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Analyses and description of geochemical samples Dolly Sods Wilderness Grant, Randolph and Tucker Counties, West Virginia

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Abstract

Semiquantitative emission spectrographic analyses for 64 elements on 69 stream sediment samples and for 30 elements on 14 soil and 86 rock samples from Dolly Sods Wilderness and vicinity, Grant, Randolph and Tucker Counties, West 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 sandstone and shale. No obviously anomalous values related to mineralized rock of economic importance are present in the data.

Introduction

The analyses reported in this open-file report are on samples from Dolly Sods Wilderness and vicinity, Grant, Randolph and Tucker Counties, West Virginia, collected by K.J. Englund, R.C. Warlow, and F.G. Lesure in October 1975. The samples include 69 stream sediments from the study area and vicinity, 14 soil and 86 rock samples. The rock samples, which are described briefly, are for the most part chip samples of representative material collected from outcrop or road cut. The rocks may be 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 (197).

Analytical techniques

The stream sediment samples were dried and sieved in the laboratory, and the minus 80-mesh (0.177 mm) fraction was pulverized. The samples were analysed by semiquantitative emission spectrographic analysis 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.

Rock samples were crushed to approximately 6 mm and pulverized to minus 140-mesh (0.105 mm) in a vertical grinder with ceramic plates. Soil samples were dried and sieved to minus 80-mesh (0.177 mm) and then pulverized. Each sample was analyzed semiquantitatively for thirty elements by a six-step, D.C. arc, optical emission spectrographic method (Grimes and Marranzino, 1968), and in addition was analyzed for zinc by an atomic absorption technique (Ward and others, 1969, p. 33).

The semiquantitative spectrographic values for rock and soil are reported as six steps per order of magnitude (1, 0.7, 0.5, 0.3, 0.2, 0.15, or multiples of 10 of these numbers) and are approximate geometric midpoints of the concentration ranges. The precision is shown to be within one adjoining reporting interval on each side of the reported value 83 percent of the time and within two adjoining intervals on each side of the reported value 96 percent of the time (Motooka and Grimes, 1976).

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 F.O. Simon and Roosevelt Moore. No gold was detected at a limit of detection of 0.05 parts per million (ppm) Au.

Rock descriptions

Sample no.	
	Devonian System Ridgeley Sandstone
WVD 079	Chip sample, 30 cm, conglomerate, quartzose, fine to medium pebbles, light gray, calcite and silica cement, scattered black phosphatic grains. Road cut on West Virginia Route 28, 5 km north of Mouth of Seneca. 9.6 m below top of formation.
WVD 080	Chip sample, 15 cm, sandstone, light gray, calcite cement, coarse to very coarse grained, fine pebbles of black phosphatic material. Same location as WVD 079. 5.7 km below top of formation.
WVD 081	Chip sample, 2 m, sandstone, light gray, medium grained, calcite cement. Same location as WVD 079. 7 m below top of formation.
WVD 082	Chip sample, 1.5 m, sandstone, medium-grained, calcite cement, fine pebble-sized black phosphatic nodules. Same location as WVD 079. 11.6 m below top of formation.
	Hampshire Formation
WVD 036	Chip sample, 2 m, sandstone, grayish red.
WVD 037	Chip sample, 3 m, sandstone, yellowish green, minor plant fragments.
	Mississippian System Mauch Chunk Formation
WVD 101	Chip sample, shale, red.
WVD 102	Chip sample, sandstone, red.
WVD 103	Chip sample, shale, red.
WVD 104	Chip sample, shale, red.
WVD 105	Chip sample, sandstone, red.
WVD 106	Chip sample, sandstone, red.
WVD 107	Chip sample, shale, red, minor greenish gray.
WVD 108	Chip sample, shale, red.
WVD 109	Chip sample, mudstone, red.
WVD 110	Chip sample, shale, red, minor greenish gray.
WVD 111	Chip sample, mudstone, red.
WVD 112	Chip sample, shale, red, minor gray, slightly calcareous.

WVD 113	Chip sample, mudstone, red, slightly calcareous.
WVD 114	Chip sample, mudstone, red, minor gray.
WVD 115	Chip sample, siltstone, red, slightly calcareous.
WVD 116	Chip sample, mudstone, red, slightly calcareous.
WVD 117	Chip sample, conglomerate, red.
WVD 118	Chip sample, mudstone, gray, slightly calcareous.
WVD 119	Chip sample, sandstone, red, slightly calcareous.
WVD 120	Chip sample, mudstone, red, silty.
WVD 121	Chip sample, sandstone, red, silty, micaceous.
WVD 122	Chip sample, mudstone, red, minor gray, silty.
WVD 123	Chip sample, sandstone, gray.
WVD 124	Chip sample, conglomerate, red.
WVD 125	Chip sample, sandstone, red, slightly calcareous zones.
WVD 126	Chip sample, sandstone, red.
WVD 127	Chip sample, mudstone, red silty.
WVD 128	Chip sample, sandstone, micaceous.
WVD 129	Chip sample, sandstone, red, micaceous.
WVD 131	Chip sample, sandstone, red, micaceous.
WVD 132	Chip sample, sandstone, gray.
WVD 137	Chip sample, sandstone, red.
WVD 142	Chip sample, shale, gray.
WVD 143	Chip sample, sandstone, gray.
WVD 167	Chip sample, sandstone, red.
WVD 172	Chip sample, sandstone, gray.
WVD 173	Chip sample, sandstone, gray.
WVD 180	Chip sample, shale, greenish-gray, minor red, same unit as sample WVD 107.
WVD 181	Chip sample, mudstone, gray, minor red, same unit as sample WVD 114.

Pennsylvanian System
Kanawha-New River Formations, undifferentiated

WVD 030	Chip sample, 2 m, sandstone, medium to dark gray, micaceous, minor pyrite.
WVD 047	Chip sample, 1 m, sandstone, gray, minor fine quartz conglomerate.
WVD 048	Chip sample, 2 m, conglomerate, sandy, crossbedded, minor iron stain and plant impressions.
WVD 130	Chip sample, conglomerate, quartz pebbles.
WVD 133	Chip sample, sandstone, red.
WVD 134	Chip sample, sandstone, red.
WVD 135	Chip sample, shale, carbonaceous.
WVD 136	Chip sample, sandstone, gray.
WVD 138	Chip sample, conglomerate, gray.
WVD 139	Chip sample, conglomerate, gray, plant fragments.
WVD 140	Chip sample, claystone or underclay, carbonaceous.
WVD 141	Chip sample, sandstone, gray.
WVD 144	Chip sample, sandstone, gray.
WVD 147	Chip sample, sandstone, gray.
WVD 148	Grab sample, nodule, iron-rich, from shale bed.
WVD 151	Chip sample, conglomerate, gray.

WVD 152	Chip sample, sandstone, gray.
WVD 153	Chip sample, sandstone, gray.
WVD 154	Chip sample, sandstone, gray.
WVD 155	Chip sample, claystone, carbonaceous, underclay.
WVD 156	Chip sample, shale, carbonaceous, roof shale.
WVD 157	Chip sample, sandstone, gray.
WVD 158	Chip sample, shale, black, carbonaceous, roof shale.
WVD 159	Chip sample, shale, black, pyritic.
WVD 160	Chip sample, sandstone, gray, micaceous.
WVD 161	Chip sample, claystone, silty, underclay.
WVD 162	Chip sample, sandstone, gray.
WVD 163	Chip sample, conglomerate, gray.
WVD 164	Chip sample, sandstone, gray.
WVD 165	Chip sample, shale, black, carbonaceous, roof shale.
WVD 166	Chip sample, sandstone, gray.
WVD 168	Chip sample, sandstone, gray micaceous.
WVD 169	Chip sample, sandstone, gray.
WVD 170	Chip sample, sandstone, gray.
WVD 171	Chip sample, sandstone, gray.

Allegheny Formation

WVD 061	Composite sample, ironstone, limonite layers in shale.
WVD 145	Chip sample, clay, gray, fire clay.
WVD 146	Chip sample, clay, gray, fire clay.
WVD 149	Chip sample, clay, gray, fire clay.
WVD 150	Chip sample, siltstone, gray.
WVD 174	Chip sample, sandstone, gray.

Soil samples

Fourteen soil samples were collected at 8 sample sites. At six sites two samples were taken. Sample A is from the surface and contains abundant organic material. Sample B is from below a sharp color change and contains less organic material. The soils are developed on rock units of Pennsylvanian age as follows:

Geologic unit	Soil sample numbers
Pennsylvanian system	
Conemaugh Formation	WVD 043A, 043B, 050A, 050B, 064A
Allegheny Formation	WVD 024A, 024B, 042A, 062A, 062B, 065A, 065B, 070A, 070B

Explanation of table

The X and Y coordinates are Universal Trasverse Mercator (UTM) grid, zone 17. The X coordinate is the easting value; the Y is the northing. Symbols used include: S, semiquantitative spectrographic analyses; AA, atomic absorption; < , less than lower limit; >, greater than upper limit; H, interference for an element which cannot be resolved by any routine method; P, partial digestion. 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 spectrographically but not found, except as noted and the lower limits of determination are: for rocks and soils--Ag(0.5), except WVD 104--0.5, WVD 105--<0.5, WVD 126--1.5, and WVD 131--0.7; As(200); Au(10); Bi(10); Cd(20); Mo(5),except WVD 70B--5, WVD 130--5, and WVD 158--10; Sb(100); Sn(10), except WVD 105--30, and WVD 116--15; W(50); and Zn(200). For stream sediments--Ag(0.46), except WVD 053--0.56, As(100); Au(10); Bi(4.6); Cd(31); Gd(21); Ge(3.1); Hf(21), except WVD 05--31, and WVD 055--29; Ho(14); In(4.6), except WVD 084--6; Ir(6.8); Lu(6.8); Mo(1.4 and 2.4), except WVD 003--1.7, WVD 007--1.5, WVD 012--1.5, WVD 059--2.5, and WVD 072--2.2; Nd(68); Os(6.8); Pd(1); Pt(6.8); Re(10); Rh(0.68); Ru(0.68); Sb(68); Sn(14); Ta(464); Tb(14); Te(464); Th(21 and 46), except WVD 002--28, WVD 009--28, and WVD 057--52; Tl(4.6); Tm(3.1), except WVD 003--3.7, WVD 055--4.8, and WVD 066--3.9; U(147), except WVD 008--177; and W(10).

