sample, 1 m, pale-red, iron-stained sandstone, friable; Keefer Sandstone.
VMC 017	Chip sample, white, conglomeratic sandstone; base of Tuscarora Quartzite.
VMC 018	Chip sample, 3 m, fine-grained, iron-stained sandstone; upper Tuscarora Quartzite.
VMC 019	Chip sample, light-grayish-red, very fine-grained sandstone; Juniata Formation.
VMC 020	Chip sample, 1.3 m, very pale-orange, very fine-grained sandstone; Upper Tuscarora Quartzite.
VMC 021	Medium-grained, hematite sandstone; lower Rose Hill Formation.
VMC 022	Chip sample, 1.2 m, dark-grayish-red, fine-grained, hematitic sandstone, minor clay galls; Rose Hill Formation. Sp. G. 2.74.
VMC 023	Chip sample, 1 m, grayish-red, , very fine-grained, cross-bedded, sandstone; upper Juniata Formation.

VMC 024	Chip sample, 1 m, yellowish-gray, quartz conglomerate; lower Tuscarora Quartzite.
VMC 025	Chip sample, 1 m, grayish-red, feldspathic, fine-grained sandstone; Juniata Formation.
VMC 026	Chip sample, 1 m, iron-stained, fine-grained conglomerate; lower Tuscarora Quartzite.
VMC 027	Chip sample, 1 m, grayish-orange, fine-grained sandstone; upper Juniata Formation.
VMC 028	Chip sample, 0.6 m, pale-yellow-brown, fine-grained conglomerate; lower Tuscarora Quartzite.
VMC 029	Chip sample, 0.6 m, pale-orange, very fine-grained sandstone; upper Tuscarora Quartzite.
VMC 030	Chip sample, yellowish-orange, conglomerate; lower Tuscarora Quartzite.
VMC 031	Chip sample, 0.3 m, dark-grayish-red, hematitic sandstone, contains clay galls; lower Rose Hill Formation. Sp. G. 2.99.
VMC 100	Chip sample, 3 m, medium- to coarse-grained, limonite-cemented sandstone; Rocky Gap Sandstone.
VMC 101	Chip sample, 1.5 m, white, fine-grained, iron-stained sandstone; Keefer Sandstone.
VMC 102	Chip sample, 1.5 m, dark-grayish-red, fine- to coarse-grained, hematitic sandstone; upper Rose Hill Formation. Sp. G. 2.98.
VMC 103	Chip sample, 0.6 m, white, fine-grained, quartz sandstone, minor dark minerals; Keefer Sandstone.
VMC 104	Chip sample, 1.5 m, grayish-red, medium-grained, hematitic sandstone, minor clay galls, cross-bedded; upper Rose Hill Formation. Sp. G. 2.74.
VMC 107	Chip sample, 1.5 m, pale-orange, very fine-grained, sandstone; upper Tuscarora Formation.
VMC 108	Chip sample, 1.5 m, light-gray, very fine-grained, sandstone; upper Tuscarora Formation.
VMC 109	Chip sample, 3 m, pale-red, very fine-grained sandstone; upper Tuscarora Formation.

VMC 110	Chip sample, 3 m, dark-grayish-red, fine-grained, hematitic sandstone; lower Rose Hill Formation, 6 m, above base. Sp. G. 2.92.
VMC 111	Chip sample, 0.6 m, cross-bedded, slabby, hematitic sandstone, minor shale chips; Rose Hill Formation. Sp. G. 2.81.
VMC 112	Chip sample, 1.5 m, limonite-cemented, brecciated sandstone; Keefer Sandstone.
VMC 113	Chip sample,3 m, yellowish-gray, very fine-grained sandstone, minor dark minerals; Tuscarora Quartzite.
VMC 114	Chip sample, 3 m, pinkish-gray, fine-grained sandstone; Tuscarora Quartzite.
VMC 115	Composite sample, float from 2 m zone, limonite-cemented sandstone; Rose Hill Formation(?). Sp. G. 3.32.
VMC 116	Chip sample, 1.5 m, light-gray, very fine-grained, sandstone, Tuscarora Quartzite.
VMC 117	Chip sample, 1.5 m, interlayered fine- to coarse-grained, hematitic sandstone, small clay lenses and pebble conglomerate; Rose Hill Formation. Sp. G. 2.89.
VMC 118	Chip sample, 3 m, white, poorly sorted, fine- to coarse-grained, iron-stained sandstone; crossbedded; Keefer Sandstone.
VMC 119	Chip sample, 1.5 m, limonite-cemented, dark-grayish-red, fine- to very coarse-grained sandstone; Rocky Gap Sandstone. Sp. G. 2.81.
VMC 120	Chip sample, 1.5 m, limonite-veined, fine-grained hematitic sandstone; Rose Hill Formation. Sp. G. 3.1.
VMC 127	Chip sample, 1.2 m, grayish-red, shaly sandstone; Rose Hill Formation.
VMC 200	Chip sample, moderate-red-brown, limonite-cemented, porous sandstone; Rocky Gap Sandstone.
VMC 207	Chip sample, grayish red, hematitic sandstone, minor pale-red, clay galls; Rose Hill Formation. Sp. G. 2.07.
VMC 300	Chip sample, 0.3 m, limonite-cemented sandstone; Rocky Gap Sandstone.
VMC 301	Chip sample, 2.5 m, medium- to coarse-grained, limonite-cemented sandstone; Rocky Gap Sandstone. Sp. G. 2.71.

VMC 305	Chip sample, dark-grayish-red, hematitic sandstone, red clay galls; Rose Hill Formation.
VMC 312	Chip sample, grayish-red, limonite-cemented sandstone; Rocky Gap Sandstone.
VMC 400	Chip sample, 2 m, moderate-red, limonite-cemented, friable sandstone; Rocky Gap Sandstone.
VMC 401	Chip sample, limonite-cemented sandstone and grayish-brown, layered limonite cavity filling; Rocky Gap Sandstone.
VMC 402	Chip sample, pinkish-gray, well-sorted, very fine-grained, sandstone Keefer Sandstone.
VMC 403	Composite sample, float, medium- to coarse-grained, hematitic sandstone; Rose Hill Formation. Sp. G. 3.16.
VMC 405	Chip sample, light-gray, iron-stained, very fine-grained, sandstone; Tuscarora Quartzite.
VMC 406	Chip sample, grayish-red, hematitic sandstone; Rose Hill Formation. Sp. G. 2.63.
VMC 408	Chip sample, white, fine-grained sandstone; Keefer Sandstone.
VMC 410	Chip sample, grayish orange, friable sandstone; Keefer Sandstone.
VMC 412	Chip sample, dark grayish-red, fine-grained, hematitic sandstone; 2-3 m below top of Rose Hill Formation.
VMC 414	Chip sample, white, speckled brown, very fine-grained, sandstone; upper Tuscarora Quartzite.
VMC 416	Chip sample, light-gray, speckled brown, very fine-grained sandstone; Keefer Sandstone.
VMC 417	Chip sample, light-yellowish-gray, very fine-grained sandstone; Keefer Sandstone.
VMC 420	Chip sample, grayish-red, slabby sandstone; Juniata Formation.
VGM 101	Chip sample, 0.3 m, medium-gray, poorly sorted, fine- to coarse-grained sandstone, minor pyrite. Keefer Sandstone on U.S. 460 at Gap Mountain.
VGM 102	Chip sample, 5 m, light gray, fine- to coarse-grained sandstone, minor pyrite; lower Keefer sandstone on U.S. 460 at Gap Mountain.
VGM 103	Chip sample, 1 m, dark-grayish-red, fine- to medium-grained, hematitic sandstone; Rose Hill Formation on U.S. 460 at Gap Mountain.

Analytical techniques

The stream sediment samples were dried and sieved in the laboratory; the minus 80-mesh fraction was pulverized and used for analyses. The rock samples were crushed and split.

The semiquantitative emission spectrographic analyses were made using computerized equipment. This method permits a rapid electronic recording on magnetic tape of the optical transmissions of all lines in a spectrogram. The tape is read by a computer which has been programmed to determine the concentrations of 64 elements. The standard deviation of any single answer should be taken as plus 50 percent and minus 33 percent. The third significant figure, when reported, appears solely for programming convenience and should not be used in publications.

All the samples were also tested for gold by a combined fire assay-atomic absorption method in the U.S. Geological Survey laboratories, Reston, Va., by Herbert Kirschenbaum and B.A. McCall. No gold was detected at a limit of detection of 0.05 parts per million (ppm) Au.

Explanation of table

The X and Y coordinates are Universal Transverse Mercator (UTM) grid, zone 17. The X coordinate is the easting value; the Y is the northing. Symbols used include: S, semiquantitative spectrographic analysis, < , less than lower limit; > , greater than upper limit; .0 interference for an element which cannot be resolved by any routine method. The limits apply under ideal conditions, and in some cases interferences will narrow the limits. All data are in parts per million (ppm) except where indicated in percent (%). Elements looked for but not found and the lower limit of determination:

Rocks.--As(<68) except VMC 120--84, VMC 312--288; Au(<10); Bi(<4.6) except VMC 031--7.4; Pd(<0.68); Pt(<6.8); Sb(<68); Sn(<14); Te(<464); U(<147); W(<10); Ge(<3.1) except VMC 001--4.2, VMC 312--3.5; VMC 401--8, VMC 403--3.9; In(<4.6); Re(<10); Ta(<464); Tl(<4.6); Nd(<68; <100); Tb(<10); Ho(<3.1; <10) except VMC 117--15; VMC 406--11, VMC 412--19, VGM 103--12; Tm(<3.1) except VMC 028--3.3, VMC 118--3.5; VGM 101--4.1; Ir(<6.8); Os(<6.8); Rh(<0.68); Ru(<0.68; <1); and Cd(<10) except VMC 024--18.

