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GEOLOGICAL SURVEY

Geochemical Analyses of Stream Sediments of the Middle
Mountain-Tobacco Root Further Planning Area (RARE II), Madison
County, Montana

By

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Introduction

The northern part of the Tobacco Root Mountains was designated as a Further Planning Area by the U.S. Forest Service in "RARE II, summary-final environmental statement" (1979). This area, designated as the Middle Mountain-Tobacco Root study area (I.D. B1-103), encompasses 36,640 acres, mainly within the Deerlodge National Forest, Madison County, Montana.

Mineral resource assessment of the study area by the U.S. Geological Survey was begun in July, 1979. Two hundred and thirty seven stream-sediment samples were collected and analysed in mobile laboratories of the U.S. Geological Survey. Samples were analysed for 31 elements using semiquantitative emission spectrographic and wet chemical techniques. Chemical analyses of these samples, the latitude and longitude of the sample site and a map showing the location of the sample sites with respect to the Further Planning area boundary are presented in this report. Stream-sediment samples were collected by M. O'Neill and analysed by D. Seims and E. Welsch; data were entered and retrieved from a computer storage system (RASS II) by W. Speckman.

Sampling and Preparation

Stream-sediment samples were collected from active first and second order drainages within the Further Planning area and around its periphery. Approximately 1 kg of the finest grained material available was sampled. Generally this was in the sand to silt size range. The composite sample was collected along the stream channel over a distance approximately equal to the width of the stream. Samples were dried at lesss than 100°C and then sieved to the minus 200 mesh fraction.

Analyses of Samples

Each sample was analyzed semiquantitatively for 31 elements using a six-step, D. C.-arc, optical-emission spectrographic method (Grimes and Marranzino, 1968), and additional wet chemical analyses were obtained for zinc, arsenic and antimony. Atomic absorption spectrometric techniques were used to analyze for zinc (Ward and other, 1969) and antimony (Welsch and Chao, 1975), and a colorimetric technique was used to analyze for arsenic (Almond, 1953).

The semiquantitative spectrographic values are reported as six steps per order of magnitude (1, 0.7, 0.5, 0.3, 0.2, 0.15, and multiples of 10 of these members) 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 values 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).

The visual lower limits of determination for the 31 elements that were determined spectrographically and are included in this report are as follows:

For those give in percent

Calcium	0.05
Iron	0.05
Magnesium	0.02
Titanium	0.002

For those given in ppm:

Antimony	100	Molybdenum	5
Arsenic	200	Nickel	5
Barium	20	Niobium	20

Beryllium	1	Scandium	5
Bismuth	10	Silver	0.5
Boron	10	Strontium	100
Cadmium	20	Thorium	100
Chromium	10	Tin	10
Cobalt	5	Tungsten	50
Copper	5	Vanadium	10
Gold	10	Yttrium	10
Lanthanum	20	Zinc	200
Lead	10	Zirconium	10
Manganese	10		

limits of determination for arsenic, antimony, and zinc
wet chemical means are as follows:

Elements given in ppm:

Antimony	1
Arsenic	10
Zinc	5

Uranium concentrations in stream-sediment and water samples collected from this area have been published under the auspices of the National Uranium Resource Evaluation program, U.S. Department of Energy (Broxton, 1979).

Explanation of Table

Iron, magnesium, calcium, and titanium are reported in percent (%); all other elements are reported in parts per million (ppm). Letters preceeding the chemical symbol indicate the method of analysis: S, six step semiquantitative spectrographic; AA, atomic absorption; CM, colorimetric. Letter P following zinc analyses indicates partial digestion of sample. Symbols represented in the Table are: N, not detected; --, not determined; >, amount detected is above the highest limit of determination, which is the value shown; <, amount detected is below the lowest limit of determination, which is the value shown.