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Rocks

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	S-LA	S-NB
WVD030	642,420	4,316,000	1.00	.30	.05	.300	300	50	200	1.0	<5	50	<5	50	N
WVD036	646,950	4,316,980	2.00	.50	.10	.300	500	30	700	1.0	5	20	<5	<20	N
WVD037	646,950	4,316,980	1.50	.50	.05	.200	2,000	30	300	1.0	10	20	7	<20	N
WVD047	642,600	4,319,980	.30	.03	<.05	.100	50	<10	<20	N	N	<10	<5	N	N
WVD048	642,400	4,319,160	.50	.02	<.05	.150	10	10	150	N	N	15	<5	N	N
WVD061	645,530	4,320,220	15.00	.03	<.05	.100	700	<10	100	2.0	5	10	10	N	N
WVD079	642,850	4,303,500	.30	.30	20.00	.015	150	10	<20	N	N	<10	N	N	N
WVD080	642,850	4,303,500	.20	.10	15.00	.015	70	20	N	N	N	<10	N	N	N
WVD081	642,850	4,303,500	.50	.50	>20.00	.100	300	15	50	N	N	10	N	N	N
WVD082	642,850	4,303,500	1.00	.50	20.00	.150	300	30	150	<1.0	N	15	<5	20	N
WVD101	637,760	4,314,890	5.00	1.00	.30	.150	300	100	300	2.0	15	70	30	50	<20
WVD102	637,780	4,314,880	5.00	1.00	.10	.500	300	100	300	1.5	15	70	30	30	<20
WVD103	637,800	4,314,880	7.00	1.50	.20	.500	500	100	500	3.0	15	70	30	30	<20
WVD104	637,820	4,314,880	5.00	.70	.10	.500	300	100	300	1.5	15	70	50	30	<20
WVD105	637,840	4,314,880	7.00	1.00	.50	.500	500	150	500	2.0	20	70	500	50	<20
WVD106	637,860	4,314,880	7.00	1.00	.20	.500	300	100	500	2.0	20	70	50	50	<20
WVD107	637,880	4,314,880	3.00	1.00	.10	.500	300	100	300	1.5	15	70	50	30	<20
WVD108	637,900	4,314,880	5.00	1.00	.10	.500	300	100	300	1.5	15	70	50	30	<20
WVD109	637,910	4,314,870	7.00	1.50	2.00	.500	700	150	500	2.0	20	70	50	50	<20
WVD110	637,930	4,314,860	5.00	1.50	.15	.500	300	100	500	2.0	20	70	50	30	<20

sample	S-NI	S-PB	S-SC	S-SR	S-V	S-Y	S-ZR	AA-ZN-P
WVD030	15	N	7	N	70	30	500	20
WVD036	20	N	5	N	50	20	100	40
WVD037	20	<10	5	N	50	20	150	70
WVD047	5	N	N	N	10	N	70	20
WVD048	5	N	<5	N	15	15	100	20
WVD061	5	<10	7	N	10	30	20	40
WVD079	5	N	N	200	<10	15	100	25
WVD080	7	10	N	200	<10	15	50	20
WVD081	5	<10	N	200	15	30	150	20
WVD082	7	15	<5	200	15	30	200	30
WVD101	50	20	15	100	150	30	200	70
WVD102	50	15	15	100	150	30	200	60
WVD103	50	30	15	100	150	30	100	80
WVD104	50	15	10	100	100	30	150	60
WVD105	50	50	15	100	150	30	150	160
WVD106	50	30	15	100	150	30	150	80
WVD107	30	10	10	100	100	30	150	75
WVD108	30	10	10	N	150	30	150	75
WVD109	50	20	15	200	150	50	100	85
WVD110	50	20	15	100	150	30	100	90

Rocks--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	S-LA	S-NB
WVD111	637,950	4,314,860	5.00	1.50	1.50	.500	500	100	700	3.0	20	70	30	30	<20
WVD112	637,970	4,314,850	5.00	1.00	1.00	.700	500	100	700	2.0	20	70	70	50	<20
WVD113	637,980	4,314,850	5.00	1.00	10.00	.300	3,000	70	700	1.5	20	70	50	50	<20
WVD114	638,000	4,314,850	3.00	1.00	1.50	.200	500	50	300	2.0	20	70	50	30	N
WVD115	638,020	4,314,850	3.00	1.00	.50	.500	700	70	500	2.0	20	70	50	30	<20
WVD116	638,030	4,314,850	5.00	1.50	1.50	.300	1,000	70	500	2.0	20	70	30	30	N
WVD117	638,050	4,314,850	2.00	1.00	>20.00	.300	>5,000	30	1,500	1.0	15	70	70	50	N
WVD118	638,070	4,314,850	2.00	1.00	3.00	.500	1,500	70	2,000	2.0	20	70	100	50	<20
WVD119	638,090	4,314,850	2.00	.50	.30	.300	700	50	1,000	1.0	10	30	20	30	<20
WVD120	638,100	4,314,850	3.00	1.00	.30	.500	700	100	1,000	2.0	20	70	30	50	<20
WVD121	638,110	4,314,850	3.00	.70	.15	.500	300	70	500	1.5	15	70	20	30	<20
WVD122	638,130	4,314,850	5.00	.70	.15	.500	300	70	700	2.0	20	70	30	50	<20
WVD123	638,150	4,314,850	2.00	.50	.07	.500	1,500	50	300	2.0	15	50	70	30	<20
WVD124	638,260	4,314,850	3.00	.70	.10	.500	1,000	100	300	2.0	10	50	30	50	<20
WVD125	638,260	4,314,850	2.00	.50	.07	.500	200	50	150	1.5	10	70	5	30	<20
WVD126	638,260	4,314,850	3.00	.70	10.00	.300	5,000	70	300	2.0	20	50	30	70	<20
WVD127	638,590	4,314,900	3.00	1.00	.15	.500	500	70	300	2.0	20	70	30	30	<20
WVD128	638,590	4,314,900	.70	.30	1.00	.150	500	15	150	<1.0	N	10	20	N	N
WVD129	638,530	4,315,230	2.00	.70	.10	.300	1,000	50	500	2.0	20	50	15	N	<20
WVD130	638,530	4,315,230	1.50	.02	N	.050	500	10	300	<1.0	10	<10	10	N	N
WVD131	637,230	4,315,280	2.00	.50	.70	.500	700	50	500	1.0	15	30	7	50	<20
WVD132	637,290	4,315,300	1.50	.50	.10	.500	300	70	500	1.0	15	30	<5	20	<20
WVD133	637,740	4,315,620	.70	.15	<.05	.500	100	50	200	2.0	<5	50	<5	<20	<20
WVD134	639,480	4,316,750	.50	.15	<.05	.150	100	30	150	<1.0	<5	20	N	N	N
WVD135	639,480	4,316,750	2.00	.50	<.05	.500	150	50	500	3.0	10	70	20	50	<20
WVD136	639,390	4,316,530	.50	.10	<.05	.150	200	15	100	<1.0	<5	10	N	N	N
WVD137	639,450	4,316,090	1.50	.70	1.00	.300	500	30	200	1.0	10	70	5	20	N
WVD138	641,010	4,316,280	.15	.02	N	.020	20	<10	30	N	N	<10	N	N	N
WVD139	641,010	4,316,280	.30	.05	<.05	.100	100	20	500	N	5	<10	<5	N	N
WVD140	641,020	4,317,020	2.00	.70	<.05	.300	100	50	300	3.0	5	70	50	30	N
WVD141	641,020	4,317,020	.70	.07	N	.100	200	10	150	<1.0	7	<10	<5	N	N
WVD142	641,520	4,315,830	5.00	1.00	.10	.500	500	70	500	2.0	20	30	100	30	<20
WVD143	641,190	4,315,670	1.50	.50	.10	.200	700	20	300	1.0	10	10	7	N	N
WVD144	640,270	4,314,020	.15	.05	<.05	.300	30	20	70	N	N	70	<5	N	<20
WVD145	640,750	4,314,280	3.00	.30	<.05	.700	70	70	300	2.0	<5	70	7	50	20
WVD146	641,130	4,314,550	.70	.03	<.05	.500	10	10	300	1.5	N	70	20	100	<20
WVD147	642,650	4,316,020	15.00	.50	.30	.150	2,000	<10	150	5.0	<5	15	10	N	N
WVD148	641,060	4,317,250	20.00	.20	.50	.030	>5,000	<10	300	2.0	N	10	<5	N	N
WVD149	643,420	4,317,320	3.00	.50	<.05	.300	200	50	500	2.0	15	70	30	50	<20
WVD150	643,420	4,317,320	3.00	.70	.05	.500	150	70	700	2.0	15	70	70	50	<20
WVD151	643,100	4,317,990	.07	<.02	N	.020	500	<10	100	N	N	<10	N	N	N
WVD152	642,580	4,317,710	.20	.05	<.05	.050	30	<10	50	N	N	<10	N	N	N
WVD153	642,540	4,317,680	1.50	.20	N	.300	50	30	300	1.0	N	30	5	30	<20
WVD154	642,450	4,317,330	.70	.15	<.05	.200	150	20	150	<1.0	N	15	N	N	N
WVD155	642,100	4,318,290	1.50	.50	<.05	.500	70	70	500	3.0	7	70	10	100	<20