Stream sediments.--Ag(<0.46) except VMC 311--0.9; As(<68); Au (<10); Bi(<4.6); Cd(<10); Pd(<0.68); Pt(<6.8); Sb(<68); Sn(<14); Te(464); W(<10); Ge(<3.1); Hf(<21); In(<4.6); Re(<10); Ta(<464); Tl(<4.6); Tb(<10); Ho(<3.1; <10); Tm(<3.1) except VMC 311--3.2; Lu(<3.1) except VMC 213--4.3; Ir(<6.8); Os(<6.8); Rh(<0.68; <3.1); and Ru(<0.68).

Reference cited

Lesure, F.G., Williams, B.B., and Dunn, M.L., Jr., 1978, Mineral resources of the Mill Creek, Mountain Lake, and Peters Mountain Wilderness Study Areas, Craig and Giles Counties, Virginia, and Monroe County, West Virginia: U.S. Geol. Survey Open-File Report, OF 78-1076.

Rocks

sample	X-COORD.	Y-COORD.	S-FE%	S-MG%	S-CA%	S-TI%	S-MN	S-AG	S-B	S-BA	S-BE	S-CO	S-CR
VMC001	513,180	4,125,320	>23.500	.0088	<.0007	.0219	107.00	<.46	.0	107.00	1.62	8.98	11.70
VMC002	513,180	4,125,320	20.900	.0069	<.0007	.0197	104.00	<.46	<14.7	<14.70	1.15	6.37	11.80
VMC003	517,670	4,125,340	.444	.0166	.0138	.1230	15.30	<.46	81.0	30.60	<1.00	<1.00	10.00
VMC004	517,850	4,126,270	>23.500	.0600	.0529	.0894	59.30	<.46	77.0	138.00	3.72	1.52	40.40
VMC005	517,990	4,126,530	1.000	.0118	.0093	.1180	21.60	<.46	128.0	24.20	<1.00	<1.00	4.34
VMC006	518,540	4,126,740	15.600	.1260	.0718	.1000	77.80	<.46	43.5	170.00	2.85	3.36	28.00
VMC007	518,970	4,127,070	.493	.0421	.0486	.1540	32.60	<.46	55.2	90.30	<1.00	<1.00	17.50
VMC008	519,760	4,127,650	24.600	.0397	<.0147	.0743	49.70	<.46	41.1	346.00	3.08	1.23	29.30
VMC009	519,740	4,127,700	20.800	.0408	.2260	.0628	109.00	<.46	32.5	197.00	2.41	<1.00	20.60
VMC011	521,570	4,129,030	1.120	.0821	.0098	.1700	75.80	<.46	44.8	147.00	<1.00	1.17	34.10
VMC012	521,200	4,128,890	.616	.0154	.0120	.0545	38.20	<.46	35.9	97.10	<1.00	<1.00	11.40
VMC013	521,570	4,129,920	1.610	.2380	.0838	.2080	258.00	<.46	75.3	278.00	1.04	4.99	29.50
VMC014	521,660	4,129,060	1.750	.3080	.1520	.2670	165.00	<.46	89.9	259.00	1.18	4.67	21.70
VMC016	516,710	4,127,130	5.010	.0245	.0148	.0831	58.30	<.46	100.0	20.00	<1.00	<1.00	21.40
VMC017	516,860	4,127,940	.404	.0213	.0194	.0530	56.50	<.46	50.7	173.00	<1.00	<1.00	17.40
VMC018	516,880	4,127,920	.467	.0146	.0165	.0904	35.90	<.46	49.2	71.40	<1.00	<1.00	17.70
VMC019	516,880	4,128,210	.839	.0750	.0162	.0865	47.30	<.46	41.1	194.00	<1.00	<1.00	24.70
VMC020	517,220	4,129,020	.817	.0344	.0171	.2240	72.40	<.46	107.0	148.00	<1.00	<1.00	18.70
VMC021	517,280	4,129,010	>23.500	.1370	.3520	.0816	124.00	<.46	64.0	213.00	4.56	3.42	46.40
VMC022	517,430	4,128,160	13.600	.1110	.1760	.1800	51.80	<.46	91.4	178.00	1.59	2.25	22.60
VMC023	516,530	4,125,430	1.880	.2470	.0296	.2670	112.00	<.46	92.1	274.00	1.25	3.62	18.50
VMC024	515,670	4,125,380	.103	.0189	.0138	.0872	27.50	<.46	192.0	39.50	<1.00	<1.00	3.52
VMC025	515,470	4,125,000	2.570	.2750	.0971	.2440	114.00	<.46	106.0	154.00	1.29	4.65	27.20
VMC026	515,260	4,124,950	2.870	.0341	.0357	.0944	203.00	<.46	77.2	35.60	<1.00	<1.00	12.10
VMC027	515,270	4,124,380	1.740	.3340	.0896	.2870	124.00	<.46	142.0	313.00	1.33	4.53	23.80
VMC028	515,220	4,124,410	.187	.0311	.0664	.0798	53.80	<.46	74.0	57.00	<1.00	<1.00	5.06
VMC029	514,720	4,123,900	.493	.0174	.0136	.0625	50.10	<.46	66.8	60.80	<1.00	<1.00	2.64
VMC030	513,420	4,123,200	.777	.0187	.0157	.0657	54.70	.48	109.0	123.00	2.26	<1.00	16.40
VMC031	513,390	4,123,270	25.200	.0880	.1980	.1940	60.70	<.46	42.7	104.00	3.47	3.61	43.60
VMC100	513,780	4,124,920	>23.500	.0066	<.0007	.0232	301.00	<.46	<14.7	205.00	1.08	14.80	20.60
VMC101	513,170	4,125,440	.231	.0064	.0089	.0272	6.55	<.46	51.8	17.50	<1.00	<1.00	3.55
VMC102	513,140	4,125,560	27.000	.0838	.7030	.1210	60.30	<.46	50.5	107.00	3.14	2.43	31.70
VMC103	517,880	4,126,880	.255	.0113	.0062	.0310	10.30	<.46	90.7	20.60	<1.00	<1.00	4.30
VMC104	519,740	4,128,260	18.900	.0724	.0398	.0817	61.90	<.46	85.2	153.00	2.13	1.53	30.20
VMC107	520,810	4,129,590	.482	.0159	.0091	.1030	26.90	<.46	83.5	36.10	<1.00	<1.00	10.70
VMC108	520,780	4,129,870	.919	.0250	.0123	.1260	21.10	<.46	108.0	50.30	<1.00	<1.00	18.30
VMC109	520,120	4,129,790	.705	.0264	.0121	.0872	33.60	<.46	109.0	41.90	<1.00	<1.00	9.85
VMC110	519,820	4,129,650	>23.500	.1320	.6820	.0944	58.90	<.46	75.0	186.00	2.88	2.22	20.60
VMC111	515,740	4,126,200	19.500	.0482	.0355	.1500	70.30	<.46	63.7	143.00	2.26	1.18	21.80
VMC112	516,560	4,126,620	18.300	.0232	.0240	.0525	606.00	<.46	23.0	218.00	8.08	7.27	14.20
VMC113	516,760	4,127,490	.227	.0562	.0767	.1520	25.90	<.46	73.1	36.00	<1.00	<1.00	13.40
VMC114	516,110	4,126,730	.773	.0308	.0168	.1530	48.40	<.46	80.7	180.00	<1.00	<1.00	8.34
VMC115	515,710	4,126,300	>23.500	.0634	.0285	.0491	366.00	.50	24.4	105.00	10.40	11.40	20.40
VMC116	515,190	4,126,110	.565	.0358	.0367	.0794	47.00	<.46	71.2	50.20	<1.00	<1.00	21.60
VMC117	514,830	4,125,880	>23.500	.0971	.1510	.1670	101.00	<.46	.0	362.00	3.80	1.62	45.70