Table 1.--Stream sediment samples from the Middle Mountain-Tobacco Root
Further Planning area, Montana

Table 1. Stream sediment samples from the Middle Mountain-Tobacco Root Further Planning area, Montana

Column identification and data ranges (min/max)

LATITUDE	LONGITUDE	S-PEZ	S-MGZ	S-CAZ	S-TIZ	S-MN	S-AG	S-AS	S-AU
0.45511E+02	0.11190E+03	0.10000E+01	0.20000E+00	0.15000E+00	0.10000E+00	0.50000E+03	0.50000E+00	0.20000E+03	0.10000E+02
0.45921E+02	0.11223E+03	0.15000E+02	0.50000E+01	0.15000E+02	0.10000E+02	0.50000E+04	0.20000E+02	0.10000E+04	0.70000E+02
S-B	S-BA	S-BE	S-BI	S-CD	S-CO	S-CR	S-CU	S-LA	S-MO
0.10000E+02	0.10000E+03	0.10000E+01	0.10000E+02	0.20000E+02	0.50000E+01	0.10000E+02	0.10000E+02	0.20000E+02	0.50000E+01
0.30000E+03	0.15000E+04	0.10000E+02	0.70000E+02	0.20000E+02	0.70000E+02	0.10000E+04	0.10000E+04	0.50000E+03	0.10000E+03
S-MB	S-NI	S-PB	S-SB	S-SC	S-SN	S-SR	S-V	S-W	S-Y
0.20000E+02	0.50000E+01	0.10000E+02	0.10000E+03	0.50000E+01	0.10000E+02	0.10000E+03	0.30000E+02	0.50000E+02	0.10000E+02
0.30000E+02	0.20000E+03	0.20000E+04	0.10000E+03	0.50000E+02	0.20000E+02	0.10000E+04	0.30000E+03	0.70000E+02	0.15000E+03
S-ZN	S-ZR	S-TH	AA-AU-P	INST-HG	AA-TE	AA-CU-P	AA-ZN-P	AA-CD-P	AA-BI-P
0.20000E+03	0.70000E+02	0.10000E+03	0.10000E+39	0.10000E+39	0.10000E+39	0.10000E+39	0.20000E+02	0.10000E+39	0.10000E+39
0.70000E+03	0.10000E+04	0.10000E+03	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	0.11000E+04	0.00000E+00	0.00000E+00
AA-SB-P	CM-AS	CM-W	CM-W-P						
0.10000E+01	0.10000E+02	0.10000E+39	0.10000E+39						
0.90000E+01	0.60000E+03	0.00000E+00	0.00000E+00						

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Table 1. Stream sediment samples from the Middle Mountain-Tobacco Root Further Planning area, Montana