sample	S-NI	S-PB	S-SC	S-SR	S-V	S-Y	S-ZR	AA-ZN-P
WVD111	50	20	15	150	100	30	100	85
WVD112	50	15	15	100	150	30	150	75
WVD113	50	15	15	300	100	30	150	65
WVD114	50	15	15	100	150	20	100	85
WVD115	50	10	15	100	100	30	150	75
WVD116	50	20	15	150	100	30	100	100
WVD117	20	30	15	500	200	50	100	55
WVD118	50	10	15	200	150	30	150	80
WVD119	20	N	7	<100	50	20	300	55
WVD120	30	15	15	100	150	30	200	65
WVD121	30	10	15	<100	100	30	200	75
WVD122	50	15	15	100	150	30	200	80
WVD123	20	10	10	N	70	20	200	70
WVD124	30	10	15	N	100	30	300	65
WVD125	15	<10	7	N	50	30	300	50
WVD126	20	15	10	200	100	70	200	60
WVD127	50	15	15	N	150	30	300	90
WVD128	10	N	5	N	10	10	70	50
WVD129	30	<10	10	N	100	20	200	70
WVD130	15	10	N	N	10	N	50	30
WVD131	20	<10	10	N	50	30	300	50
WVD132	15	<10	10	N	50	20	300	60
WVD133	15	N	10	N	70	20	500	55
WVD134	7	N	5	N	30	10	150	35
WVD135	50	30	15	N	150	30	150	85
WVD136	5	N	5	N	30	15	150	20
WVD137	20	N	10	N	50	20	300	70
WVD138	5	N	N	N	10	N	50	20
WVD139	5	N	N	N	20	N	70	25
WVD140	20	20	15	N	150	20	70	55
WVD141	7	N	N	N	<10	N	70	30
WVD142	50	20	15	100	150	30	150	120
WVD143	20	10	7	N	50	20	200	70
WVD144	<5	N	5	N	50	15	500	20
WVD145	15	15	15	150	150	20	200	35
WVD146	5	15	15	500	100	30	100	30
WVD147	10	<10	10	N	30	20	70	50
WVD148	7	<10	7	N	20	15	N	45
WVD149	30	15	15	N	150	30	150	160
WVD150	50	15	15	N	150	50	300	150
WVD151	5	N	N	N	<10	N	50	25
WVD152	5	N	N	N	10	10	70	20
WVD153	7	<10	10	N	70	20	200	30
WVD154	5	N	5	N	30	20	200	30
WVD155	30	20	15	N	150	30	200	30

Rocks--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	S-LA	S-NB
WVD156	642,100	4,318,290	2.00	.30	N	.500	150	70	500	2.0	5	70	20	30	<20
WVD157	642,100	4,318,290	1.00	.15	<.05	.300	50	70	150	1.0	N	20	N	30	N
WVD158	642,160	4,318,620	5.00	.30	<.05	.500	150	70	500	1.5	5	70	50	50	<20
WVD159	642,460	4,319,050	15.00	1.00	1.00	.300	1,500	20	500	2.0	20	50	20	50	N
WVD160	642,460	4,319,050	1.00	.20	.07	.500	100	70	300	1.0	N	30	<5	50	<20
WVD161	643,110	4,320,190	3.00	.70	<.05	.700	200	70	500	1.5	15	70	30	50	20
WVD162	643,110	4,320,190	3.00	.30	.07	.700	500	50	300	1.5	10	70	15	50	<20
WVD163	641,980	4,318,770	.20	<.02	N	.020	30	<10	N	N	N	N	N	N	N
WVD164	641,890	4,317,010	1.50	.30	N	.500	200	70	300	1.0	7	70	7	30	<20
WVD165	640,420	4,318,580	.70	.20	<.05	1.000	50	70	300	2.0	5	70	7	70	30
WVD166	640,610	4,313,200	1.00	.07	<.05	.150	500	30	150	<1.0	5	20	<5	N	N
WVD167	639,900	4,314,240	3.00	.70	3.00	.300	1,000	50	500	1.0	10	30	100	20	<20
WVD168	643,730	4,314,130	1.50	.20	<.05	.300	300	30	300	1.0	7	20	5	N	N
WVD169	643,730	4,314,130	.70	.15	<.05	.200	70	20	300	1.0	<5	15	<5	N	N
WVD170	644,040	4,314,230	2.00	.20	<.05	.200	300	20	300	2.0	7	30	5	N	N
WVD171	644,150	4,314,330	.50	.07	<.05	.100	20	15	70	N	N	10	N	N	N
WVD172	644,520	4,314,570	2.00	.20	<.05	.200	700	20	200	1.5	15	30	7	N	N
WVD173	637,870	4,317,060	.70	.15	N	.500	100	70	150	<1.0	N	30	<5	N	<20
WVD174	638,290	4,317,660	.10	.05	<.05	.150	20	15	70	N	N	10	N	N	N
WVD180	637,880	4,314,880	2.00	.70	.10	.300	300	70	300	2.0	20	70	70	20	<20
WVD181	638,000	4,314,850	3.00	1.00	1.50	.300	1,000	70	500	2.0	30	70	70	30	<20

sample	S-NI	S-PB	S-SC	S-SR	S-V	S-Y	S-ZR	AA-ZN-P
WVD156	15	10	15	N	150	30	200	55
WVD157	7	N	7	N	50	20	500	35
WVD158	30	50	15	N	100	30	200	45
WVD159	30	10	15	N	70	50	70	130
WVD160	<5	N	7	N	50	50	500	30
WVD161	30	15	15	N	150	30	300	120
WVD162	30	<10	10	N	70	50	500	90
WVD163	5	N	N	N	N	N	70	20
WVD164	20	10	15	N	100	20	500	75
WVD165	10	20	15	N	100	30	200	35
WVD166	10	N	5	N	10	N	50	40
WVD167	20	10	7	N	70	30	700	110
WVD168	15	<10	7	N	50	20	150	60
WVD169	15	N	5	N	30	10	150	45
WVD170	15	10	10	N	50	20	200	60
WVD171	7	N	N	N	10	10	100	30
WVD172	20	<10	7	N	30	20	300	80
WVD173	7	N	7	N	50	20	200	35
WVD174	5	N	5	N	20	10	150	20
WVD180	50	N	10	N	100	20	150	85
WVD181	50	15	15	100	150	30	150	95

Soils

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	S-LA	S-NB
WVD024A	642,260	4,314,870	.30	<.02	<.05	.300	50	15	50	<1.0	N	<10	7	N	<20
WVD024B	642,260	4,314,870	.70	<.02	N	.200	50	15	N	N	N	70	N	N	N
WVD042A	640,880	4,320,740	.20	.03	.15	.500	150	30	100	1.0	N	10	5	<20	<20
WVD043A	641,180	4,319,970	.70	.07	<.05	.300	1,500	15	150	<1.0	N	20	7	<20	<20
WVD043B	641,180	4,319,970	.50	.07	<.05	.700	30	30	150	<1.0	N	50	N	30	20
WVD050A	641,190	4,318,970	.50	.15	<.05	.700	30	30	150	<1.0	N	30	N	30	20
WVD050B	641,190	4,318,970	3.00	.20	<.05	.700	70	50	200	1.0	N	70	7	50	20
WVD062A	645,530	4,320,220	1.00	.15	N	.300	20	30	200	<1.0	N	50	7	20	<20
WVD062B	645,530	4,320,220	2.00	.20	N	.300	70	30	200	<1.0	N	50	7	20	<20
WVD064A	643,720	4,319,390	.50	.10	<.05	.700	30	30	100	<1.0	N	50	<5	50	20
WVD065A	644,090	4,318,950	.15	.02	.10	.500	150	20	70	<1.0	N	30	10	<20	<20
WVD065B	644,090	4,318,950	.30	.03	<.05	.700	20	30	70	N	N	70	N	30	<20
WVD070A	643,380	4,316,850	2.00	.15	.05	.300	200	30	150	3.0	N	20	30	20	N
WVD070B	643,380	4,316,850	5.00	.20	<.05	.500	200	50	200	1.5	<5	70	10	30	20

sample	S-NI	S-PB	S-SC	S-SR	S-V	S-Y	S-ZR	AA-ZN-P
WVD024A	<5	10	<5	N	15	<10	150	50
WVD024B	5	N	<5	N	15	<10	500	20
WVD042A	<5	10	7	N	15	20	200	--
WVD043A	7	15	5	N	30	<10	100	130
WVD043B	10	N	7	N	50	20	300	25
WVD050A	10	<10	10	N	70	20	200	25
WVD050B	7	10	10	N	100	50	300	30
WVD062A	10	<10	7	N	100	15	100	30
WVD062B	15	15	10	N	100	15	100	50
WVD064A	5	N	10	N	70	30	500	30
WVD065A	5	10	5	N	15	20	500	70
WVD065B	5	N	<5	N	30	30	700	25
WVD070A	15	30	10	<100	50	20	150	--
WVD070B	15	15	15	100	150	30	150	35

Stream Sediments(partial listing)

