U.S. Geological Survey
Open-File Report 84-25
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Table 1:- Semiquantitative 6-step spectrographic analyses of samples from the Brewer mine drainage tunnel, Chesterfield County, South Carolina: Analyst William B. Crandell

Fe, Mg, Ca, and Ti are reported in %; all others in ppm. Results are to be identified with geometric brackets whose boundaries are 1.2, 0.83, 0.56, 0.38, 0.26, 0.18, 0.12, etc., but are reported arbitrarily as mid-points of these brackets, 1, 0.7, 0.5, 0.3, 0.2, 0.15, 0.1, etc. The precision of a reported value is approximately plus or minus one bracket at 68%, or two brackets at 95% confidence.

Symbols used are: G = Greater than 10%, or greater than value shown
N = Not detected at limit of detection or at value shown

Field No.	13-HB-10	13-HB-11	13-HB-12	13-HB-13	13-HB-14	13-HB-15	13-HB-16	13-HB-17	13-HB-18	13-HB-19	13-HB-20	13-HB-21	13-HB-22	13-HB-23	13-HB-24	13-HB-25
Tag No.	ABY-859	ABY-801	ABY-802	ABY-803	ABY-804	ABY-805	ABY-806	ABY-807	ABY-808	ABY-809	ABY-810	ABY-811	ABY-812	ABY-813	ABY-814	ABY-815
Fe %	2	2	1.5	5	1.5	2	5	5	1.5	2	3	10	3	2	5	5
Mg %	.05	.03	.05	.03	.005	.015	.003	.01	.007	.007	.005	.02	.01	.01	.005	.007
Ca %	.1	.05	.05	.05	.07	.05	.02	.02	.015	.02	.01	.02	.05	.03	.01	.007
Ti %	.15	.2	.3	.2	.2	.3	.2	.5	.5	.3	.15	.2	.2	.3	.2	.2
Mn (ppm)	15	15	3	5	7	2	20	7	3	15	2	15	7	3	20	3
Ag	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
As	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Au	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
B	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Ba	2000	1000	700	1000	700	500	2000	300	200	200	100	70	200	200	200	100
Be	2	1.5	1.5	1	N	N	N	N	N	N	N	N	N	N	N	N
Bi	7	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Cd	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Co	3	5	N	N	N	N	5	7	5	7	N	5	N	5	7	7
Cr	N	N	N	N	N	N	N	N	N	N	N	5	N	N	N	N
Cu	7	20	2	7	10	5	50	30	20	15	30	15	30	20	30	15
La	N	50	30	50	70	50	N	70	70	70	50	N	N	70	N	N
Mo	N	3	N	5	3	N	5	3	N	N	N	5	5	N	N	3
Nb	N	N	5	N	N	N	5	5	5	N	5	N	N	5	N	N
Ni	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Pb	20	10	7	10	70	150	30	50	30	50	30	20	70	50	15	7
Pd	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Pt	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Sb	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Sc	10	10	20	15	15	15	15	20	20	20	15	10	10	15	15	15
Sn	N	N	N	N	N	N	N	N	N	7	N	N	N	N	N	N
Sr	70	150	150	150	700	1000	150	200	150	150	100	70	300	200	50	20
Te	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
U	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
V	50	50	70	50	50	50	30	30	20	20	15	30	50	30	20	15
W	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Y	30	20	10	30	30	30	30	15	15	15	20	15	15	30	15	20
Zn	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Zr	150	150	200	200	150	150	150	300	300	150	200	200	150	300	200	300