sample	LATITUDE	LONGITUDE	S-FEX	S-MGX	S-CAZ	S-TIX	S-MN	S-AG	S-AS	S-AU	S-B	S-DA	S-SE	S-BI	S-CD
TR1A01	45 44 52	112 1 4	3.0	1.5	1.00	.5	700	N	N	N	100	300	1.5	N	N
TR1A02	45 44 47	112 1 3	2.0	.5	.50	.3	500	N	N	N	70	200	2.0	N	N
TR1A03	45 44 45	112 0 50	3.0	1.0	1.50	.7	1,500	N	N	N	100	500	2.0	N	N
TR1A04	45 45 14	111 57 44	7.0	3.0	3.00	.3	1,000	N	N	N	50	500	1.5	N	N
TR1A05	45 43 14	111 58 30	7.0	2.0	1.50	.5	1,500	N	N	N	30	500	1.0	N	N
TR1A06	45 43 47	111 58 3	10.0	1.5	2.00	.5	2,000	N	N	N	30	500	1.0	N	N
TR1A07	45 43 25	111 57 43	10.0	1.5	1.50	.7	3,000	N	N	N	20	500	1.0	N	N
TR1A08	45 43 23	111 57 50	10.0	1.5	1.50	.7	1,500	N	N	N	20	500	1.5	N	N
TR1A09	45 43 39	111 58 50	3.0	2.0	5.00	.2	500	N	N	N	70	500	1.0	N	N
TR1A10	45 43 45	112 0 36	7.0	2.0	1.50	.5	1,000	N	N	N	20	700	1.5	N	N
TR1A11	45 43 41	112 0 31	5.0	1.5	2.00	.3	1,000	N	N	N	150	700	2.0	N	N
TR1A12	45 43 45	112 1 18	3.0	.7	.50	.5	700	N	N	N	70	700	1.5	N	N
TR1A13	45 42 30	111 59 16	5.0	1.0	.70	.3	1,500	N	N	N	30	700	1.5	N	N
TR1A14	45 42 27	112 0 2	7.0	1.0	1.50	.5	1,500	N	N	N	30	700	1.5	N	N
TR1A15	45 42 50	112 0 50	3.0	1.5	.70	.3	700	N	N	N	30	300	1.0	N	N
TR1A16	45 42 45	112 0 50	5.0	1.5	1.00	.5	1,000	N	N	N	15	300	1.5	N	N
TR1A17	45 42 13	111 59 40	3.0	1.0	.70	.3	700	N	N	N	20	200	2.0	N	N
TR1A18	45 42 4	112 0 25	10.0	1.5	1.50	.7	3,000	N	N	N	15	500	1.0	N	N
TR1A19	45 41 48	112 0 7	5.0	2.0	1.50	.5	1,000	.5	N	N	20	500	2.0	N	N
TR1A20	45 41 38	112 0 47	5.0	1.0	1.00	.3	1,000	N	N	N	15	300	1.0	N	N
TR1A21	45 41 47	112 1 35	7.0	3.0	3.00	.5	2,000	N	N	N	10	300	1.5	N	N
TR1A22	45 41 42	112 1 37	5.0	1.5	2.00	.5	1,500	N	N	N	15	200	1.5	N	N