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	S-LA
WVD001	635,410	4,318,420	3.910	.8100	.1620	.263	468.0	47.3	246.0	3.35	14.90	43.4	13.80	33.7
WVD002	644,390	4,321,490	3.380	.2170	.0962	.318	126.0	43.3	212.0	2.07	5.81	138.0	13.60	29.1
WVD003	643,660	4,321,410	1.500	.1870	.1050	.318	250.0	44.9	163.0	1.96	6.66	39.3	4.49	32.8
WVD004	642,000	4,322,120	.615	.0831	.0335	.251	22.6	15.2	83.1	1.24	1.92	17.7	1.23	14.4
WVD005	642,040	4,322,060	.768	.1300	.0667	.229	75.0	45.6	132.0	1.73	2.81	35.1	1.84	28.5
WVD006	640,200	4,315,380	3.550	.3570	.0790	.278	646.0	54.9	278.0	3.11	24.60	49.3	24.10	30.8
WVD007	640,380	4,315,420	2.520	.2120	.0589	.254	146.0	40.2	244.0	4.54	20.30	39.6	24.90	51.3
WVD008	640,920	4,315,760	.752	.0943	.0364	.350	42.2	30.9	127.0	1.13	2.01	45.0	1.32	22.6
WVD009	640,630	4,318,030	.371	.0439	.0226	.266	23.2	37.2	71.6	<1.00	1.08	15.8	<1.00	21.0
WVD010	638,860	4,317,750	.540	.0647	.0182	.173	28.5	14.9	54.8	<1.00	1.72	199.0	1.31	15.1
WVD011	639,860	4,317,060	.342	.0629	.0260	.275	19.8	15.6	92.5	1.44	1.60	18.8	<1.00	23.7
WVD012	639,540	4,315,520	2.640	.2770	.0885	.308	131.0	59.2	171.0	2.36	5.13	34.1	12.20	32.5
WVD052	640,450	4,319,390	.927	.1410	.0758	.529	107.0	54.5	157.0	1.93	1.98	83.7	3.96	19.5
WVD053	640,230	4,320,030	.904	.1250	.0442	.762	103.0	77.0	146.0	1.69	2.02	58.2	2.44	55.9
WVD054	640,140	4,321,030	.852	.1240	.0395	.582	62.3	86.6	194.0	1.57	1.21	25.5	11.80	39.6
WVD055	639,940	4,320,990	.849	.1060	.0676	.525	81.9	58.9	190.0	2.29	1.52	25.2	5.08	29.9
WVD056	637,700	4,321,470	.399	.0601	.0212	.372	42.1	39.0	102.0	<1.00	1.18	19.5	3.36	20.6
WVD057	643,210	4,315,200	3.060	.2980	.0770	.479	221.0	61.7	331.0	3.82	3.63	53.2	25.10	39.0
WVD058	642,870	4,315,090	3.000	.2730	.0939	.552	168.0	70.8	269.0	2.40	3.79	56.6	7.40	33.2
WVD059	643,290	4,315,730	4.630	.3750	.4210	.557	2,090.0	59.9	684.0	7.22	24.80	51.9	15.30	59.6
WVD060	643,610	4,315,770	3.500	.3050	.0972	.721	223.0	72.9	451.0	4.60	5.10	59.2	31.10	54.3
WVD063	643,880	4,319,250	.998	.1100	.0476	.400	59.9	55.7	236.0	1.88	1.54	36.3	3.01	21.6
WVD066	644,150	4,318,490	1.400	.1110	.0459	.439	193.0	40.3	208.0	2.75	6.07	62.0	3.29	23.1
WVD067	643,730	4,318,180	1.480	.0949	.0406	.444	378.0	56.5	190.0	1.78	7.58	36.6	4.34	116.0
WVD068	643,430	4,317,730	2.630	.1630	.0335	.449	914.0	49.3	230.0	2.93	15.30	36.4	11.00	34.3
WVD069	643,430	4,317,370	3.390	.3100	.0413	.452	198.0	60.4	310.0	3.41	5.81	42.6	11.30	44.1
WVD071	643,980	4,317,070	4.080	.2390	.1470	.528	3,060.0	54.9	509.0	6.20	23.20	57.0	24.40	44.6
WVD072	642,460	4,314,450	2.070	.2030	.0634	.421	185.0	63.9	306.0	4.23	5.28	51.5	12.70	46.0
WVD073	646,060	4,317,100	1.160	.1190	.0963	.399	843.0	72.2	274.0	5.49	9.09	58.1	7.29	23.1
WVD074	646,120	4,317,130	2.640	.4920	.4700	.456	596.0	67.9	417.0	3.89	9.14	39.8	21.20	37.0
WVD075	649,380	4,318,020	2.220	.4180	.5770	.532	1,300.0	103.0	438.0	4.56	10.30	63.1	28.10	35.3
WVD076	648,660	4,314,860	2.790	.7900	.6490	.509	1,330.0	156.0	519.0	4.35	13.40	48.6	29.70	44.0
WVD077	677,630	4,312,990	2.210	.0287	.2280	.491	1,160.0	94.0	355.0	4.93	11.20	36.3	27.90	34.3
WVD078	646,760	4,310,750	2.270	.3640	.3380	.368	569.0	90.1	439.0	4.29	7.50	33.2	19.50	33.8
WVD084	640,940	4,315,820	.404	.0606	.0190	.362	44.7	57.5	101.0	<1.00	1.14	18.7	<1.00	32.9
WVD085	640,930	4,315,860	.584	.0771	.0209	.326	49.2	54.1	94.9	<1.00	1.12	15.3	1.82	17.9
WVD086	642,410	4,319,040	2.200	.1270	.0475	.468	877.0	54.1	157.0	2.78	11.40	38.2	7.54	29.8
WVD087	642,500	4,319,010	1.850	.1330	.0289	.347	308.0	54.1	216.0	2.33	6.54	58.7	11.20	41.0
WVD088	638,490	4,318,620	1.300	.2290	.0412	.447	73.5	72.6	252.0	1.86	1.84	41.6	5.74	37.0

Stream Sediments(partial listing)

sample	S-NB	S-NI	S-PB	S-SC	S-SR	S-V	S-Y	S-ZN	S-ZR	S-SI%	S-AL%	S-NA%	S-K%	S-P%	S-CE
WVD001	20.0	31.60	24.60	11.50	125.0	97.6	22.5	152.0	184	>34.3	2.99	.2070	1.030	.1140	<43.0
WVD002	14.9	17.80	21.80	9.08	149.0	71.6	35.4	<14.7	459	>34.3	3.92	.0636	.791	.0831	50.2
WVD003	17.5	15.50	12.40	6.91	30.6	56.5	27.6	29.4	737	>34.3	2.91	.0453	.552	.0777	<43.0
WVD004	16.1	4.81	8.87	7.22	15.0	30.9	35.1	<14.7	633	>34.3	1.34	.0156	.231	.0848	<43.0
WVD005	21.8	8.74	9.87	5.13	18.7	52.1	32.5	<14.7	>2,150	>34.3	1.75	.0321	.316	.0783	<43.0
WVD006	16.0	28.30	25.10	10.40	79.5	86.6	28.6	81.3	334	>34.3	3.77	.1160	1.190	<.0681	47.4
WVD007	16.8	18.70	29.10	11.60	176.0	90.4	36.1	38.2	190	30.3	3.23	.0765	.862	.1160	63.9
WVD008	27.2	6.02	11.90	4.38	18.8	47.8	41.7	<14.7	1,290	>34.3	1.45	.0192	.294	.0995	<43.0
WVD009	14.9	4.37	7.59	2.40	20.7	25.1	15.2	<14.7	889	>34.3	1.23	.0130	.187	.0813	<43.0
WVD010	14.0	5.92	<6.81	3.22	13.2	37.1	20.5	<14.7	358	>34.3	1.16	.0204	.243	.0879	<43.0
WVD011	22.1	4.97	<6.81	4.11	10.3	42.6	29.2	<14.7	>2,150	>34.3	1.56	.0113	.222	.0755	<43.0
WVD012	19.0	15.60	19.90	10.80	24.4	40.9	49.7	19.8	698	>34.3	3.32	.0940	.932	.1180	45.9
WVD052	30.7	8.32	4.96	4.77	69.0	58.5	53.6	<14.7	1,820	>34.3	3.32	.0244	.359	<.0681	83.8
WVD053	42.9	7.45	11.00	4.08	24.9	68.4	41.8	<14.7	>2,150	>34.3	3.41	.0310	.265	.0953	184.0
WVD054	22.7	5.01	10.70	6.34	67.6	60.2	34.2	<14.7	666	>34.3	3.72	.0422	.413	<.0681	91.7
WVD055	35.5	6.60	7.30	4.52	29.9	54.4	43.6	<14.7	>2,150	>34.3	2.50	.0231	.336	<.0681	89.2
WVD056	<14.7	2.43	6.54	3.41	17.0	31.1	31.2	<14.7	1,500	>34.3	2.01	.0202	.185	<.0681	<43.0
WVD057	<14.7	14.50	17.70	12.70	91.6	96.0	30.6	28.0	263	34.3	8.00	.0668	1.190	<.0681	98.2
WVD058	18.9	12.90	14.60	10.40	86.8	92.1	30.0	30.3	181	>34.3	6.09	.0502	.776	.1130	82.8
WVD059	16.6	70.50	27.30	13.70	90.7	95.0	53.9	154.0	423	34.2	6.67	.0727	>1.470	.1030	132.0
WVD060	23.2	19.70	24.80	17.40	124.0	123.0	43.8	38.8	274	31.3	9.84	.0751	1.420	.1010	144.0
WVD063	20.8	6.27	6.18	5.74	26.4	65.6	27.8	<14.7	437	>34.3	3.13	.0357	.346	<.0681	59.1
WVD066	19.9	8.81	9.44	5.94	88.9	72.3	34.6	<14.7	645	>34.3	3.55	.0286	.386	.0886	72.0
WVD067	19.3	8.62	15.00	5.08	87.0	54.0	43.5	<14.7	>2,150	>34.3	3.12	.0309	.428	.1150	217.0
WVD068	15.0	12.30	19.80	8.23	70.8	71.9	27.0	31.7	346	28.7	4.59	.0397	.711	.1110	84.6
WVD069	19.7	16.50	23.10	10.50	94.7	78.9	29.0	38.8	304	32.7	7.63	.0552	1.060	.1100	96.0
WVD071	15.4	54.80	22.50	12.50	83.0	85.4	40.3	195.0	295	33.5	8.38	.0565	1.100	.1420	114.0
WVD072	18.1	21.20	20.40	12.50	146.0	92.7	30.1	44.7	257	30.1	8.07	.0577	.901	.0942	114.0
WVD073	18.1	35.30	17.10	5.83	22.1	60.8	33.5	104.0	764	>34.3	3.18	.0373	.401	.0757	76.6
WVD074	<14.7	26.20	15.70	10.20	61.0	71.6	42.4	36.4	278	>34.3	5.30	.1450	.876	.1320	100.0
WVD075	15.6	32.00	17.80	12.20	74.7	94.9	37.7	70.3	307	>34.3	7.45	.2340	1.270	.1380	92.4
WVD076	19.7	50.70	28.30	15.50	97.9	120.0	41.0	151.0	252	>34.3	7.82	.2400	>1.470	.1130	110.0
WVD077	19.5	29.70	22.20	13.30	83.7	90.7	42.3	99.9	377	>34.3	5.05	.2270	1.210	.1100	97.8
WVD078	14.9	32.40	13.40	11.50	76.6	84.4	34.5	91.0	189	35.7	5.01	.2220	1.150	<.0681	99.1
WVD084	16.8	6.70	4.71	3.34	20.1	27.9	19.3	<14.7	751	>34.3	2.17	.0065	.150	<.0681	76.9
WVD085	17.5	4.02	6.96	2.92	22.6	28.0	32.6	<14.7	798	>34.3	2.36	.0158	.222	<.0681	44.9
WVD086	19.5	17.60	11.90	6.16	79.7	80.6	24.8	70.7	334	>34.3	4.18	.0212	.415	.0927	70.4
WVD087	17.3	11.40	13.80	8.23	98.8	80.7	27.5	16.1	278	33.6	3.55	.0357	.466	.1300	87.5
WVD088	<14.7	8.40	11.70	8.89	55.5	82.9	35.5	<14.7	235	>34.3	5.34	.0588	.873	<.0681	88.7