Field No.	13-HB-26	13-HB-27	13-HB-28	13-HB-29	13-HB-30	13-HB-31	13-HB-32	13-HB-33	13-HB-34	13-HB-35	13-HB-36	13-HB-37	13-HB-38	13-HB-39	13-HB-40	13-HB-41
Tag No.	ABY-816	ABY-817	ABY-818	ABY-819	ABY-820	ABY-821	ABY-822	ABY-823	ABY-824	ABY-825	ABY-826	ABY-827	ABY-828	ABY-829	ABY-830	ABY-831
Fe %	7	1.5	3	1.5	3	2	10	2	.3	G	3	5	3	1	2	1.5
Mg %	.007	.007	.015	.01	.007	.005	.007	.002	.02	.005	.003	.003	.03	.002	.005	.015
Ca %	.015	.007	.02	.03	.01	.015	.02	.001	.05	.01	.02	.01	.03	.01	.02	.03
Ti %	.15	.2	.2	.2	.2	.3	.2	.1	.15	.1	.2	.2	.2	.2	.3	.2
Mn (ppm)	5	3	30	10	20	15	100	3	30	100	7	2	2	30	3	70
Ag	N	N	N	.3	N	.3	.3	.3	N	1.5	N	N	1	N	N	.5
As	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Au	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
B	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Ba	300	70	200	1000	300	200	300	15	300	50	300	300	200	500	150	200
Be	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Bi	N	N	N	30	N	10	50	30	10	30	N	7	10	N	30	20
Cd	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Co	5	5	10	N	7	3	7	N	N	20	5	N	N	N	N	N
Cr	N	N	5	5	15	5	30	N	7	10	N	N	N	3	N	15
Cu	30	10	70	15	50	30	30	10	20	300	30	30	7	30	15	100
La	N	N	N	N	N	N	N	N	50	N	50	30	70	N	70	50
Mo	5	N	7	20	3	300	10	20	N	20	7	5	7	7	5	5
Nb	N	N	5	N	5	5	N	N	N	7	N	5	N	N	5	5
Ni	N	N	N	N	10	N	15	N	N	20	N	N	N	N	N	10
Pb	30	20	50	100	30	50	50	7	200	30	70	70	300	70	200	200
Pd	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Pt	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Sb	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Sc	15	10	10	10	10	15	15	5	10	7	10	10	15	7	10	10
Sn	5	N	N	7	7	20	N	15	15	200	10	7	5	3	15	20
Sr	100	50	100	200	100	100	100	3	300	30	200	150	1500	100	700	700
Te	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
U	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
V	20	15	30	30	30	30	20	7	30	10	15	20	50	20	20	50
W	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Y	15	30	10	7	5	7	7	5	7	7	7	7	7	7	5	5
Zn	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Zr	200	300	200	200	200	200	200	150	150	200	200	200	200	150	200	150

Field No.	13-HB-42	13-HB-43	13-HB-44	13-HB-45	13-HB-46	13-HB-47	13-HB-48	13-HB-49	13-HB-50	13-HB-51	13-HB-52	13-HB-53	13-HB-54	13-HB-55	13-HB-56	13-HB-57
Tag No.	ABY-832	ABY-833	ABY-834	ABY-835	ABY-836	ABY-837	ABY-838	ABY-839	ABY-840	ABY-841	ABY-842	ABY-843	ABY-844	ABY-845	ABY-846	ABY-847
Fe %	.3	7	3	.7	1.5	3	1.5	.5	.05	7	.1	.07	.07	5	.05	7
Mg %	.007	.002	.01	.003	.01	.01	.007	.005	.007	.01	.01	.015	.02	.01	.007	.005
Ca %	.015	.007	.05	.03	.03	.01	.015	.02	.007	.007	.03	.007	.01	.015	.005	.007
Ti %	.2	.2	.3	.2	.3	.2	.2	.3	.2	.2	.3	.2	.3	.5	.2	.3
Mn (ppm)	7	10	15	5	10	7	5	20	5	15	10	30	7	20	10	3
Ag	1	.5	.7	.3	.3	.2	N	N	N	.5	N	N	N	.2	N	2
As	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Au	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
B	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Ba	500	100	2000	700	700	200	200	300	70	50	100	70	70	50	30	50
Be	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Bi	300	30	30	20	7	N	N	N	20	30	70	N	70	N	N	20
Cd	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Co	N	10	30	3	N	15	N	N	N	20	N	N	N	20	N	N
Cr	3	3	7	N	10	5	3	3	3	7	10	5	10	10	3	5
Cu	30	150	150	50	30	300	70	30	20	300	30	200	30	150	15	50
La	70	50	150	70	70	N	N	70	70	50	150	100	N	100	N	N
Mo	5	15	30	10	30	20	200	15	5	20	15	7	10	150	15	100
Nb	5	5	5	N	5	5	5	5	5	7	5	5	5	7	N	7
Ni	N	7	10	N	N	7	N	N	N	10	N	N	N	5	N	N
Pb	150	70	700	150	300	30	70	100	50	30	150	100	70	70	30	15
Pd	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Pt	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Sb	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Sc	7	10	10	10	15	10	10	10	7	5	10	3	15	10	5	10
Sn	30	20	50	20	30	20	30	50	20	20	30	20	50	50	20	30
Sr	200	100	700	100	300	30	150	150	30	20	150	70	70	150	20	15
Te	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
U	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
V	20	15	30	15	30	15	20	20	10	7	15	15	20	20	10	15
W	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Y	7	5	10	7	7	5	N	7	10	7	7	N	7	5	5	5
Zn	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Zr	150	150	200	150	300	150	150	200	200	150	200	70	200	150	100	300