TR1A23	45 41 30	112 2 35	5.0	1.5	1.00	.5	1,000	N	N	N	20	150	1.5	N	N
TR1A24	45 41 23	112 2 40	7.0	2.0	3.00	.5	1,500	N	N	N	15	200	1.5	N	N
TR1A25	45 41 7	112 3 23	5.0	1.5	2.00	.7	1,000	N	N	N	20	150	1.0	N	N
TR1A26	45 40 52	112 3 25	5.0	2.0	1.50	.5	1,000	N	N	N	15	150	1.0	N	N
TR1A27	45 40 50	112 3 20	7.0	1.5	2.00	.5	1,000	.5	N	N	20	300	1.5	N	N
TR1A28	45 41 6	112 1 3	7.0	1.5	1.00	.5	1,500	N	N	N	20	500	1.5	N	N
TR1A29	45 41 0	112 1 40	7.0	1.0	1.50	.7	1,500	N	N	N	30	700	2.0	N	N
TR1A31	45 40 55	112 1 39	7.0	1.0	1.00	.5	1,500	<.5	N	N	30	500	1.5	N	N
TR1A32	45 40 11	112 1 55	7.0	1.5	1.50	.5	1,500	.5	N	N	30	500	1.5	N	N
TR1A34	45 40 14	112 0 58	7.0	.2	.15	.5	500	20.0	1,000	N	10	1,500	2.0	70	N
TR1A35	45 39 55	112 1 10	3.0	.7	.7	.3	700	.7	N	N	15	1,000	2.0	N	N
TR1A36	45 39 18	111 59 40	3.0	1.0	.70	.5	700	N	N	N	30	200	1.0	N	N
TR1A37	45 39 32	112 1 19	7.0	1.5	1.50	.5	1,500	.7	N	N	20	700	1.5	N	N
TR1A38	45 39 22	112 2 8	5.0	1.5	1.00	.5	1,500	N	N	N	15	700	1.5	N	N
TR1A39	45 39 19	112 2 3	7.0	1.0	1.00	.5	1,500	N	N	N	30	700	1.5	N	N
TR1A40	45 39 2	112 1 26	7.0	1.5	3.00	.5	2,000	1.0	N	N	15	500	1.5	N	N
TR1A42	45 37 27	112 2 21	7.0	1.5	1.50	.5	1,500	N	N	N	20	700	2.0	N	N
TR1A43	45 38 21	112 2 6	5.0	1.5	1.00	.5	1,000	N	N	N	15	300	<1.0	N	N
TR1A44	45 38 22	112 2 54	7.0	2.0	2.00	.7	2,000	N	N	N	20	300	1.0	N	N
TR1A45	45 38 0	112 3 43	7.0	1.5	1.00	.5	1,000	N	N	N	<10	150	1.0	N	N
TR1A46	45 37 52	112 3 40	7.0	3.0	1.50	.7	2,000	N	N	N	20	300	1.0	N	N
TR1A47	45 37 33	112 4 45	7.0	2.0	1.00	.3	1,500	N	N	N	20	200	1.0	N	N
TR1A48	45 37 41	112 1 58	3.0	1.0	.70	.3	1,000	N	N	N	20	500	1.0	N	N