Stream Sediments(partial listing)

sample	S-GA	S-YB	S-PR	S-SM	S-EU	S-DY	S-ER	S-LU	AA-ZN-P
WVD001	10.50	1.36	6.13	<4.64	<1.00	<6.81	<4.64	<3.16	--
WVD002	9.57	10.20	6.50	5.35	<1.00	16.00	5.99	4.32	--
WVD003	6.23	4.75	3.82	<4.64	<1.00	<6.81	6.08	<3.16	--
WVD004	4.39	9.00	<3.16	<4.64	<1.00	<6.81	8.50	<3.16	--
WVD005	5.24	4.75	5.11	<31.60	<1.00	<6.81	<4.64	3.45	--
WVD006	12.60	4.02	4.49	4.75	<1.00	<6.81	<4.64	<3.16	--
WVD007	11.80	1.89	8.17	6.49	1.07	8.08	6.82	<3.16	--
WVD008	4.47	4.65	<3.16	4.95	1.05	<6.81	<4.64	<3.16	--
WVD009	3.69	1.45	<3.16	5.14	<1.00	<6.81	5.64	<3.16	--
WVD010	3.90	1.95	3.93	4.73	<1.00	<6.81	<4.64	<3.16	--
WVD011	4.08	3.04	3.83	<31.60	<1.00	<6.81	<4.64	<3.16	--
WVD012	9.48	2.79	3.30	5.00	<1.00	<14.70	<4.64	<3.16	--
WVD052	5.94	7.81	<10.00	<6.81	1.36	<14.70	8.21	<6.81	--
WVD053	6.70	3.72	12.20	<31.60	1.12	<14.70	9.57	6.98	--
WVD054	8.63	3.83	<10.00	<6.81	1.35	<14.70	5.48	<6.81	--
WVD055	5.41	4.42	<10.00	<31.60	1.65	<14.70	<4.64	<6.81	--
WVD056	4.91	2.25	<10.00	<6.81	1.33	<14.70	7.04	<6.81	--
WVD057	15.40	2.77	10.50	<6.81	1.54	<14.70	<4.64	<6.81	--
WVD058	12.50	3.16	<10.00	<6.81	<1.00	15.00	9.23	<6.81	--
WVD059	17.10	4.61	10.60	<6.81	2.89	23.00	<4.64	<6.81	--
WVD060	18.90	3.65	<10.00	6.85	2.32	<14.70	5.09	<6.81	--
WVD063	6.12	3.04	<10.00	<6.81	<1.00	<14.70	<4.64	<6.81	--
WVD066	6.42	3.72	<10.00	<6.81	<1.00	<14.70	7.36	<6.81	--
WVD067	7.16	4.70	10.00	<31.60	1.35	<14.70	<4.64	<6.81	--
WVD068	11.60	3.47	<10.00	<6.81	1.20	<14.70	4.93	<6.81	--
WVD069	15.00	4.77	<10.00	<6.81	1.94	<14.70	<4.64	<6.81	--
WVD071	14.90	4.86	<10.00	<6.81	1.44	17.20	7.21	<6.81	--
WVD072	12.80	3.73	<10.00	<6.81	<1.00	<14.70	<4.64	<6.81	--
WVD073	5.24	3.49	<10.00	<6.81	1.39	<14.70	7.18	<6.81	--
WVD074	10.80	5.19	<10.00	<6.81	1.75	<14.70	6.50	<6.81	--
WVD075	12.10	4.96	<10.00	<6.81	<1.00	16.50	<4.64	6.33	--
WVD076	15.40	2.57	<10.00	<6.81	1.76	18.00	<4.64	7.08	--
WVD077	10.70	4.34	<10.00	<6.81	2.03	<14.70	11.70	<6.81	--
WVD078	7.68	3.84	<10.00	<6.81	1.10	<14.70	4.94	<6.81	--
WVD084	2.81	1.65	<10.00	<6.81	1.33	<14.70	<4.64	<6.81	--
WVD085	3.94	2.84	<10.00	<6.81	<1.00	<14.70	5.40	<6.81	--
WVD086	8.74	2.71	<10.00	<6.81	1.27	<14.70	<4.64	<6.81	--
WVD087	8.05	3.28	<10.00	<6.81	1.11	<14.70	<4.64	<6.81	--
WVD088	10.20	4.44	<10.00	<6.81	<1.00	<14.70	5.76	<6.81	--

Stream sediments (continued)

EMISSION SPECTROGRAPHIC ANALYSIS

REPORT 76RESC0093 PROGRAM NO. 202 FOR: FRANK G. LESURE L. MEI (ANALYST)
JOB NO. A552 PLATE NO. RE-284 DATE: 4/12/76
SPEC.LAB.# 27 CHARLES S. ANNELL (PROJECT LEADER)

FIELD #	WVD013	WVD014	WVD015	WVD016	WVD017	WVD018	WVD019	WVD020	WVD021	WVD022
SAMPLE	W-190691	W-190692	W-190693	W-190694	W-190695	W-190696	W-190697	W-190698	W-190699	W-190700
SPECTRUM	4	5	6	7	8	9	10	11	12	13
SI %	> 34.3	> 34.3	> 34.3	> 34.3	> 34.3	> 34.3	> 34.3	> 34.3	> 34.3	> 34.3
AL %	2.38	5.26	8.12	5.48	6.84	5.02	5.16	8.23	4.36	6.55
FE %	1.27	2.49	3.63	2.29	1.76	2.67	2.32	2.41	2.55	3.32
MG %	0.199	0.230	0.810	0.270	0.253	0.208	0.184	0.264	0.280	0.415
CA %	0.157	0.233	0.254	0.152	0.158	0.105	0.0352	0.139	0.147	0.256
NA %	0.109	0.0638	0.167	0.0637	0.0690	0.0515	0.0542	0.0662	0.0950	0.0856
K %	0.432	0.768	1.17	1.01	0.929	0.933	0.933	1.13	0.739	1.10
TI %	0.258	0.440	0.534	0.517	0.498	0.355	0.418	0.483	0.440	0.499
P %	< 0.0681	0.116	0.106	< 0.0681	0.0962	0.140	0.0917	0.0866	0.0515	0.0971
MN %	0.0387	0.185	0.0318	0.134	0.371	0.321	0.0185	0.186	0.0882	0.264
AG PPM	< 0.46	< 0.46	< 0.46	< 0.46	< 0.46	< 0.46	< 0.46	< 0.46	< 0.46	< 0.46
AS PPM	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100
AU PPM	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0
B PPM	49.0	57.2	85.6	63.9	82.2	59.5	59.0	67.6	74.3	77.3
BA PPM	223	339	404	468	500	393	257	436	264	343
BE PPM	3.01	5.86	7.23	5.77	9.60	10.2	3.22	6.50	6.03	6.34
BI PPM	< 4.64	< 4.64	< 4.64	< 4.64	< 4.64	< 4.64	< 4.64	< 4.64	< 4.64	< 4.64
CD PPM	< 31.6	< 31.6	< 31.6	< 31.6	< 31.6	< 31.6	< 31.6	< 31.6	< 31.6	< 31.6
CE PPM	58.9	113	99.6	106	123	89.4	61.4	120	86.7	96.7
CO PPM	5.41	11.4	9.87	9.41	16.6	21.9	4.35	32.9	8.19	18.7
CR PPM	16.3	60.7	57.9	48.6	41.8	38.4	36.3	55.2	35.9	48.4
CU PPM	7.80	11.9	12.0	11.8	10.1	14.8	7.57	25.1	12.6	24.1
DY PPM	< 14.7	< 14.7	15.5	< 14.7	< 14.7	< 14.7	< 14.7	< 14.7	< 14.7	< 14.7
ER PPM	< 4.64	< 4.64	8.87	8.87	< 4.64	7.52	< 4.64	8.73	6.93	< 4.64
EU PPM	< 1.00	1.57	2.00	2.60	2.21	< 1.00	< 1.00	1.82	1.19	1.19
GA PPM	4.27	10.6	14.7	9.68	13.5	11.5	12.9	13.9	9.22	13.8
GD PPM	< 21.5	< 21.5	< 21.5	< 21.5	< 21.5	< 21.5	< 21.5	< 21.5	< 21.5	< 21.5
GE PPM	< 3.16	< 3.16	< 3.16	< 3.16	< 3.16	< 3.16	< 3.16	< 3.16	< 3.16	< 3.16
HF PPM	< 21.5	< 21.5	< 21.5	< 21.5	< 21.5	< 21.5	< 21.5	< 21.5	< 21.5	< 21.5
HO PPM	< 14.7	< 14.7	< 3.16	< 14.7	< 14.7	< 14.7	< 14.7	< 14.7	< 3.16	< 14.7
IN PPM	< 4.64	< 4.64	< 4.64	< 4.64	< 4.64	< 4.64	< 4.64	< 4.64	< 4.64	< 4.64
IR PPM	< 6.81	< 6.81	< 6.81	< 6.81	< 6.81	< 6.81	< 6.81	< 6.81	< 6.81	< 6.81
LA PPM	25.5	47.1	44.1	45.6	44.2	42.8	32.7	45.8	41.0	43.9
LU PPM	< 6.81	< 6.81	< 6.81	< 6.81	< 6.81	< 6.81	< 6.81	< 6.81	< 6.81	< 6.81
MN PPM	387	1850	318	1340	3710	3210	185	1860	882	2640
MO PPM	< 2.15	< 2.15	< 2.15	< 2.15	< 2.15	< 2.15	< 2.15	< 2.15	< 2.15	< 2.15
NB PPM	< 14.7	19.2	19.3	15.4	16.5	18.6	< 14.7	17.4	17.0	16.0
ND PPM	< 68.1	< 68.1	< 68.1	< 68.1	< 68.1	< 68.1	< 68.1	< 68.1	< 68.1	< 68.1
NI PPM	11.4	33.8	39.7	45.2	55.7	53.7	12.5	50.9	34.3	47.5
OS PPM	< 6.81	< 6.81	< 6.81	< 6.81	< 6.81	< 6.81	< 6.81	< 6.81	< 6.81	< 6.81