Rocks

sample	S-CU	S-LA	S-MO	S-NB	S-NI	S-PB	S-SC	S-SR	S-V	S-Y	S-ZN	S-ZR	S-SI%
VMC001	14.40	<4.64	.0	<10.0	121.00	42.10	5.46	6.57	268.00	9.09	456.0	44.5	8.73
VMC002	14.60	<4.64	11.80	<10.0	65.40	32.70	5.87	7.86	51.60	5.55	410.0	365.0	15.70
VMC003	15.10	12.10	<1.47	<10.0	2.39	<6.81	1.54	5.86	7.48	13.10	<14.7	1,170.0	>34.30
VMC004	3.32	<4.64	.0	16.8	5.77	26.70	15.40	333.00	125.00	65.80	125.0	578.0	26.10
VMC005	<1.00	<4.64	3.05	<10.0	1.56	<6.81	1.73	4.16	8.25	23.50	<14.7	>2,150.0	>34.30
VMC006	30.50	62.80	4.65	13.1	14.80	12.40	11.50	88.00	119.00	55.40	32.8	923.0	>34.30
VMC007	11.10	17.00	<1.47	<10.0	1.95	8.15	1.59	8.98	10.00	21.40	<14.7	766.0	>34.30
VMC008	44.40	<4.64	13.60	<10.0	4.78	27.00	10.80	204.00	81.50	40.20	105.0	283.0	23.90
VMC009	46.10	<4.64	6.33	10.9	4.87	15.60	7.46	138.00	73.20	40.60	84.8	435.0	20.70
VMC011	59.30	8.68	<1.47	<10.0	12.90	<6.81	2.01	50.30	16.40	10.30	<14.7	1,260.0	>34.30
VMC012	160.00	6.54	<1.47	<10.0	4.87	11.90	<1.00	4.60	3.21	7.86	<14.7	142.0	>34.30
VMC013	18.80	26.90	<1.47	<10.0	19.60	<6.81	4.76	120.00	26.50	21.50	<14.7	306.0	>34.30
VMC014	4.94	22.50	<1.47	<10.0	14.40	<6.81	5.29	116.00	27.90	29.20	<14.7	403.0	>34.30
VMC016	<1.00	<4.64	<1.47	<10.0	3.24	16.40	1.55	10.10	9.89	6.45	20.6	585.0	>34.30
VMC017	2.91	28.20	<1.47	<10.0	7.29	16.60	1.82	11.70	7.96	11.20	<14.7	>2,150.0	>34.30
VMC018	<1.00	<4.64	<1.47	<10.0	7.51	<6.81	<1.00	5.53	6.34	6.12	<14.7	238.0	>34.30
VMC019	5.01	9.93	<1.47	<10.0	7.83	<6.81	1.87	19.50	21.80	9.45	<14.7	319.0	>34.30
VMC020	<1.00	14.60	<1.47	13.1	5.49	<6.81	1.98	7.93	10.90	21.00	<14.7	1,910.0	>34.30
VMC021	2.71	<4.64	.0	12.5	19.10	27.00	14.40	194.00	131.00	65.10	119.0	719.0	24.90
VMC022	<1.00	55.50	<1.47	10.9	7.21	10.30	9.31	127.00	61.30	51.40	<14.7	934.0	>34.30
VMC023	9.83	29.00	<1.47	14.3	10.70	<6.81	5.56	29.70	36.90	24.80	<14.7	725.0	>34.30
VMC024	<1.00	9.26	<1.47	<10.0	1.54	44.20	1.32	6.01	6.45	174.00	<14.7	1,840.0	>34.30
VMC025	7.68	15.10	<1.47	12.2	20.60	<6.81	3.92	24.60	40.50	18.40	<14.7	213.0	>34.30
VMC026	14.10	23.70	<1.47	<10.0	2.95	32.70	2.29	8.38	14.00	13.20	<14.7	1,170.0	>34.30
VMC027	16.80	39.20	<1.47	12.1	19.70	<6.81	5.13	96.60	29.90	30.20	<14.7	782.0	>34.30
VMC028	<1.00	<4.64	<1.47	<10.0	1.86	17.80	1.41	6.71	6.75	10.10	<14.7	881.0	>34.30
VMC029	4.62	<4.64	<1.47	<10.0	1.10	7.52	<1.00	4.97	3.63	5.46	<14.7	336.0	>34.30
VMC030	33.90	27.70	<1.47	<10.0	5.82	13.20	2.16	7.39	9.39	34.50	<14.7	>2,150.0	>34.30
VMC031	<1.00	39.20	<1.47	14.2	20.90	16.80	9.96	88.70	78.20	51.30	23.9	704.0	>34.30
VMC100	51.50	<4.64	.0	<10.0	86.90	119.00	5.40	8.41	64.10	14.90	454.0	46.5	19.70
VMC101	37.10	5.03	<1.47	<10.0	2.05	<6.81	<1.00	3.15	2.94	3.21	<14.7	114.0	>34.30
VMC102	39.00	53.10	<1.47	12.9	11.30	19.10	11.40	163.00	83.40	74.00	32.7	1,110.0	>34.30
VMC103	<1.00	<4.64	<1.47	<10.0	1.24	<6.81	1.13	2.87	3.61	12.90	<14.7	387.0	>34.30
VMC104	64.70	47.10	<1.47	<10.0	6.19	18.70	10.60	188.00	62.80	59.80	70.3	599.0	>34.30
VMC107	24.50	8.50	<1.47	11.3	3.19	<6.81	1.84	4.29	6.88	16.50	<14.7	844.0	>34.30
VMC108	35.10	13.90	<1.47	10.1	2.07	<6.81	1.19	6.07	10.10	13.10	<14.7	687.0	>34.30
VMC109	22.50	13.30	<1.47	<10.0	3.01	<6.81	1.26	5.75	8.57	11.80	<14.7	697.0	>34.30
VMC110	27.60	41.10	.0	<10.0	7.24	18.30	13.20	145.00	121.00	47.50	81.5	599.0	>34.30
VMC111	36.80	56.90	<1.47	10.7	5.49	13.10	10.50	155.00	69.90	55.60	<14.7	1,370.0	>34.30
VMC112	135.00	<4.64	<1.47	<10.0	37.30	111.00	3.60	102.00	14.40	53.90	108.0	384.0	>34.30
VMC113	10.60	21.30	<1.47	<10.0	8.38	16.90	1.82	4.77	7.55	22.10	<14.7	1,130.0	>34.30
VMC114	106.00	30.40	<1.47	11.6	3.68	12.60	2.28	9.46	9.27	27.20	<14.7	2,490.0	>34.30
VMC115	204.00	<4.64	.0	<10.0	52.20	37.30	10.30	20.60	21.40	20.80	219.0	487.0	8.01
VMC116	120.00	11.40	<1.47	<10.0	10.70	12.30	1.25	4.65	7.97	6.87	<14.7	308.0	>34.30
VMC117	102.00	61.10	.0	12.6	6.01	21.20	14.70	308.00	92.10	116.00	42.0	1,480.0	>34.30

Rocks

sample	S-AL%	S-NA%	S-K%	S-P%	S-CE	S-GA	S-HF	S-TH	S-YB	S-PR	S-SM	S-EU	S-GD	S-DY	S-ER	S-TM	S-LU
VMC001	.7710	<.0046	.0	<.0681	<43.0	12.90	<21.5	<21.5	1.44	10.40	<4.64	<1.00	<4.64	<6.81	<4.64	<3.16	<3.16
VMC002	.7940	<.0046	<.0681	<.0681	<43.0	12.30	<21.5	<100.0	1.23	9.29	<4.64	<1.00	<4.64	<6.81	<4.64	<3.16	<3.16
VMC003	.2150	<.0046	.1040	<.0681	52.7	<2.15	<21.5	<21.5	1.30	<3.16	<4.64	<1.00	<14.70	<6.81	<4.64	<3.16	<3.16
VMC004	1.0800	<.0046	.0	<.0681	<43.0	17.70	<21.5	<21.5	6.32	17.00	11.40	3.98	10.50	<6.81	<4.64	<3.16	<3.16
VMC005	.0370	<.0046	<.0681	<.0681	<43.0	<2.15	<21.5	<21.5	3.01	<3.16	<31.60	<1.00	<14.70	<6.81	<4.64	<3.16	<3.16
VMC006	1.0100	<.0046	.1740	<.0681	240.0	9.08	<21.5	<21.5	3.95	15.50	12.40	1.32	<14.70	<6.81	<4.64	<3.16	<3.16
VMC007	.6610	<.0046	.1970	<.0681	<43.0	<2.15	<21.5	<21.5	1.92	<3.16	<4.64	<1.00	<14.70	<6.81	<4.64	<3.16	<3.16
VMC008	.6370	<.0046	<.0681	<.0681	<43.0	12.30	<21.5	78.4	3.92	13.60	8.43	<1.00	10.30	<6.81	<4.64	<3.16	<3.16
VMC009	.6120	<.0046	.5440	<.0681	246.0	11.30	<21.5	<100.0	4.20	11.50	9.52	1.79	7.32	<6.81	<4.64	<3.16	<3.16
VMC011	1.0200	<.0046	.7210	<.0681	65.6	<2.15	<21.5	<21.5	3.45	<3.16	4.71	<1.00	15.60	<6.81	<4.64	<3.16	<3.16
VMC012	.1960	<.0046	.0709	<.0681	<43.0	<2.15	<21.5	<21.5	.84	<3.16	<4.64	<1.00	<4.64	<6.81	<4.64	<3.16	<3.16
VMC013	2.1900	.0289	1.3800	.0772	57.9	3.83	<21.5	<21.5	2.99	4.38	<4.64	<1.00	<14.70	<6.81	<4.64	<3.16	<3.16
VMC014	3.0500	>.3160	>1.4700	.0813	44.6	6.37	<21.5	<21.5	4.45	<3.16	<4.64	1.18	<14.70	<6.81	<4.64	<3.16	<3.16
VMC016	.4350	<.0046	.0776	<.0681	<43.0	3.17	<21.5	<21.5	1.06	<3.16	<4.64	<1.00	<4.64	<6.81	<4.64	<3.16	<3.16
VMC017	.5510	<.0046	.1990	<.0681	148.0	<2.15	<21.5	<21.5	2.09	6.07	<31.60	<1.00	5.72	<6.81	<4.64	<3.16	<3.16
VMC018	.2440	<.0046	.1190	.0693	<43.0	<2.15	<21.5	<21.5	.72	<3.16	<4.64	<1.00	<4.64	<6.81	<4.64	<3.16	<3.16
VMC019	.9660	<.0046	.6060	.0780	<43.0	<2.15	<21.5	<100.0	1.01	<3.16	<4.64	<1.00	<4.64	<6.81	<4.64	<3.16	<3.16
VMC020	.5870	<.0046	.1800	<.0681	<43.0	<2.15	<21.5	24.8	1.93	<3.16	<4.64	<1.00	<14.70	<6.81	4.92	<3.16	<3.16
VMC021	1.1300	<.0046	.0	<.0681	<43.0	16.10	28.2	<21.5	5.08	14.90	10.70	3.69	13.70	<6.81	14.20	<3.16	<3.16
VMC022	.9680	<.0046	.4390	.3330	199.0	7.06	<21.5	37.0	4.31	14.40	10.90	1.50	<14.70	<6.81	5.11	<3.16	<3.16
VMC023	1.9800	.0369	.9730	.0723	67.5	4.85	<21.5	25.1	4.14	<3.16	5.85	<1.00	<14.70	<6.81	<4.64	<3.16	<3.16
VMC024	.1640	<.0046	<.0681	<.0681	<43.0	<2.15	<21.5	<21.5	2.73	<3.16	6.62	<1.00	<4.64	<6.81	<4.64	<3.16	<3.16
VMC025	2.4000	.2110	1.2200	<.0681	<43.0	5.70	<21.5	<21.5	2.12	<3.16	<4.64	<1.00	<14.70	<6.81	<4.64	<3.16	<3.16
VMC026	.5350	<.0046	.1670	.0790	52.2	2.82	<21.5	33.3	1.22	<3.16	5.95	<1.00	<4.64	<6.81	<4.64	<3.16	<3.16
VMC027	2.6700	.0416	>1.4700	.0847	92.6	4.83	<21.5	24.2	3.78	7.59	7.51	1.28	<14.70	<6.81	6.24	<3.16	<3.16
VMC028	.2410	<.0046	.0721	.0731	<43.0	<2.15	<21.5	24.8	2.05	<3.16	<4.64	<1.00	<4.64	<6.81	<4.64	3.35	4.12
VMC029	.1980	<.0046	.0685	<.0681	<43.0	<2.15	<21.5	23.3	.77	<3.16	<4.64	1.15	<4.64	<6.81	<4.64	<3.16	<3.16
VMC030	.4740	<.0046	.1290	<.0681	65.6	<2.15	<21.5	28.3	5.73	3.88	<31.60	1.61	4.95	<6.81	<4.64	<3.16	<3.16
VMC031	1.1000	<.0046	.4710	<.0681	194.0	10.20	<21.5	54.8	2.56	9.95	7.94	<1.00	<14.70	<6.81	6.23	<3.16	<3.16
VMC100	1.6600	<.0046	.0	<.0681	<43.0	18.80	33.6	114.0	2.48	9.46	<4.64	<1.00	<4.64	<6.81	<4.64	<3.16	<3.16
VMC101	<.0316	<.0046	<.0681	<.0681	<43.0	<2.15	<21.5	<21.5	.30	<3.16	<4.64	<1.00	<4.64	<6.81	<4.64	<3.16	<3.16
VMC102	1.2600	<.0046	.3810	<.0681	86.6	11.20	<21.5	48.2	4.45	10.40	10.20	1.74	<14.70	<6.81	14.20	<3.16	<3.16
VMC103	.1480	<.0046	<.0681	<.0681	<43.0	<2.15	<21.5	<21.5	.77	<3.16	<4.64	<1.00	<4.64	<6.81	<4.64	<3.16	<3.16
VMC104	1.3500	<.0046	.6050	<.0681	198.0	10.30	<21.5	54.3	5.16	10.20	8.56	1.90	13.00	<6.81	9.88	<3.16	<3.16
VMC107	.3220	<.0046	.0935	<.0681	45.6	<2.15	<21.5	23.2	1.59	<3.16	<4.64	<1.00	<14.70	<6.81	<4.64	<3.16	<3.16
VMC108	.4390	<.0046	.1770	<.0681	51.3	<2.15	<21.5	<21.5	1.25	<3.16	<4.64	1.04	<14.70	<6.81	<4.64	<3.16	<3.16
VMC109	.3560	<.0046	.1240	<.0681	43.5	<2.15	<21.5	<21.5	1.01	<3.16	<4.64	<1.00	<4.64	<6.81	<4.64	<3.16	<3.16
VMC110	.9550	<.0046	.0	.5620	200.0	10.90	<21.5	<100.0	4.04	12.40	8.01	<1.00	9.73	<6.81	8.25	<3.16	<3.16
VMC111	.8340	<.0046	.3380	<.0681	208.0	8.01	<21.5	<100.0	2.30	13.20	10.50	1.51	<14.70	<6.81	7.66	<3.16	<3.16
VMC112	.6310	<.0046	<.0681	.6880	<43.0	6.11	<21.5	<100.0	3.03	6.29	7.13	1.51	9.00	<6.81	9.59	<3.16	<3.16
VMC113	.5240	.0048	.2040	<.0681	<43.0	<2.15	<21.5	32.1	1.27	3.84	<4.64	<1.00	<14.70	<6.81	<4.64	<3.16	<3.16
VMC114	.6320	<.0046	.2080	.0942	54.5	<2.15	30.9	<21.5	3.42	5.39	7.36	<1.00	<14.70	<6.81	<4.64	<3.16	<3.16
VMC115	1.4900	<.0046	.0	1.7100	<43.0	19.40	27.0	118.0	2.19	12.40	<4.64	<1.00	5.14	<6.81	<4.64	<3.16	<3.16
VMC116	.4170	<.0046	.1550	<.0681	<43.0	<2.15	<21.5	<21.5	.75	<3.16	<4.64	<1.00	<4.64	<6.81	<4.64	<3.16	<3.16
VMC117	1.1800	.0119	.0	<.0681	239.0	12.10	24.7	<21.5	5.88	14.30	11.20	2.85	<14.70	<6.81	20.10	<3.16	<3.16