Field No.	13-HB-58	13-HB-59	13-HB-60	13-HB-61	13-HB-62	13-HB-63	13-HB-64	13-HB-65	13-HB-66	13-HB-67	13-HB-68
Tag No.	ABY-848	ABY-849	ABY-850	ABY-851	ABY-852	ABY-853	ABY-854	ABY-855	ABY-856	ABY-857	ABY-858
Fe %	3	.07	.05	G	.3	.7	.5	2	.03	G	10
Mg %	.002	.003	.0003	.0007	.0003	.003	.003	.003	.005	.007	.002
Ca %	.007	.0015	.0002	.007	.001	.01	.001	.0003	.003	.01	.0002
Ti %	.2	.3	.2	.3	.15	.2	.2	.3	.3	.2	.15
Mn (ppm)	15	20	3	10	50	50	7	20	1.5	7	10
Ag	.5	N	N	1	N	N	N	.5	N	.7	2
As	N	N	N	N	N	N	N	N	N	N	N
Au	N	N	N	N	N	N	N	N	N	N	N
B	N	N	N	N	N	N	N	N	N	N	N
Ba	50	50	70	100	70	70	10	20	70	30	20
Be	N	N	N	N	N	N	N	N	N	N	N
Bi	20	10	10	7	N	N	N	7	10	30	30
Cd	N	N	N	N	N	N	N	N	N	N	N
Co	N	N	N	N	N	5	N	3	N	5	20
Cr	N	N	N	3	N	7	N	N	N	3	3
Cu	30	20	30	50	50	50	15	70	20	70	1000
La	N	N	N	N	N	150	N	N	N	70	N
Mo	50	15	10	300	5	30	15	50	5	30	30
Nb	5	7	5	7	N	5	5	7	N	5	5
Ni	N	N	N	N	N	N	N	N	N	N	30
Pb	15	N	15	15	10	50	N	N	20	50	20
Pd	N	N	N	N	N	N	N	N	N	N	N
Pt	N	N	N	N	N	N	N	N	N	N	N
Sb	N	N	N	N	N	N	N	N	N	N	N
Sc	7	7	N	10	N	5	7	7	7	10	5
Sn	20	20	20	30	30	20	15	30	30	20	150
Sr	15	5	7	15	N	70	N	N	15	50	10
Te	N	N	N	N	N	N	N	N	N	N	N
U	N	N	N	N	N	N	N	N	N	N	N
V	10	10	7	15	5	15	5	7	7	15	5
W	N	N	N	N	N	N	N	N	N	N	N
Y	7	7	7	7	5	5	5	7	5	N	5
Zn	N	N	N	N	N	N	N	N	N	N	N
Zr	200	300	150	300	100	150	150	200	150	200	150

Geochemical samples from the Brewer mine Chesterfield Co. South Carolina
by Henry Bell
1983

This report is preliminary and has not been reviewed for conformity with U.S. Geological Survey editorial standards.