Stream sediments (continued)

REPORT 76RESC0093 JOB NO. AG52 PAGE 1-B

FIELD #	WVD013	WVD014	WVD015	WVD016	WVD017	WVD018	WVD019	WVD020	WVD021	WVD022
SAMPLE	W-190691	W-190692	W-190693	W-190694	W-190695	W-190696	W-190697	W-190698	W-190699	W-190700
SPECTRUM	4	5	6	7	8	9	10	11	12	13
FE PPM	9.62	18.5	16.8	18.1	26.1	28.7	12.7	29.9	14.2	23.4
PD PPM	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
PR PPM	< 10.0	< 10.0	< 10.0	10.4	< 10.0	< 10.0	< 10.0	10.6	< 10.0	< 10.0
PT PPM	< 6.81	< 6.81	< 6.81	< 6.81	< 6.81	< 6.81	< 6.81	< 6.81	< 6.81	< 6.81
RE PPM	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0
RH PPM	< 0.68	< 0.68	< 0.68	< 0.68	< 0.68	< 0.68	< 0.68	< 0.68	< 0.68	< 0.68
RU PPM	< 0.68	< 0.68	< 0.68	< 0.68	< 0.68	< 0.68	< 0.68	< 0.68	< 0.68	< 0.68
SB PPM	< 68.1	< 68.1	< 68.1	< 68.1	< 68.1	< 68.1	< 68.1	< 68.1	< 68.1	< 68.1
SC PPM	4.84	12.1	15.4	12.2	11.6	12.9	10.6	16.2	9.19	13.7
SM PPM	< 6.81	7.27	< 6.81	7.44	7.68	< 6.81	< 6.81	7.38	< 6.81	< 6.81
SN PPM	< 14.7	< 14.7	< 14.7	< 14.7	< 14.7	< 14.7	< 14.7	< 14.7	< 14.7	< 14.7
SR PPM	26.2	74.9	76.9	56.0	67.0	27.6	30.4	65.9	71.0	60.3
TA PPM	< 464	< 464	< 464	< 464	< 464	< 464	< 464	< 464	< 464	< 464
TB PPM	< 14.7	< 14.7	< 14.7	< 14.7	< 14.7	< 14.7	< 14.7	< 14.7	< 14.7	< 14.7
TE PPM	< 464	< 464	< 464	< 464	< 464	< 464	< 464	< 464	< 464	< 464
TH PPM	< 46.4	< 46.4	< 68.1	< 46.4	< 68.1	< 46.4	< 46.4	< 46.4	< 46.4	< 68.1
TL PPM	< 4.64	< 4.64	< 4.64	< 4.64	< 4.64	< 4.64	< 4.64	< 4.64	< 4.64	< 4.64
TM PPM	< 3.16	< 3.16	< 3.16	< 3.16	< 3.16	< 3.16	< 3.16	< 3.16	< 3.16	< 3.16
U PPM	< 147	< 147	< 147	< 147	< 147	< 147	< 147	< 147	< 147	< 147
V PPM	50.6	82.4	106	83.3	73.1	90.4	93.6	99.2	77.1	90.2
W PPM	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0
Y PPM	28.1	35.7	42.7	38.1	42.6	37.0	32.2	40.8	29.5	30.6
YB PPM	2.72	4.46	2.95	4.68	5.22	4.24	3.97	4.84	3.30	3.07
ZN PPM	24.1	132	76.8	149	174	179	39.3	191	142	126
ZR PPM	187	237	269	275	273	421	245	326	240	452

MAJORS RECALCULATED AS OXIDES

SIO2 %	> 73.4	> 73.4	> 73.4	> 73.4	> 73.4	> 73.4	> 73.4	> 73.4	> 73.4	> 73.4
AL2O3 %	4.50	9.94	15.3	10.4	12.9	9.49	9.75	15.6	6.24	12.4
FE2O3 %	1.82	3.56	5.19	3.27	2.52	3.82	3.32	3.45	3.65	4.76
MGO %	0.330	0.381	1.34	0.448	0.419	0.345	0.305	0.438	0.464	0.608
CAO %	0.220	0.326	0.335	0.213	0.221	0.147	0.0493	0.194	0.206	0.256
NA2O %	0.147	0.0860	0.225	0.0859	0.0930	0.0694	0.0731	0.0892	0.128	0.115
K2O %	0.520	0.925	1.41	1.22	1.12	1.12	1.12	1.36	0.990	1.33
TIO2 %	0.430	0.734	0.891	0.862	0.831	0.592	0.697	0.806	0.734	0.814
P2O5 %	< 0.156	0.266	0.243	< 0.156	0.220	0.321	0.210	0.198	0.187	0.222
MNO %	0.0500	0.239	0.0411	0.173	0.479	0.415	0.0239	0.240	0.114	0.241

1. THE STANDARD DEVIATION OF ANY SINGLE ANSWER SHOULD BE TAKEN AS PLUS 50%, AND MINUS 33%.
2. THREE SIGNIFICANT FIGURES, WHEN REPORTED, APPEAR SOLELY FOR PROGRAMING CONVENIENCE AND SHOULD NOT BE USED IN PUBLICATIONS.

EMISSION SPECTROGRAPHIC ANALYSIS

REPORT 76RES00093 PROGRAM NO. 202 FOR: FRANK C. LESURE L. MEI (ANALYST)
JOB NO. AG52 PLATE NO. RE-284 DATE: 4/12/76 CHARLES S. ANNELL (PROJECT LEADER)
SPEC.LAB.# 27