Rocks--continued

sample	X-COORD.	Y-COORD.	S-FE%	S-MG%	S-CA%	S-TI%	S-MN	S-AG	S-B	S-BA	S-BE	S-CO	S-CR
VMC118	514,400	4,125,840	1.110	.0226	.0126	.1620	48.70	<.46	90.7	124.00	<1.00	<1.00	7.78
VMC119	514,180	4,125,540	>23.500	.0021	.0236	.0137	88.00	<.46	.0	62.10	<1.00	<1.00	20.40
VMC120	514,040	4,124,040	24.400	.0368	.0244	.0517	3,350.00	.55	55.4	283.00	6.95	21.30	24.10
VMC127	513,160	4,123,780	4.810	.1180	.0343	.1390	84.00	<.46	110.0	193.00	2.41	3.63	24.90
VMC200	513,470	4,125,420	>23.500	.0147	<.0007	.0236	<68.10	<.46	<14.7	429.00	1.90	10.60	13.90
VMC207	518,580	4,128,360	11.100	.1470	.1050	.1280	107.00	<.46	108.0	73.40	2.78	4.60	<14.70
VMC300	513,670	4,124,970	>23.500	.0152	<.0007	.0266	323.00	<.46	<14.7	107.00	<1.00	94.20	15.50
VMC301	513,400	4,125,340	>23.500	.0071	<.0007	.0170	206.00	.53	.0	87.10	3.76	34.30	19.60
VMC305	516,260	4,125,820	>23.500	.0447	.0399	.1350	42.60	<.46	.0	320.00	4.11	1.30	39.30
VMC312	515,260	4,125,860	>23.500	.0321	.0261	.0470	211.00	.88	26.4	646.00	6.75	8.13	21.20
VMC400	513,770	4,124,920	>23.500	.0124	<.0007	.0276	301.00	<.46	<14.7	119.00	<1.00	21.10	43.40
VMC401	513,170	4,125,330	>23.500	.0061	<.0007	<.0003	52.20	.67	<14.7	73.30	<1.00	2.39	<1.00
VMC402	517,220	4,126,550	.567	.0340	.0089	.1300	14.80	<.46	110.0	45.40	<1.00	<1.00	21.50
VMC403	517,100	4,136,540	>23.500	.1120	.0200	.1210	112.00	<.46	54.5	195.00	3.79	5.16	41.80
VMC405	516,890	4,126,590	1.220	.0202	.0077	.1490	37.40	<.46	79.9	31.50	<1.00	<1.00	14.60
VMC406	516,750	4,126,800	15.500	.0978	.1100	.1070	59.10	<.46	35.5	117.00	1.54	2.28	28.10
VMC408	516,770	4,127,030	.956	.0242	.0252	.1270	22.70	<.46	53.0	324.00	1.14	<1.00	34.60
VMC410	517,360	4,127,700	1.160	.0278	.0056	.0380	44.00	<.46	19.9	25.40	<1.00	<1.00	5.53
VMC412	517,590	4,128,050	21.500	.1190	.0671	.0885	92.60	<.46	15.1	78.60	2.30	3.77	34.50
VMC414	517,920	4,128,460	.333	.0214	.0089	.0726	98.50	<.46	61.3	39.20	<1.00	2.24	4.73
VMC416	518,110	4,127,620	.188	.0284	.0555	.0302	21.70	<.46	98.4	6.62	<1.00	<1.00	26.20
VMC417	518,060	4,128,090	.429	.0234	.0080	.0303	16.20	<.46	13.8	214.00	<1.00	2.79	33.10
VMC420	518,200	4,128,270	3.550	.8430	.1360	.7700	112.00	<.46	181.0	350.00	2.44	11.00	57.00
VGM101	546,180	4,126,420	1.490	.1160	.0381	.4130	38.80	4.18	323.0	77.60	4.24	2.38	33.60
VGM102	546,180	4,126,420	3.090	.1010	.0380	.2470	40.30	3.64	230.0	90.60	1.53	2.17	23.00
VGM103	546,180	4,126,420	>23.500	.2770	.9780	.2570	134.00	.63	160.0	162.00	4.92	9.60	36.80