Table 1. Stream sediment samples from the Middle Mountain-Tobacco Root Further Planning area, Montana

sample	S-CO	S-CR	S-CU	S-LA	S-MO	S-VB	S-NI	S-PB	S-SB	S-SC	S-SN	S-SR	S-V	S-W	S-Y	S-ZN	S-ZR
TR1A01	15	200	20	30	N	V	50	50	N	10	N	200	150	V	30	N	300
TR1A02	10	70	30	30	N	N	50	15	N	15	N	150	200	N	20	N	200
TR1A03	15	200	30	50	N	<20	70	50	N	15	N	200	200	N	50	N	700
TR1A04	20	500	50	20	N	<20	100	20	N	10	N	200	100	N	15	N	200
TR1A05	30	500	70	20	N	V	150	20	N	15	N	150	100	V	15	N	200
TR1A06	30	700	50	100	N	V	100	20	N	20	N	200	150	V	50	N	700
TR1A07	30	500	30	50	N	<20	100	20	N	30	N	200	150	N	50	N	1,000
TR1A08	30	500	50	30	N	<20	150	30	N	30	N	150	150	N	70	N	700
TR1A09	15	1,000	20	30	N	V	100	20	N	10	N	200	70	V	30	N	100
TR1A10	30	700	100	30	N	N	150	20	N	10	N	500	200	V	15	N	100
TR1A11	20	150	50	50	N	N	50	70	N	10	N	200	100	N	20	N	150
TR1A12	15	100	30	30	N	<20	30	30	N	7	N	150	100	N	15	N	300
TR1A13	30	300	70	50	N	<20	150	20	N	15	N	150	100	N	20	N	150
TR1A14	30	500	50	50	N	N	100	30	N	20	N	200	100	V	50	N	500
TR1A15	20	200	30	30	N	N	100	50	N	15	N	100	150	V	30	N	500
TR1A16	20	200	50	30	N	N	70	50	N	20	N	100	150	V	50	N	300
TR1A17	20	200	50	70	N	N	100	30	N	15	N	100	150	N	70	N	200
TR1A18	50	500	70	100	N	N	100	30	N	30	N	150	150	V	70	N	700
TR1A19	30	200	50	70	N	V	100	50	N	15	N	200	150	N	30	N	300
TR1A20	30	200	70	20	N	V	70	20	N	15	N	150	100	V	15	N	300
TR1A21	30	300	50	100	N	N	150	70	N	30	N	200	200	N	100	N	500
TR1A22	30	200	100	20	N	N	100	50	N	20	N	200	200	N	50	N	300
TR1A23	30	100	70	30	N	V	100	70	N	20	N	150	200	N	30	N	500
TR1A24	30	200	100	30	N	N	100	50	N	30	N	300	200	V	30	N	500
TR1A25	30	100	50	30	N	N	70	70	N	20	N	200	200	V	50	N	700
TR1A26	50	300	150	20	N	V	150	50	N	20	N	150	150	N	20	N	200
TR1A27	30	200	50	50	N	N	70	50	N	20	N	200	200	N	30	N	300
TR1A28	50	500	50	50	N	N	100	20	N	20	N	200	150	V	30	N	700
TR1A29	30	300	50	50	N	N	100	30	N	30	N	300	150	V	30	N	700
TR1A31	30	300	70	30	N	N	100	20	N	20	N	200	150	V	20	N	500
TR1A32	30	300	70	20	N	V	100	20	N	20	N	200	150	N	30	N	200
TR1A34	15	50	500	150	5	<20	20	100	N	15	N	100	100	<50	70	N	>1,000
TR1A35	15	70	50	70	10	20	30	50	N	5	N	200	70	N	15	N	300
TR1A36	20	150	30	20	N	V	100	20	N	10	N	150	100	N	20	N	700
TR1A37	30	300	70	50	7	N	150	30	N	15	N	200	150	N	30	N	500
TR1A38	30	300	70	30	10	N	100	20	N	20	N	200	150	N	50	N	500
TR1A39	30	200	70	30	N	<20	100	30	N	15	N	200	150	N	70	N	500
TR1A40	30	500	50	50	N	<20	100	70	N	20	N	200	150	N	50	N	1,000
TR1A42	30	500	100	30	5	N	100	30	N	20	N	200	200	V	30	N	500
TR1A43	20	500	50	30	N	N	100	20	N	15	N	150	150	N	50	N	500
TR1A44	50	300	70	100	N	N	100	70	N	30	N	200	300	N	50	N	300
TR1A45	30	300	20	50	N	V	100	20	N	20	N	150	150	N	30	N	500
TR1A46	50	300	100	50	5	N	100	70	N	30	N	200	300	V	50	N	200
TR1A47	30	200	50	<20	N	N	100	20	N	20	N	150	150	V	20	N	300
TR1A48	20	500	70	20	N	V	150	30	N	7	N	150	150	V	10	N	150