FIELD #	WVD023	WVD025	WVD026	WVD027	WVD028	WVD029	WVD031	WVD032	WVD033	WVD034
SAMPLE	W-190701	W-190702	W-190703	W-190704	W-190705	W-190706	W-190707	W-190708	W-190709	W-190710
SPECTRUM	14	15	16	17	18	19	20	21	22	23
SI %	> 34.3	> 34.3	> 34.3	> 34.3	> 34.3	> 34.3	> 34.3	> 34.3	> 34.3	> 34.3
AL %	5.14	1.32	5.35	7.74	5.53	3.99	4.86	5.24	3.40	5.69
FE %	2.92	2.18	2.48	4.41	3.54	1.53	3.02	2.91	1.42	2.23
MG %	0.198	0.100	0.204	0.241	0.228	0.155	0.210	0.189	0.0964	0.190
CA %	0.0774	0.0810	0.0579	0.0848	0.0353	0.0346	0.0367	0.0529	0.0705	0.0436
NA %	0.0565	0.0464	0.0512	0.0658	0.0537	0.0315	0.0477	0.0471	0.0427	0.0524
K %	0.805	0.690	0.779	1.11	1.16	0.718	1.05	0.838	0.656	0.943
TI %	0.446	0.587	0.455	0.523	0.521	0.432	0.362	0.375	0.309	0.398
P %	0.100	0.131	0.0928	0.119	0.109	0.103	0.130	0.121	< 0.0681	0.0945
MN %	0.130	0.182	0.0491	0.0452	0.0290	0.0151	0.0201	0.106	0.140	0.0601
AG PPM	< 0.46	< 0.46	< 0.46	< 0.46	< 0.46	< 0.46	< 0.46	< 0.46	< 0.46	< 0.46
AS PPM	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100
AU PPM	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0
B PPM	46.3	71.0	59.5	64.8	73.3	62.4	59.0	64.7	48.5	65.1
BA PPM	264	299	288	377	289	232	284	270	269	270
BE PPM	2.77	3.40	2.65	3.52	3.11	2.83	3.09	3.85	4.91	4.09
BI PPM	< 4.64	< 4.64	< 4.64	< 4.64	< 4.64	< 4.64	< 4.64	< 4.64	< 4.64	< 4.64
CD PPM	< 31.6	< 31.6	< 31.6	< 31.6	< 31.6	< 31.6	< 31.6	< 31.6	< 31.6	< 31.6
CE PPM	104	93.4	87.7	109	117	92.9	89.0	106	72.3	99.2
CO PPM	19.6	19.2	8.12	6.83	7.70	2.91	3.87	12.0	14.0	14.0
CR PPM	56.9	80.1	54.1	53.8	41.8	45.4	37.0	44.5	37.0	55.2
CU PPM	12.9	17.2	11.3	20.5	12.9	7.87	11.1	12.9	6.87	20.7
DY PPM	< 14.7	< 14.7	< 14.7	< 14.7	14.9	< 14.7	< 14.7	< 14.7	< 14.7	< 14.7
ER PPM	< 4.64	< 4.64	7.39	< 4.64	7.35	5.68	< 4.64	6.69	< 4.64	< 4.64
EU PPM	1.77	1.33	< 1.00	1.07	1.19	< 1.00	1.28	< 1.00	< 1.00	< 1.00
GA PPM	12.1	12.0	12.6	15.8	13.6	7.28	12.7	10.5	6.86	11.8
GD PPM	< 21.5	< 21.5	< 21.5	< 21.5	< 21.5	< 21.5	< 21.5	< 21.5	< 21.5	< 21.5
GE PPM	< 3.16	< 3.16	< 3.16	< 3.16	< 3.16	< 3.16	< 3.16	< 3.16	< 3.16	< 3.16
HF PPM	< 21.5	< 46.4	< 21.5	< 21.5	< 21.5	< 21.5	< 21.5	< 21.5	< 21.5	< 21.5
HO PPM	< 3.16	< 3.16	< 14.7	< 14.7	6.58	< 14.7	< 14.7	< 3.16	< 14.7	< 3.16
IN PPM	< 4.64	< 4.64	< 4.64	< 4.64	< 4.64	< 4.64	< 4.64	< 4.64	< 4.64	< 4.64
IR PPM	< 6.81	< 6.81	< 6.81	< 6.81	< 6.81	< 6.81	< 6.81	< 6.81	< 6.81	< 6.81
LA PPM	42.3	33.2	31.2	47.0	55.4	36.5	35.5	44.9	26.9	43.5
LU PPM	< 6.81	< 6.81	< 6.81	< 6.81	< 6.81	< 6.81	< 6.81	< 6.81	< 6.81	< 6.81
MN PPM	1300	1620	491	452	290	151	201	1060	1400	601
MO PPM	< 2.44	2.59	< 2.15	3.52	2.45	< 2.15	2.28	2.17	< 2.15	< 2.15
ND PPM	15.3	20.3	14.9	20.0	20.2	19.2	19.6	17.8	16.0	18.0
ND PPM	< 68.1	< 68.1	< 68.1	< 68.1	< 68.1	< 68.1	< 68.1	< 68.1	< 68.1	< 68.1
NI PPM	15.7	21.7	13.7	17.4	14.5	12.2	15.1	18.0	15.6	13.9
OS PPM	< 6.81	< 6.81	< 6.81	< 6.81	< 6.81	< 6.81	< 6.81	< 6.81	< 6.81	< 6.81

REPORT 76RESC0093 JOB NO. AG52 PAGE 2-8

FIELD #	WVD023	WVD025	WVD026	WVD027	WVD028	WVD029	WVD031	WVD032	WVD033	WVD034
SAMPLE	W-190701	W-190702	W-190703	W-190704	W-190705	W-190706	W-190707	W-190708	W-190709	W-190710
SPECTRUM	14	15	16	17	18	19	20	21	22	23
PB PPM	23.8	19.3	16.3	30.3	15.2	11.1	14.3	25.2	17.4	17.8
PD PPM	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
PR PPM	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0
PT PPM	< 6.81	< 6.81	< 6.81	< 6.81	< 6.81	< 6.81	< 6.81	< 6.81	< 6.81	< 6.81
RE PPM	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0
RH PPM	< 0.68	< 0.68	< 0.68	< 0.68	< 0.68	< 0.68	< 0.68	< 0.68	< 0.68	< 0.68
RU PPM	< 0.68	< 0.68	< 0.68	< 0.68	< 0.68	< 0.68	< 0.68	< 0.68	< 4.64	< 0.68
SB PPM	< 68.1	< 68.1	< 68.1	< 68.1	< 68.1	< 68.1	< 68.1	< 68.1	< 68.1	< 68.1
SC PPM	8.20	9.34	8.58	12.5	10.9	9.09	10.7	9.96	6.24	9.42
SN PPM	< 6.81	< 6.81	< 6.81	< 6.81	8.92	7.44	< 6.81	< 6.81	< 6.81	< 6.81
SN PPM	< 14.7	< 14.7	< 14.7	< 14.7	< 14.7	< 14.7	< 14.7	< 14.7	< 14.7	< 14.7
SR PPM	89.6	75.8	67.1	85.7	73.8	69.0	63.7	83.4	21.7	95.9
TA PPM	< 464	< 464	< 464	< 464	< 464	< 464	< 464	< 464	< 464	< 464
TB PPM	< 14.7	< 14.7	< 14.7	< 14.7	< 14.7	< 14.7	< 14.7	< 14.7	< 14.7	< 14.7
TE PPM	< 464	< 464	< 464	< 464	< 464	< 464	< 464	< 464	< 464	< 464
TH PPM	< 68.1	< 46.4	< 68.1	< 46.4	< 46.4	< 46.4	< 46.4	< 68.1	< 100	< 68.1
TL PPM	< 4.64	< 4.64	< 4.64	< 4.64	< 4.64	< 4.64	< 4.64	< 4.64	< 4.64	< 4.64
TM PPM	< 3.16	< 3.16	< 3.16	< 3.16	< 3.16	< 3.16	< 3.16	< 3.16	< 3.16	< 3.16
U PPM	< 147	< 215	< 147	< 147	< 147	< 147	< 147	< 147	< 147	< 147
V PPM	75.5	87.2	79.4	100	102	83.4	83.7	79.5	58.7	72.8
W PPM	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0
Y PPM	26.2	40.7	31.2	36.7	39.8	38.0	28.9	28.6	26.3	31.9
YB PPM	3.65	5.99	4.04	2.80	3.16	5.29	5.49	2.57	3.08	4.65
ZN PPM	39.9	51.6	24.7	57.7	31.4	18.1	29.5	48.0	22.6	31.0
ZR PPM	416	454	479	282	590	1980	246	517	376	226

MAJORS RECALCULATED AS OXIDES

SIO2 %	> 73.4	> 73.4	> 73.4	> 73.4	> 73.4	> 73.4	> 73.4	> 73.4	> 73.4	> 73.4
AL2O3 %	9.71	2.49	10.1	14.6	10.5	7.54	9.18	9.90	6.43	10.8
FE2O3 %	4.17	3.12	3.55	6.31	5.06	2.19	4.32	4.16	2.03	3.19
MGO %	0.328	0.298	0.338	0.400	0.378	0.257	0.348	0.313	0.160	0.315
CAO %	0.108	0.0854	0.0810	0.119	0.0494	0.0484	0.0514	0.0740	0.0986	0.0610
NA2O %	0.0762	0.0625	0.0690	0.0887	0.0724	0.0425	0.0643	0.0635	0.0576	0.0706
K2O %	0.970	0.831	0.938	1.34	1.40	0.865	1.26	1.01	0.790	1.14
TIO2 %	0.744	0.979	0.759	0.872	0.869	0.721	0.604	0.626	0.515	0.664
P2O5 %	0.229	0.300	0.213	0.273	0.250	0.236	0.298	0.277	< 0.156	0.217
MNO %	0.168	0.235	0.0634	0.0584	0.0374	0.0195	0.0260	0.137	0.181	0.0776

1. THE STANDARD DEVIATION OF ANY SINGLE ANSWER SHOULD BE TAKEN AS PLUS 50%, AND MINUS 33%.
2. THREE SIGNIFICANT FIGURES, WHEN REPORTED, APPEAR SOLELY FOR PROGRAMING CONVENIENCE AND SHOULD NOT BE USED IN PUBLICATIONS.