Rocks--continued

sample	S-CU	S-LA	S-MO	S-NB	S-NI	S-PB	S-SC	S-SR	S-V	S-Y	S-ZN	S-ZR	S-SI%
VMC118	19.20	9.12	<1.47	12.2	2.83	7.58	1.99	6.77	11.10	11.90	<14.7	1,280.0	>34.30
VMC119	53.10	<4.64	.0	<10.0	10.40	35.00	3.17	20.50	326.00	6.60	190.0	350.0	36.20
VMC120	18.70	37.60	<1.47	<10.0	11.20	14.90	9.67	197.00	52.60	26.50	81.1	353.0	23.60
VMC127	115.00	47.20	2.80	13.9	14.30	7.97	8.69	145.00	53.40	51.70	<14.7	957.0	>34.30
VMC200	103.00	<4.64	.0	<10.0	106.00	85.50	6.36	15.10	72.00	11.20	467.0	73.3	24.70
VMC207	34.30	37.20	<1.47	11.1	16.90	7.05	10.10	130.00	56.00	48.90	<14.7	887.0	>34.30
VMC300	250.00	<4.64	.0	<10.0	125.00	136.00	5.94	80.10	27.30	19.60	598.0	67.3	25.50
VMC301	80.80	<4.64	.0	<10.0	131.00	51.00	19.40	6.90	85.00	13.00	587.0	557.0	20.70
VMC305	32.30	<4.64	.0	12.9	4.82	24.00	14.10	218.00	121.00	58.10	57.0	731.0	31.40
VMC312	31.00	35.80	.0	<10.0	36.70	446.00	23.40	100.00	33.50	23.00	142.0	316.0	28.30
VMC400	50.80	<4.64	.0	<10.0	78.90	58.20	5.16	8.75	98.60	12.50	429.0	71.5	21.70
VMC401	9.89	<4.64	.0	<10.0	22.40	45.90	10.80	4.12	588.00	11.00	280.0	17.9	3.87
VMC402	14.60	20.40	<1.47	<10.0	7.96	42.80	1.77	7.26	12.70	13.60	<14.7	449.0	>34.30
VMC403	92.90	<4.64	.0	14.2	17.10	47.00	13.30	159.00	98.20	95.00	83.4	854.0	27.00
VMC405	11.10	15.40	<1.47	13.4	3.23	40.20	1.73	3.35	10.10	22.90	<14.7	1,510.0	>34.30
VMC406	81.10	69.60	<1.47	11.0	9.97	18.60	10.60	177.00	60.00	118.00	<14.7	>2,150.0	>34.30
VMC408	61.00	19.50	<1.47	11.0	20.30	8.79	1.85	165.00	8.09	40.00	<14.7	679.0	>34.30
VMC410	58.90	5.87	<1.47	<10.0	3.83	6.73	<1.00	3.40	18.20	20.90	<14.7	241.0	>34.30
VMC412	85.90	86.50	<1.47	12.4	13.80	14.50	10.90	143.00	77.10	380.00	80.0	982.0	>34.30
VMC414	10.30	<4.64	<1.47	<10.0	2.61	29.00	<1.00	4.09	4.86	9.89	<14.7	342.0	>34.30
VMC416	16.70	<4.64	<1.47	<10.0	31.10	6.92	<1.00	1.83	3.30	4.57	<14.7	255.0	>34.30
VMC417	37.40	<4.64	<1.47	<10.0	27.60	357.00	<1.00	4.82	1.52	2.77	<14.7	189.0	>34.30
VMC420	223.00	52.50	<1.47	16.1	45.70	33.90	11.80	137.00	60.90	56.30	23.9	797.0	>34.30
VGM101	85.10	46.50	2.70	26.4	18.50	92.30	4.79	164.00	30.10	106.00	<14.7	>2,150.0	>34.30
VGM102	14.20	47.00	2.65	14.4	8.59	135.00	6.48	20.00	30.90	51.30	<14.7	>2,150.0	>34.30
VGM103	25.50	67.60	.0	20.6	28.00	27.50	16.30	302.00	103.00	92.90	57.9	>2,150.0	>34.30

Rocks--continued

sample	S-AL%	S-NA%	S-K%	S-P%	S-CE	S-GA	S-HF	S-TH	S-YB	S-PR	S-SM	S-EU	S-GD	S-DY	S-ER	S-TM	S-LU
VMC118	.3150	<.0046	.1180	<.0681	<43.0	<2.15	32.1	<21.5	1.57	<3.16	4.88	<1.00	<14.70	<6.81	<4.64	3.53	<3.16
VMC119	.2280	<.0046	.0	<.0681	<43.0	<2.15	<21.5	<21.5	1.13	6.54	<4.64	<1.00	<4.64	<6.81	<4.64	<3.16	<3.16
VMC120	1.0400	<.0046	.5900	<.0681	158.0	9.29	<21.5	115.0	2.24	9.29	7.29	1.49	9.89	<6.81	7.42	<3.16	<3.16
VMC127	1.1000	<.0046	.5240	<.0681	155.0	4.12	<21.5	<21.5	2.38	9.20	9.26	1.04	<14.70	<6.81	5.89	<3.16	<3.16
VMC200	1.2800	<.0046	.0	<.0681	<43.0	11.50	24.8	<21.5	1.47	9.52	<4.64	<1.00	<4.64	<6.81	<4.64	<3.16	<3.16
VMC207	1.3500	<.0046	.5690	<.0681	123.0	5.72	<21.5	24.7	2.72	7.34	8.03	<1.00	<14.70	<6.81	7.38	<3.16	<3.16
VMC300	2.4300	<.0046	.0	<.0681	<43.0	10.60	<21.5	107.0	1.74	9.26	<4.64	1.93	<4.64	<6.81	<4.64	<3.16	<3.16
VMC301	.9310	<.0046	.0	<.0681	<43.0	17.60	22.3	<21.5	1.87	11.50	<4.64	<1.00	<4.64	<6.81	<4.64	<3.16	<3.16
VMC305	.9890	<.0046	.0	<.0681	<43.0	15.10	<21.5	128.0	4.57	14.50	<4.64	1.55	<14.70	<6.81	<4.64	<3.16	<3.16
VMC312	1.8400	<.0046	.0	.9060	199.0	11.10	<21.5	68.2	2.35	10.10	6.53	1.24	7.71	<6.81	<4.64	<3.16	<3.16
VMC400	1.7800	<.0046	.0	<.0681	<43.0	16.40	29.3	<21.5	2.39	8.31	<4.64	<1.00	<4.64	<6.81	<4.64	<3.16	<3.16
VMC401	.7540	<.0046	.0	<.0681	<43.0	<2.15	39.8	<21.5	1.69	10.10	<4.64	<1.00	<4.64	<6.81	<4.64	<3.16	<3.16
VMC402	.5650	<.0046	.2520	<.0681	55.9	<2.15	<21.5	<21.5	1.21	<3.16	<4.64	<1.00	<14.70	<6.81	<4.64	<3.16	<3.16
VMC403	1.0900	<.0046	.0	<.0681	<43.0	20.40	<21.5	131.0	6.58	15.40	10.40	3.56	<14.70	<6.81	18.00	<3.16	<3.16
VMC405	.3830	<.0046	.1130	<.0681	<43.0	<2.15	<21.5	26.5	1.34	<3.16	4.76	<1.00	<14.70	<6.81	<4.64	<3.16	4.94
VMC406	.6990	<.0046	.1040	<.0681	191.0	6.95	<21.5	43.2	4.59	15.80	60.50	3.34	23.80	<6.81	17.70	<3.16	<3.16
VMC408	.4540	<.0046	.1180	.1000	44.4	<2.15	<21.5	<21.5	3.05	3.24	5.52	1.22	<14.70	<6.81	<4.64	<3.16	4.69
VMC410	.2100	<.0046	<.0681	<.0681	<43.0	<2.15	<21.5	<21.5	1.46	<3.16	<4.64	<1.00	<4.64	<6.81	<4.64	<3.16	<3.16
VMC412	.9100	<.0046	<.0681	<.0681	197.0	8.65	<21.5	<21.5	13.80	18.80	13.80	7.70	63.20	80.70	58.60	<3.16	<3.16
VMC414	.1620	<.0046	.0811	<.0681	<43.0	<2.15	<21.5	<21.5	.83	<3.16	<4.64	<1.00	<4.64	<6.81	<4.64	<3.16	3.18
VMC416	<.0316	<.0046	<.0681	<.0681	<43.0	<2.15	<21.5	<21.5	.62	<3.16	<4.64	<1.00	<4.64	<6.81	<4.64	<3.16	<3.16
VMC417	.0716	<.0046	.0687	<.0681	<43.0	<2.15	<21.5	<21.5	.24	<3.16	<4.64	<1.00	<4.64	<6.81	<4.64	<3.16	5.03
VMC420	7.5300	>.3160	>1.4700	.1110	95.7	14.40	<21.5	<21.5	5.41	5.70	6.84	1.99	<14.70	16.50	14.70	<3.16	4.29
VGM101	1.6900	.0193	.6610	<.0681	112.0	4.53	<21.5	<21.5	9.12	9.50	<31.60	3.01	24.70	13.60	13.40	4.15	4.80
VGM102	2.3200	.0316	.9950	<.0681	105.0	4.72	<21.5	21.8	7.26	9.68	13.40	2.85	16.80	16.30	15.10	<3.16	4.33
VGM103	1.8500	.0070	.0	.7920	245.0	16.70	<21.5	94.8	5.38	16.40	12.20	1.57	<14.70	17.50	18.80	<3.16	<3.16