Table 1. Stream sediment samples from the Middle Mountain-Tobacco Root Further Planning area, Montana

sample	S-TH	AA-AJ-P	INST-HG	AA-TE	AA-CU-P	AA-ZN-P	AA-CD-P	AA-BI-P	AA-SB-P	CM-AS	CM-W	CM-J-P
TR1A01	N	--	--	--	--	80	--	--	2	10	--	--
TR1A02	N	--	--	--	--	95	--	--	1	10	--	--
TR1A03	N	--	--	--	--	80	--	--	1	10	--	--
TR1A04	N	--	--	--	--	75	--	--	4	<10	--	--
TR1A05	N	--	--	--	--	95	--	--	1	<10	--	--
TR1A06	N	--	--	--	--	50	--	--	2	<10	--	--
TR1A07	N	--	--	--	--	45	--	--	2	<10	--	--
TR1A08	N	--	--	--	--	60	--	--	<1	<10	--	--
TR1A09	N	--	--	--	--	45	--	--	<1	<10	--	--
TR1A10	N	--	--	--	--	85	--	--	<1	10	--	--
TR1A11	N	--	--	--	--	75	--	--	1	20	--	--
TR1A12	N	--	--	--	--	65	--	--	1	10	--	--
TR1A13	N	--	--	--	--	130	--	--	1	<10	--	--
TR1A14	N	--	--	--	--	110	--	--	2	<10	--	--
TR1A15	N	--	--	--	--	170	--	--	1	10	--	--
TR1A16	N	--	--	--	--	130	--	--	1	10	--	--
TR1A17	N	--	--	--	--	120	--	--	1	15	--	--
TR1A18	N	--	--	--	--	110	--	--	1	<10	--	--
TR1A19	N	--	--	--	--	110	--	--	1	20	--	--
TR1A20	N	--	--	--	--	75	--	--	<1	<10	--	--
TR1A21	N	--	--	--	--	65	--	--	1	10	--	--
TR1A22	N	--	--	--	--	85	--	--	1	20	--	--
TR1A23	N	--	--	--	--	150	--	--	1	20	--	--
TR1A24	N	--	--	--	--	65	--	--	2	20	--	--
TR1A25	N	--	--	--	--	80	--	--	1	15	--	--
TR1A26	N	--	--	--	--	90	--	--	1	15	--	--
TR1A27	N	--	--	--	--	70	--	--	N	10	--	--
TR1A28	N	--	--	--	--	45	--	--	<1	<10	--	--
TR1A29	N	--	--	--	--	70	--	--	<1	<10	--	--
TR1A31	N	--	--	--	--	70	--	--	<1	<10	--	--
TR1A32	N	--	--	--	--	75	--	--	<1	<10	--	--
TR1A34	N	--	--	--	--	120	--	--	3	600	--	--
TR1A35	N	--	--	--	--	25	--	--	<1	<10	--	--
TR1A36	N	--	--	--	--	65	--	--	N	10	--	--
TR1A37	N	--	--	--	--	75	--	--	<1	<10	--	--
TR1A38	N	--	--	--	--	55	--	--	<1	<10	--	--
TR1A39	N	--	--	--	--	95	--	--	2	40	--	--
TR1A40	N	--	--	--	--	50	--	--	1	<10	--	--
TR1A42	N	--	--	--	--	170	--	--	<1	<10	--	--
TR1A43	N	--	--	--	--	70	--	--	1	<10	--	--
TR1A44	N	--	--	--	--	95	--	--	N	20	--	--
TR1A45	N	--	--	--	--	50	--	--	N	10	--	--
TR1A46	N	--	--	--	--	100	--	--	1	30	--	--
TR1A47	N	--	--	--	--	120	--	--	1	30	--	--
TR1A48	N	--	--	--	--	140	--	--	<1	<10	--	--