EMISSION SPECTROGRAPHIC ANALYSIS

REPORT 76RESCO093 PROGRAM NO. 202 FOR: FRANK G. LESURE L. MEI (ANALYST)
JOB NO. AG52 PLATE NO. RE-285 DATE: 4/12/76
SPEC.LAB.# 27 CHARLES S. ANNELL (PROJECT LEADER)

FIELD #	WVD035	WVD038	WVD039	WVD040	WVD041	WVD044	WVD045	WVD046	WVD049	WVD051
SAMPLE	W-190711	W-190712	W-190713	W-190714	W-190715	W-190716	W-190717	W-190718	W-190719	W-190720
SPECTRUM	4	5	6	7	8	9	10	11	12	13
SI %	> 34.3	> 34.3	> 34.3	> 34.3	> 34.3	> 34.3	> 34.3	> 34.3	> 34.3	> 34.3
AL %	5.64	3.06	4.54	3.90	6.76	7.62	4.59	2.60	1.94	3.61
FE %	2.34	1.59	2.30	1.87	3.36	1.25	1.61	1.04	0.360	1.52
MG %	0.205	0.153	0.318	0.279	0.623	0.218	0.196	0.128	0.0385	0.129
CA %	0.0817	0.0553	0.231	0.169	0.479	0.0736	0.0615	0.0409	0.0165	0.0831
NA %	0.0768	0.0419	0.103	0.0921	0.242	0.0872	0.0648	0.0291	0.0120	0.0308
K %	0.860	0.387	0.657	0.662	1.32	0.998	0.559	0.286	0.110	0.431
TI %	0.367	0.452	0.371	0.332	0.508	1.04	0.531	0.650	0.370	0.536
P %	0.123	< 0.0681	0.0717	< 0.0681	0.106	0.103	< 0.0681	0.0834	< 0.0681	< 0.0681
MN %	0.467	0.0211	0.291	0.0438	0.218	0.0133	0.0232	0.0190	0.00349	0.0436
AG PPM	< 0.46	< 0.46	< 0.46	< 0.46	< 0.46	< 0.46	< 0.46	0.55	< 0.46	< 0.46
AS PPM	< 100	< 100	< 215	< 100	< 100	< 100	< 100	< 100	< 100	< 100
AU PPM	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0
B PPM	45.2	69.1	71.1	116	77.6	103	123	131	28.5	55.7
BA PPM	282	135	279	274	418	285	231	176	113	193
BE PPM	6.40	2.23	7.43	3.12	5.06	1.55	1.92	1.82	1.18	1.90
BI PPM	< 4.64	< 4.64	< 4.64	< 4.64	< 4.64	< 4.64	< 4.64	< 4.64	< 4.64	< 4.64
CD PPM	< 31.6	< 31.6	< 31.6	< 31.6	< 31.6	< 31.6	< 31.6	< 31.6	< 31.6	< 31.6
CE PPM	73.4	58.4	52.8	59.4	101	126	99.3	135	144	273
CO PPM	54.5	5.62	13.7	6.30	15.2	2.81	4.63	3.94	< 1.00	7.20
CR PPM	37.8	61.5	29.3	25.7	52.0	365	120	83.1	15.2	76.5
CU PPM	16.2	3.37	14.3	12.3	15.0	6.77	5.25	2.66	5.24	7.01
DY PPM	< 14.7	< 14.7	< 14.7	< 14.7	< 14.7	< 14.7	< 14.7	< 14.7	< 14.7	< 14.7
ER PPM	< 4.64	6.12	< 4.64	5.78	< 4.64	9.54	9.31	5.48	< 4.64	9.82
EU PPM	1.28	< 1.00	< 1.00	< 1.00	1.22	3.78	1.54	< 1.00	< 1.00	5.08
GA PPM	11.1	6.15	8.91	7.26	13.5	15.2	10.2	5.94	3.71	5.81
GD PPM	< 21.5	< 21.5	< 21.5	< 21.5	< 21.5	< 21.5	< 21.5	< 21.5	< 21.5	< 21.5
GE PPM	< 3.16	< 3.16	< 3.16	< 3.16	< 3.16	< 3.16	< 3.16	< 3.16	< 3.16	< 3.16
HF PPM	< 21.5	< 46.4	< 21.5	< 21.5	< 21.5	< 100	< 21.5	< 21.5	< 21.5	< 21.5
HO PPM	< 14.7	< 14.7	< 3.16	< 3.16	< 14.7	< 14.7	< 14.7	< 14.7	< 14.7	< 14.7
IN PPM	< 4.64	< 4.64	< 4.64	< 4.64	< 4.64	< 4.64	< 4.64	< 4.64	< 4.64	< 4.64
IR PPM	< 6.81	< 6.81	< 6.81	< 6.81	< 6.81	< 6.81	< 6.81	< 6.81	< 6.81	< 6.81
LA PPM	29.4	21.7	16.4	22.1	34.1	60.5	34.4	44.2	26.7	107
LU PPM	< 6.81	< 6.81	< 6.81	< 6.81	< 6.81	< 46.4	< 6.81	< 6.81	< 6.81	< 6.81
MN PPM	4670	211	2910	438	2180	123	232	190	34.9	436
MO PPM	< 2.15	< 2.15	2.19	< 2.15	< 2.15	< 2.15	< 2.15	< 2.15	2.68	< 2.15
NB PPM	< 14.7	< 14.7	15.0	< 14.7	< 14.7	26.4	21.2	30.0	18.0	17.9
ND PPM	< 68.1	< 68.1	< 68.1	< 68.1	< 68.1	< 68.1	< 68.1	< 68.1	< 68.1	< 68.1
NI PPM	22.0	10.1	40.2	17.6	38.0	9.83	10.4	11.6	1.86	11.6
OS PPM	< 6.81	< 6.81	< 6.81	< 6.81	< 6.81	< 6.81	< 6.81	< 6.81	< 6.81	< 6.81

REPORT 76RESC0093 JOB NO. AG52

FIELD #	WVD035	WVD038	WVD039	WVD040	WVD041	WVD044	WVD045	WVD046	WVD049	WVD051
SAMPLE	W-190711	W-190712	W-190713	W-190714	W-190715	W-190716	W-190717	W-190718	W-190719	W-190720
SPECTRUM	4	5	6	7	8	9	10	11	12	13
PB PPM	30.0	9.15	17.3	12.6	24.1	19.4	12.7	8.30	5.37	9.65
BO PPM	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
BR PPM	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	18.3
BT PPM	< 6.81	< 6.81	< 6.81	< 6.81	< 6.81	< 6.81	< 6.81	< 6.81	< 6.81	< 6.81
BE PPM	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0
BA PPM	< 0.68	< 0.68	< 0.68	< 0.68	< 0.68	< 0.68	< 0.68	< 0.68	< 0.68	< 0.68
BI PPM	< 0.68	< 1.00	< 0.68	< 0.68	< 0.68	< 0.68	< 0.68	< 0.68	< 0.68	< 0.68
CD PPM	< 68.1	< 68.1	< 68.1	< 68.1	< 68.1	< 68.1	< 68.1	< 68.1	< 68.1	< 68.1
CE PPM	7.50	4.02	8.57	6.61	14.4	7.39	7.33	4.91	2.44	5.35
SN PPM	< 6.81	< 6.81	< 6.81	< 6.81	< 6.81	8.51	< 6.81	< 31.6	< 31.6	14.3
SM PPM	< 14.7	< 14.7	< 14.7	< 14.7	< 14.7	< 14.7	< 14.7	< 14.7	< 14.7	< 14.7
SR PPM	80.4	24.7	69.0	29.3	99.6	67.2	64.5	22.6	14.6	84.8
TA PPM	< 464	< 464	< 464	< 464	< 464	< 1000	467	< 464	< 464	< 464
TB PPM	< 14.7	< 14.7	< 14.7	< 14.7	< 14.7	< 14.7	< 14.7	< 14.7	< 14.7	< 14.7
TE PPM	< 464	< 464	< 464	< 464	< 464	< 464	< 464	< 464	< 464	< 464
TH PPM	< 46.4	< 46.4	< 68.1	< 68.1	< 68.1	< 68.1	< 46.4	< 46.4	< 46.4	< 46.4
TL PPM	< 4.64	< 4.64	< 4.64	< 4.64	< 4.64	< 4.64	< 4.64	< 4.64	< 4.64	< 4.64
TM PPM	< 3.16	< 3.16	< 3.16	< 3.16	< 3.16	< 3.16	< 3.16	< 3.16	< 3.16	< 3.16
U PPM	< 147	< 147	< 147	< 147	< 147	< 147	< 147	< 147	< 147	< 147
V PPM	82.2	59.6	81.9	57.4	104	71.2	72.7	68.1	33.4	58.1
W PPM	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0
Y PPM	29.2	39.8	34.1	20.7	38.8	53.8	57.9	56.2	28.5	54.0
YB PPM	3.77	4.88	3.68	2.34	3.09	9.36	8.54	5.66	2.00	7.96
ZN PPM	64.3	19.1	239	47.0	167	< 14.7	< 14.7	< 14.7	< 14.7	21.2
ZR PPM	160	563	226	158	312	1500	1810	> 2150	> 2150	1660

MAJORS RECALCULATED AS OXIDES

SIO2 %	> 73.4	> 73.4	> 73.4	> 73.4	> 73.4	> 73.4	> 73.4	> 73.4	> 73.4	> 73.4
AL203 %	10.7	5.78	8.58	7.37	12.8	14.4	8.67	4.91	3.67	6.82
FE203 %	3.35	2.27	3.29	2.67	4.80	1.79	2.30	1.49	0.515	2.17
MGO %	0.340	0.154	0.527	0.463	1.03	0.361	0.325	0.212	0.0638	0.214
CAO %	0.114	0.0774	0.323	0.236	0.670	0.103	0.0861	0.0572	0.0231	0.112
NA2O %	0.104	0.0565	0.139	0.124	0.326	0.118	0.0873	0.0592	0.0162	0.0415
K2O %	1.04	0.466	0.791	0.797	1.59	1.20	0.673	0.345	0.133	0.519
TIO2 %	0.612	0.754	0.619	0.554	0.947	1.73	0.886	1.08	0.617	0.894
P2O5 %	0.282	< 0.156	0.164	< 0.156	0.243	0.236	< 0.156	0.191	< 0.156	< 0.156
MNO %	0.603	0.0272	0.376	0.0566	0.281	0.0159	0.0300	0.0245	0.00451	0.0563

1. THE STANDARD DEVIATION OF ANY SINGLE ANSWER SHOULD BE TAKEN AS PLUS 50%, AND MINUS 33%.
2. THESE SIGNIFICANT FIGURES, WHEN REPORTED, APPEAR SOLELY FOR PROGRAMING CONVENIENCE AND SHOULD NOT BE USED IN PUBLICATIONS.