Stream Sediments

sample	X-COORD.	Y-COORD.	S-FE%	S-MG%	S-CA%	S-TI%	S-MN	S-B	S-BA	S-BE	S-CO	S-CR	S-CU
VMC010	519,790	4,128,490	5.150	.2560	.1010	.1760	629.0	108.00	272.0	3.61	19.30	35.50	24.40
VMC015	522,020	4,130,850	4.570	.7780	.6260	.3230	1,320.0	83.80	384.0	4.64	20.10	43.70	32.00
VMC105	520,740	4,129,380	.857	.0432	.0241	.0787	112.0	101.00	72.7	<1.00	4.72	5.91	<1.00
VMC106	520,910	4,129,520	.698	.0397	.0438	.0667	26.4	35.50	54.6	<1.00	<1.00	4.73	3.96
VMC121	513,160	4,124,600	.304	.0084	.0213	.0374	11.6	3.61	53.4	<1.00	<1.00	1.83	<1.00
VMC122	513,290	4,124,460	.610	.0237	.0197	.0822	47.6	70.40	57.0	<1.00	1.46	3.98	<1.00
VMC123	512,940	4,124,230	2.420	.0993	.0248	.0821	240.0	66.40	111.0	1.75	22.50	17.10	10.70
VMC124	514,010	4,124,300	.410	.0178	.0104	.1090	16.9	61.50	31.7	<1.00	<1.00	3.62	<1.00
VMC125	513,520	4,123,950	.363	.0208	.0082	.0552	85.5	13.10	33.7	<1.00	6.08	3.43	3.79
VMC126	513,230	4,123,770	2.990	.1520	.0859	.1520	598.0	42.00	165.0	2.08	14.00	19.80	6.55
VMC128	513,700	4,122,780	.935	.0756	.0440	.1470	227.0	26.50	110.0	<1.00	3.93	7.14	2.10
VMC129	514,340	4,122,800	1.170	.1440	.1240	.2060	277.0	76.70	144.0	1.42	3.79	14.00	12.20
VMC130	514,960	4,122,840	2.320	.3820	.3840	.1880	582.0	119.00	219.0	1.71	10.70	29.10	24.40
VMC201	518,910	4,128,020	1.420	.1130	.1270	.1490	268.0	44.20	117.0	<1.00	3.48	18.70	3.61
VMC202	519,510	4,128,680	1.280	.0301	.0141	.0595	298.0	65.00	37.4	<1.00	2.41	5.33	1.65
VMC203	520,300	4,129,300	2.200	.0729	.0307	.1510	349.0	54.10	122.0	1.94	4.50	11.20	2.14
VMC204	520,400	4,129,380	1.740	.0776	.0156	.1180	309.0	82.60	96.6	1.36	9.77	13.90	5.68
VMC205	519,510	4,128,790	1.890	.0775	.0215	.0819	435.0	54.70	123.0	1.33	16.00	17.80	9.86
VMC206	518,920	4,128,140	.971	.0345	.0171	.0657	91.5	70.00	61.3	<1.00	2.45	4.53	<1.00
VMC208	518,210	4,127,700	1.680	.1160	.0369	.1910	297.0	47.10	120.0	<1.00	3.62	22.30	7.09
VMC209	518,190	4,127,610	1.290	.0704	.0428	.1250	140.0	87.90	89.2	1.18	7.37	10.20	2.49
VMC210	518,010	4,127,520	1.250	.0809	.0306	.1990	171.0	77.30	80.8	<1.00	3.03	22.20	3.03
VMC211	517,780	4,127,560	1.070	.1020	.0213	.2320	76.5	78.10	109.0	<1.00	2.61	19.40	6.88
VMC212	517,740	4,127,530	1.220	.0646	.0265	.1280	192.0	65.20	100.0	1.12	5.11	10.50	1.28
VMC213	517,730	4,127,470	1.440	.0846	.0327	.1880	197.0	216.00	85.1	1.00	5.67	8.65	<1.00
VMC214	516,930	4,126,950	1.540	.0830	.0319	.1990	240.0	169.00	85.4	2.97	3.13	16.40	2.33
VMC215	515,960	4,130,530	1.910	.9720	1.2700	.1660	423.0	40.60	183.0	1.88	9.99	22.40	13.90
VMC216	515,560	4,130,390	2.220	.9200	2.6500	.2580	663.0	48.80	265.0	2.48	11.50	24.90	20.30
VMC217	513,860	4,128,140	2.410	.9630	1.0200	.2470	561.0	36.30	334.0	2.59	17.40	34.10	27.20
VMC218	513,970	4,127,580	1.950	.8660	.5680	.3110	576.0	61.40	280.0	2.21	12.10	23.80	16.90
VMC219	515,130	4,127,540	3.650	.9610	.5410	.3410	787.0	99.30	364.0	4.05	16.40	39.50	27.20
VMC220	515,380	4,127,860	2.460	.4430	.4040	.3770	1,020.0	65.90	354.0	3.28	11.60	27.70	16.10
VMC221	514,940	4,128,850	3.760	.6040	.3950	.3380	784.0	56.80	419.0	3.17	30.20	52.30	29.20
VMC222	514,890	4,128,800	1.980	.6510	.6570	.2430	634.0	76.30	213.0	1.95	12.30	23.00	16.50
VMC223	511,590	4,126,840	1.810	.2250	.3830	.3070	1,340.0	49.00	326.0	3.12	22.20	27.40	21.60
VMC224	511,440	4,126,850	1.340	.1700	.1980	.1020	215.0	69.70	77.8	<1.00	2.48	11.90	6.72
VMC225	519,240	4,131,230	1.460	.3070	.4810	.4030	1,540.0	60.20	374.0	2.65	13.70	25.40	26.00
VMC226	522,290	4,131,070	3.740	.9980	1.2500	.3480	1,470.0	92.80	363.0	4.33	16.40	33.50	26.00
VMC227	521,770	4,131,110	1.780	.2650	.3280	.2330	646.0	56.00	238.0	3.12	10.70	21.10	15.60
VMC228	521,260	4,131,210	.865	.1340	.0716	.1330	147.0	59.20	99.0	<1.00	4.57	7.69	2.06
VMC229	516,160	4,123,040	3.780	.8400	.4100	.3010	664.0	80.20	332.0	3.66	17.90	37.40	30.10
VMC230	515,520	4,122,960	2.580	.4420	.3820	.2610	670.0	85.90	234.0	2.43	15.90	23.70	13.60
VMC231	517,590	4,123,450	3.610	.6930	.5080	.3840	959.0	86.90	319.0	3.06	15.70	37.60	16.50
VMC232	518,220	4,124,050	2.840	.8080	.5510	.2840	908.0	66.70	314.0	3.55	14.20	23.00	31.00
VMC233	519,560	4,125,720	2.820	.4540	.2420	.5530	1,070.0	74.10	304.0	2.68	16.40	29.20	19.30

Stream Sediments

sample	S-NA%	S-K%	S-P%	S-CE	S-GA	S-TH	S-YB	S-PR	S-ND	S-SM	S-EU	S-GD	S-DY	S-ER
VMC010	.0430	1.2400	.1280	62.7	8.41	<21.5	4.38	6.43	<68.1	4.83	1.03	<14.70	<6.81	<4.64
VMC015	>.3160	>1.4700	.2060	106.0	16.50	<21.5	4.09	9.65	<68.1	5.22	<1.00	<14.70	<6.81	6.18
VMC105	<.0046	.0838	<.0681	<43.0	<2.15	<21.5	3.12	<3.16	<68.1	<4.64	<1.00	4.72	<6.81	<4.64
VMC106	<.0046	.0687	<.0681	<43.0	<2.15	<21.5	.37	<3.16	<68.1	<4.64	1.05	<4.64	<6.81	<4.64
VMC121	<.0046	<.0681	<.0681	<43.0	<2.15	<21.5	.85	<3.16	<68.1	<4.64	<1.00	<4.64	<6.81	<4.64
VMC122	<.0046	<.0681	<.0681	51.9	<2.15	<21.5	1.62	<3.16	<68.1	<4.64	<1.00	<4.64	<6.81	<4.64
VMC123	.0211	.5360	.0793	<43.0	4.50	<21.5	2.32	<3.16	<68.1	<4.64	<1.00	<4.64	<6.81	<4.64
VMC124	<.0046	<.0681	.0696	52.0	<2.15	<21.5	.99	<3.16	<68.1	<4.64	<1.00	<14.70	<6.81	<4.64
VMC125	<.0046	<.0681	.0723	<43.0	<2.15	<21.5	.80	<3.16	<68.1	<4.64	<1.00	<4.64	<6.81	<4.64
VMC126	.0287	.5050	.0777	55.3	4.23	38.3	1.69	3.57	<68.1	<4.64	1.09	<14.70	<6.81	<4.64
VMC128	.0133	.2630	<.0681	<43.0	2.18	23.2	1.01	<3.16	<68.1	<4.64	<1.00	<14.70	<6.81	<4.64
VMC129	.0810	.6810	.0874	63.2	2.64	<21.5	2.33	4.97	<68.1	5.93	<1.00	<14.70	<6.81	<4.64
VMC130	.1610	1.1900	.1360	51.1	7.24	35.7	2.40	3.74	<68.1	<4.64	<1.00	<14.70	<6.81	<4.64
VMC201	.0365	.4340	.0682	<43.0	3.64	<21.5	1.37	<3.16	<68.1	<4.64	<1.00	<14.70	<6.81	<4.64
VMC202	<.0046	<.0681	.0692	43.0	<2.15	<21.5	5.72	<3.16	<68.1	<4.64	<1.00	5.29	<6.81	<4.64
VMC203	.0078	.2750	.0773	99.4	3.13	<21.5	6.48	3.66	<68.1	<31.60	1.30	<14.70	9.85	4.69
VMC204	.0122	.2930	.0725	98.8	<2.15	<21.5	2.38	3.26	<68.1	<31.60	<1.00	<14.70	<6.81	<4.64
VMC205	.0158	.3860	<.0681	50.9	2.76	32.3	3.01	<3.16	<68.1	5.33	1.20	<4.64	<6.81	<4.64
VMC206	<.0046	.0695	<.0681	58.1	2.20	<21.5	2.90	<3.16	<68.1	5.40	<1.00	<4.64	<6.81	<4.64
VMC208	.0481	.5200	<.0681	<43.0	3.37	<21.5	1.90	3.33	<68.1	<4.64	<1.00	<14.70	<6.81	<4.64
VMC209	.0108	.1660	<.0681	46.1	2.56	22.1	1.48	4.12	<68.1	5.65	<1.00	<14.70	<6.81	<4.64
VMC210	.0109	.1660	<.0681	53.2	2.90	<21.5	1.86	3.26	<68.1	5.13	<1.00	<14.70	<6.81	<4.64
VMC211	.0160	.3820	.0699	56.9	3.94	<21.5	1.90	4.28	131.0	<4.64	<1.00	<14.70	<6.81	<4.64
VMC212	.0356	.1590	.0726	48.9	2.75	<21.5	4.91	<3.16	<68.1	<4.64	<1.00	15.30	<6.81	<4.64
VMC213	.0073	.1410	<.0681	72.8	2.73	<21.5	1.71	4.17	<68.1	6.07	<1.00	<14.70	<6.81	<4.64
VMC214	.0179	.3210	.0720	<43.0	3.23	<21.5	8.24	4.38	<68.1	<31.60	<1.00	<14.70	8.23	8.03
VMC215	.2520	1.1600	.0835	<43.0	5.54	<21.5	1.71	3.99	<68.1	<4.64	<1.00	<14.70	<6.81	<4.64
VMC216	.1290	>1.4700	.1060	43.0	6.16	49.4	2.31	4.84	<68.1	5.41	1.21	<14.70	<6.81	<4.64
VMC217	.0757	>1.4700	.0776	71.5	9.06	<21.5	3.00	5.95	<68.1	5.63	1.19	<14.70	<6.81	<4.64
VMC218	.1540	>1.4700	.1260	71.4	5.57	29.0	2.76	4.55	93.8	5.88	<1.00	<14.70	<6.81	<4.64
VMC219	>.3160	>1.4700	.1280	94.1	11.30	<21.5	3.27	8.77	<68.1	6.46	1.11	<14.70	<6.81	<4.64
VMC220	.2340	>1.4700	.1260	82.8	7.40	<21.5	3.98	5.92	<68.1	6.31	<1.00	<14.70	<6.81	<4.64
VMC221	.1130	>1.4700	.0945	113.0	13.00	<21.5	3.10	6.88	<68.1	5.44	<1.00	<14.70	<6.81	5.96
VMC222	.1690	1.0000	.1040	56.4	5.29	<21.5	2.14	4.05	<68.1	<4.64	1.01	<14.70	<6.81	<4.64
VMC223	.0883	1.2100	<.0681	58.4	4.68	25.4	3.61	4.51	88.6	5.06	1.15	<14.70	<6.81	<4.64
VMC224	.0059	.2160	.0778	<43.0	2.75	24.6	.90	<3.16	<68.1	<4.64	<1.00	<14.70	<6.81	<4.64
VMC225	.1170	1.2200	.1070	77.8	4.51	38.4	3.54	6.50	<68.1	6.05	1.49	<14.70	<6.81	5.94
VMC226	>.3160	>1.4700	.1550	100.0	13.00	<21.5	2.63	8.10	<68.1	6.77	1.47	<14.70	<6.81	<4.64
VMC227	.1450	.8610	.1150	69.3	4.30	<21.5	3.43	5.28	<68.1	5.55	1.07	<14.70	<6.81	<4.64
VMC228	.0066	.0922	.0728	<43.0	2.16	<21.5	.87	<3.16	<68.1	5.86	<1.00	<14.70	<6.81	<4.64
VMC229	>.3160	>1.4700	.1220	81.2	12.80	<21.5	2.71	6.55	<68.1	4.69	1.25	<14.70	<6.81	<4.64
VMC230	.1060	1.4100	.2160	73.2	9.23	<21.5	2.11	3.58	121.0	<4.64	<1.00	14.90	<6.81	<4.64
VMC231	>.3160	>1.4700	.1260	97.7	11.70	<21.5	4.05	8.71	<68.1	6.08	1.57	<14.70	<6.81	<4.64
VMC232	>.3160	>1.4700	.1260	75.8	8.10	<21.5	3.09	6.43	<68.1	6.20	<1.00	<14.70	<6.81	8.78
VMC233	.1860	>1.4700	.1440	101.0	9.84	<21.5	4.57	7.97	95.3	7.33	1.04	<14.70	<6.81	<4.64

Stream Sediments

sample	S-LA	S-MO	S-NB	S-NI	S-PB	S-SC	S-SR	S-U	S-V	S-Y	S-ZN	S-ZR	S-SI%	S-AL%
VMC013	26.30	<1.47	10.3	13.20	11.60	8.62	107.00	<147	53.10	22.80	<14.7	202.0	>34.3	2.8700
VMC015	45.30	<1.47	<10.0	36.30	54.70	12.20	155.00	<147	72.20	30.00	88.8	282.0	32.5	5.0200
VMC105	10.50	<1.47	<10.0	1.72	<6.81	2.10	12.70	<147	14.20	33.60	<14.7	629.0	>34.3	.3140
VMC106	9.69	<1.47	<10.0	1.87	<6.81	1.64	10.10	<147	13.30	5.25	<14.7	93.7	>34.3	.4390
VMC121	7.79	<1.47	<10.0	1.41	14.00	1.10	3.34	<147	5.10	5.70	<14.7	201.0	>34.3	.1430
VMC122	18.90	<1.47	<10.0	1.33	<6.81	1.73	6.64	<147	9.55	30.50	<14.7	439.0	>34.3	.2990
VMC123	16.30	<1.47	<10.0	5.88	17.20	3.15	23.00	<147	29.50	15.60	27.3	324.0	>34.3	1.5800
VMC124	8.37	<1.47	<10.0	1.30	7.87	1.48	4.31	<147	7.29	8.03	<14.7	413.0	>34.3	.1930
VMC125	10.20	<1.47	<10.0	2.71	21.20	1.19	2.76	<147	9.31	9.19	<14.7	375.0	>34.3	.3440
VMC126	20.20	<1.47	10.9	6.20	11.30	5.08	24.40	<147	45.70	22.80	<14.7	349.0	>34.3	1.7900
VMC128	12.40	<1.47	11.9	3.96	10.20	1.99	11.00	<147	17.80	10.30	<14.7	195.0	>34.3	.8260
VMC129	20.60	<1.47	13.1	10.10	8.38	3.86	16.10	<147	29.90	23.20	<14.7	938.0	>34.3	1.4400
VMC130	23.00	<1.47	<10.0	21.40	19.50	5.35	87.50	<147	36.30	14.60	36.8	367.0	>34.3	3.1800
VMC201	14.40	1.79	11.6	5.18	12.70	3.01	15.00	<147	35.00	11.40	<14.7	465.0	>34.3	1.3900
VMC202	<4.64	<1.47	<10.0	2.68	<6.81	3.54	9.87	<147	12.00	37.00	<14.7	534.0	>34.3	.2570
VMC203	25.00	<1.47	11.3	5.90	<6.81	4.82	18.30	<147	29.40	50.90	<14.7	>2,150.0	>34.3	1.0500
VMC204	19.00	<1.47	10.0	3.50	<6.81	3.15	15.80	<147	30.80	22.80	<14.7	>2,150.0	>34.3	1.0500
VMC205	16.30	<1.47	<10.0	6.02	8.33	3.02	28.60	<147	21.80	14.00	21.6	900.0	>34.3	1.3200
VMC206	13.80	<1.47	<10.0	2.30	<6.81	2.43	9.37	<147	13.10	27.20	<14.7	397.0	>34.3	.5020
VMC208	15.60	1.62	<10.0	6.22	17.70	3.32	22.20	<147	26.90	13.40	<14.7	261.0	>34.3	1.6700
VMC209	17.30	<1.47	10.8	3.89	18.90	2.64	10.90	<147	23.20	19.60	<14.7	1,140.0	>34.3	.8440
VMC210	13.40	1.68	12.4	4.21	52.70	3.04	12.30	<147	30.00	18.70	<14.7	1,310.0	>34.3	1.3800
VMC211	20.20	<1.47	15.9	3.16	59.70	3.86	13.90	226	33.80	19.40	<14.7	461.0	>34.3	1.6900
VMC212	12.00	<1.47	10.9	3.26	13.00	2.96	11.50	<147	24.10	45.70	<14.7	722.0	>34.3	.8490
VMC213	24.20	<1.47	12.0	2.63	17.90	2.56	14.80	212	23.60	20.60	<14.7	1,660.0	>34.3	1.0700
VMC214	15.40	<1.47	12.9	3.15	11.60	6.13	17.10	<147	24.30	63.90	<14.7	>2,150.0	>34.3	1.0800
VMC215	20.20	1.56	<10.0	15.70	17.80	6.10	78.30	<147	39.70	15.30	25.6	315.0	>34.3	2.1800
VMC216	27.70	<1.47	<10.0	17.40	29.50	8.82	103.00	<147	48.30	21.70	36.1	251.0	>34.3	2.9600
VMC217	34.20	1.55	11.2	38.00	25.20	10.40	73.10	<147	60.50	24.40	32.4	292.0	32.6	3.5400
VMC218	29.30	<1.47	13.2	16.60	32.30	8.11	105.00	<147	52.40	27.20	72.9	429.0	>34.3	2.8900
VMC219	45.70	<1.47	10.5	33.40	22.20	12.10	142.00	<147	65.90	31.40	60.9	261.0	34.4	4.0300
VMC220	43.60	<1.47	10.4	21.80	37.80	10.10	100.00	<147	63.90	33.40	142.0	230.0	37.6	3.1800
VMC221	35.90	<1.47	10.5	36.10	78.10	10.70	97.20	<147	75.70	28.50	99.4	316.0	>34.3	5.1200
VMC222	25.30	<1.47	14.8	15.90	20.20	5.98	28.60	<147	40.30	22.30	23.5	223.0	>34.3	2.4500
VMC223	27.90	<1.47	11.0	21.80	22.60	5.84	87.80	<147	40.10	29.50	15.6	254.0	>34.3	2.5700
VMC224	14.00	1.79	<10.0	3.67	17.20	2.30	12.80	<147	24.50	8.13	<14.7	176.0	>34.3	1.3000
VMC225	32.90	1.57	16.7	17.90	16.40	6.48	100.00	<147	41.00	29.00	<14.7	307.0	>34.3	2.7700
VMC226	44.10	<1.47	13.4	30.00	34.10	12.00	151.00	<147	62.40	30.90	65.9	238.0	40.7	4.6500
VMC227	28.30	1.61	11.8	16.20	12.30	7.05	98.40	<147	46.90	30.30	32.0	335.0	31.7	2.4000
VMC228	11.40	<1.47	15.5	3.31	9.39	1.89	12.40	<147	20.20	10.20	<14.7	572.0	>34.3	.7540
VMC229	40.60	<1.47	10.2	33.80	22.50	11.60	130.00	<147	66.50	30.90	67.7	293.0	30.9	4.2900
VMC230	33.50	<1.47	10.7	24.30	18.80	8.88	90.20	<147	45.00	23.30	40.7	198.0	>34.3	3.3400
VMC231	46.60	<1.47	14.9	27.20	25.40	11.20	129.00	<147	67.80	42.30	42.7	567.0	>34.3	5.1700
VMC232	43.20	<1.47	13.8	24.20	12.60	11.80	149.00	<147	61.30	29.50	35.7	238.0	25.9	3.4600
VMC233	54.50	<1.47	17.6	22.20	20.10	11.00	92.60	151	59.70	39.60	21.4	514.0	>34.3	4.0400

Stream Sediments--continued

sample	X-COORD.	Y-COORD.	S-FE%	S-MG%	S-CA%	S-TI%	S-MN	S-B	S-BA	S-BE	S-CO	S-CR	S-CU
VMC302	516,720	4,125,960	.249	.0191	.0213	.0583	46.7	19.70	46.3	<1.00	1.89	2.94	<1.00
VMC303	516,540	4,126,230	.797	.0225	.0156	.0583	34.1	94.00	71.2	<1.00	<1.00	3.17	<1.00
VMC304	516,600	4,126,260	1.080	.0407	.0162	.0642	117.0	30.90	78.2	<1.00	9.39	11.10	4.06
VMC306	515,510	4,125,290	1.070	.0991	.0334	.1420	255.0	35.40	152.0	<1.00	1.38	16.90	11.30
VMC307	514,580	4,124,600	3.280	.1680	.3410	.1550	1,060.0	66.40	210.0	1.23	3.81	19.30	11.30
VMC308	514,380	4,125,190	.813	.0142	.0098	.0552	25.6	50.10	56.8	<1.00	<1.00	4.58	<1.00
VMC309	514,300	4,125,230	2.480	.1260	.0369	.2160	64.5	85.50	134.0	<1.00	1.10	23.90	6.61
VMC310	514,770	4,125,580	1.420	.0496	.0222	.0584	41.0	40.20	93.6	<1.00	2.38	18.00	3.92
VMC311	515,000	4,125,700	.232	.0173	.0156	.1670	10.3	137.00	36.5	2.04	<1.00	2.71	<1.00
VMC404	516,890	4,126,590	.531	.0078	.0037	.0286	10.6	16.10	13.7	<1.00	<1.00	1.52	<1.00
VMC407	516,740	4,126,920	1.520	.0711	.0323	.0734	188.0	61.70	102.0	1.65	15.40	16.70	5.96
VMC409	516,990	4,127,380	.738	.0210	.0141	.1200	21.1	31.20	76.1	<1.00	<1.00	4.66	1.73
VMC411	517,300	4,127,770	2.500	.1520	.0486	.2080	152.0	84.20	146.0	1.27	4.53	16.00	6.67
VMC413	517,650	4,128,590	1.570	.1390	.0404	.1480	1,060.0	52.50	150.0	2.57	28.00	26.40	16.60
VMC415	518,160	4,128,420	1.170	.0519	.0182	.0572	152.0	41.50	84.6	1.07	14.10	9.46	2.95
VMC418	518,130	4,128,210	.851	.0415	.0156	.1370	84.2	47.00	61.9	<1.00	2.27	7.51	<1.00
VMC419	518,200	4,128,270	2.360	.1120	.0321	.1110	814.0	67.40	137.0	3.26	18.40	21.60	16.40

Stream Sediments--continued

sample	S-LA	S-MO	S-NB	S-NI	S-PB	S-SC	S-SR	S-U	S-V	S-Y	S-ZN	S-ZR	S-SI%	S-AL%
VMC302	6.22	<1.47	<10.0	2.38	10.40	1.00	3.02	<147	7.87	6.34	<14.7	432.0	>34.3	.2530
VMC303	6.46	<1.47	<10.0	1.77	<6.81	2.13	11.30	164	8.50	28.50	<14.7	455.0	>34.3	.2260
VMC304	11.30	<1.47	<10.0	4.74	7.17	2.28	9.10	<147	16.60	14.20	16.8	288.0	>34.3	.7630
VMC306	18.00	<1.47	10.0	2.98	<6.81	2.62	20.10	<147	29.60	11.40	<14.7	337.0	30.8	1.3800
VMC307	22.30	<1.47	<10.0	4.84	17.20	5.85	92.10	205	50.60	21.10	<14.7	577.0	>34.3	2.1200
VMC308	13.70	<1.47	<10.0	1.99	<6.81	1.76	7.34	<147	11.00	101.00	<14.7	145.0	>34.3	.2410
VMC309	21.80	<1.47	12.8	4.01	49.80	4.26	28.70	<147	51.80	19.10	<14.7	605.0	>34.3	2.0300
VMC310	17.40	<1.47	<10.0	4.14	41.30	2.43	12.10	<147	22.80	12.70	14.8	228.0	28.9	.7770
VMC311	17.40	<1.47	<10.0	<1.00	<6.81	2.68	4.53	<147	9.17	87.80	<14.7	>2,150.0	>34.3	.0925
VMC404	<4.64	<1.47	<10.0	1.18	<6.81	1.06	3.42	<147	5.76	10.60	<14.7	227.0	>34.3	.0686
VMC407	15.30	1.51	<10.0	6.45	8.04	3.44	15.20	<147	26.00	20.10	23.3	1,060.0	>34.3	1.0900
VMC409	18.10	<1.47	14.4	1.82	<6.81	2.44	9.23	<147	14.70	25.90	<14.7	>2,150.0	>34.3	.4430
VMC411	33.40	<1.47	14.0	6.07	12.10	6.24	94.30	<147	51.20	47.10	<14.7	515.0	>34.3	2.0700
VMC413	23.00	<1.47	<10.0	13.20	50.80	4.41	23.90	<147	42.30	15.90	<14.7	211.0	>34.3	1.9500
VMC415	13.80	<1.47	<10.0	4.31	10.70	2.23	9.49	<147	20.80	15.50	17.6	312.0	>34.3	.6540
VMC418	20.10	<1.47	<10.0	2.01	14.00	2.01	8.13	<147	18.40	16.70	<14.7	983.0	>34.3	.6050
VMC419	17.50	<1.47	<10.0	10.10	19.30	3.62	21.80	<147	37.20	14.10	<14.7	397.0	>34.3	1.4700

Stream Sediments--continued

sample	S-NA%	S-K%	S-P%	S-CE	S-GA	S-TH	S-YB	S-PR	S-ND	S-SM	S-EU	S-GD	S-DY	S-ER
VMC302	<.0046	.0775	<.0681	<43.0	<2.15	<21.5	.72	<3.16	<68.1	<4.64	<1.00	<4.64	<6.81	<4.64
VMC303	<.0046	<.0681	<.0681	51.9	<2.15	30.7	2.19	3.28	<68.1	<4.64	<1.00	<4.64	<6.81	<4.64
VMC304	.0060	.1490	<.0681	49.8	2.50	30.6	1.79	<3.16	<68.1	<4.64	<1.00	<4.64	<6.81	<4.64
VMC306	.0345	.3750	.0725	<43.0	2.78	29.3	1.28	4.15	<68.1	<4.64	<1.00	<14.70	<6.81	<4.64
VMC307	.0456	.5430	.1140	56.6	6.40	53.2	3.02	5.58	<68.1	<4.64	<1.00	<14.70	8.56	<4.64
VMC308	<.0046	<.0681	.0724	<43.0	<2.15	<21.5	6.23	<3.16	<68.1	<4.64	1.05	6.33	9.94	8.00
VMC309	.0292	.2980	<.0681	58.5	6.43	29.0	2.57	3.85	<68.1	<4.64	<1.00	19.30	<6.81	<4.64
VMC310	.0099	.2540	.0809	<43.0	<2.15	<21.5	1.26	5.48	<68.1	<4.64	<1.00	<4.64	<6.81	<4.64
VMC311	<.0046	<.0681	<.0681	<43.0	<2.15	<21.5	8.75	<3.16	<68.1	<31.60	2.53	17.80	15.50	10.10
VMC404	<.0046	<.0681	<.0681	<43.0	<2.15	<21.5	1.31	<3.16	<68.1	<4.64	<1.00	<4.64	<6.81	<4.64
VMC407	.0216	.4560	<.0681	55.3	4.51	<21.5	2.60	3.60	<68.1	5.18	1.37	<4.64	<6.81	<4.64
VMC409	<.0046	.0741	.0684	89.7	<2.15	<21.5	1.98	<3.16	<68.1	<31.60	1.14	<14.70	<6.81	<4.64
VMC411	.0425	.5790	.0796	71.3	5.36	29.8	5.24	6.95	<68.1	5.57	1.51	<14.70	<6.81	<4.64
VMC413	.0533	.6200	<.0681	66.7	6.14	<21.5	2.10	4.54	<68.1	<4.64	1.03	<14.70	<6.81	<4.64
VMC415	<.0046	.1260	.0879	45.2	<2.15	<21.5	1.23	<3.16	<68.1	<4.64	<1.00	<4.64	<6.81	<4.64
VMC418	<.0046	.0907	.0724	59.9	<2.15	<21.5	1.32	3.82	<68.1	<4.64	<1.00	<14.70	<6.81	<4.64
VMC419	.0255	.5080	<.0681	57.7	4.30	<21.5	1.97	3.61	<68.1	5.17	<1.00	<14.70	<6.81	<4.64