Table 1. Stream sediment samples from the Middle Mountain-Tobacco Root Further Planning area, Montana

sample	LATITUDE	LONGITUDE	S-FEX	S-MGX	S-CAZ	S-TIZ	S-MN	S-AG	S-AS	S-AU	S-B	S-BA	S-3E	S-SI	S-CD
TR1A49	45 37 22	112 1 58	5.0	1.0	1.00	.5	1,000	N	N	N	15	300	1.0	N	N
TR1A50	45 37 16	112 2 6	3.0	1.0	.70	.3	2,000	N	N	N	15	500	3.0	N	20
TR1A51	45 36 30	112 1 43	1.0	.3	1.00	.3	500	N	N	N	15	150	2.0	N	N
TR1A52	45 36 0	112 1 41	7.0	1.5	1.00	.5	1,500	1.0	N	N	20	150	2.0	N	N
TR1A53	45 35 55	112 1 56	10.0	5.0	2.00	1.0	2,000	1.0	N	N	<10	500	1.5	N	N
TR1A54	45 35 10	112 2 4	5.0	2.0	.70	.5	1,000	.7	N	N	10	200	1.5	N	N
TR1A57	45 36 52	112 3 5	3.0	1.0	.70	.3	1,000	N	N	N	30	500	1.5	N	N
TR1A58	45 36 38	112 3 0	3.0	1.5	2.00	.5	1,000	N	N	N	10	100	1.0	N	N
TR1A59	45 36 29	112 3 41	3.0	.7	.70	.3	1,000	N	N	N	20	500	1.5	N	N
TR1A60	45 36 28	112 3 18	3.0	1.0	1.00	.3	1,000	N	N	N	20	500	1.5	N	N
TR1A61	45 36 15	112 3 48	3.0	1.5	1.00	.5	1,500	N	N	N	10	150	1.5	N	N
TR1A62	45 36 19	112 4 3	5.0	1.5	1.00	.3	1,000	.5	N	N	20	200	1.5	N	N
TR1A63	45 36 15	112 4 0	2.0	1.0	1.00	.3	1,000	.5	N	N	20	200	1.5	N	N
TR1A64	45 36 0	112 5 5	5.0	1.0	1.50	.5	1,500	.5	N	N	30	300	2.0	N	N
TR1A65	45 36 12	112 4 48	3.0	.7	.70	.3	700	.5	N	N	20	150	1.5	N	N
TR1A66	45 35 36	112 3 58	5.0	3.0	2.00	.5	1,500	N	N	N	10	200	1.5	N	N
TR1A67	45 35 15	112 3 56	5.0	2.0	1.50	.5	1,500	.5	N	N	15	200	1.5	N	N
TR1A68	45 34 55	112 4 5	5.0	1.5	.50	.3	500	1.0	N	N	20	200	1.5	N	N
TR1A69	45 35 54	112 5 42	1.5	1.5	.50	.1	500	N	N	N	15	150	<1.0	N	N
TR2A01	45 38 40	111 55 30	2.0	.5	.50	.2	500	3.0	N	N	10	300	1.5	N	N
TR2A02	45 38 33	111 56 35	5.0	2.0	2.00	.5	1,000	N	N	N	10	200	1.5	N	N
TR2A03	45 38 37	111 57 59	5.0	1.5	2.00	.5	1,000	N	N	N	10	200	1.5	N	N
TR2A04	45 38 14	111 58 40	5.0	1.5	2.00	.3	1,000	N	N	N	10	200	1.5	N	N
TR2A05	45 37 45	111 59 28	5.0	1.5	2.00	.5	2,000	.5	N	N	15	300	2.0	N	N
TR2A06	45 38 30	111 55 10	2.0	.5	1.50	.2	700	N	N	N	10	300	2.0	N	N
TR2A07	45 37 13	111 56 58	3.0	.5	1.50	.3	1,500	N	N	N	15	500	2.0	N	N
TR2A08	45 37 21	111 57 2	5.0	.5	2.00	.3	1,000	N	N	N	10	500	2.0	N	N
TR2A09	45 36 50	111 58 10	3.0	1.5	5.00	.5	2,000	.7	N	N	15	700	3.0	N	N
TR2A10	45 36 43	111 58 7	2.0	.7	1.50	.3	1,500	.5	N	N	20	500	3.0	N	N
TR2A11	45 36 10	111 58 50	3.0	.7	.70	.3	1,000	N	N	N	10	500	2.0	N	N
TR2A12	45 36 38	111 57 45	1.5	.5	1.00	.3	700	N	N	N	10	500	2.0	N	N
TR2A13	45 36 3	111 58 43	3.0	.7	.70	.3	2,000	.7	N	N	20	500	2.0	N	N
TR2A14	45 36 5	111 54 24	3.0	1.0	1.50	.5	1,500	<.5	N	N	20	500	2.0	N	N
TR2A15	45 36 0	111 54 20	1.5	.5	.70	.2	500	N	N	N	<10	500	1.5	N	N
TR2A16	45 35 50	111 54 53	1.5	.5	1.00	.3	700	N	N	N	10	500	2.0	N	N
TR2A18	45 35 45	111 54 55	2.0	.7	1.50	.5	1,000	N	N	N	15	700	2.0	N	N
TR2A20	45 35 41	111 54 46	2.0	.7	1.50	.5	1,000	N	N	N	10	700	2.0	N	N
TR2A22	45 35 40	111 54 3	2.0	.5	.70	.5	1,000	.5	N	N	10	500	2.0	N	N
TR2A24	45 34 10	111 55 15	7.0	1.0	1.00	.5	1,500	.5	N	N	10	500	2.0	N	N
TR2A25	45 34 39	111 57 29	5.0	1.0	1.00	.5	2,000	.7	N	N	10	300	5.0	N	N
TR2A26	45 34 17	111 59 0	3.0	.7	.70	.3	2,000	.5	N	N	<10	150	3.0	N	N
TR2A27	45 34 20	111 58 46	2.0	.5	.50	.3	1,500	2.0	N	N	10	200	10.0	N	N
TR2A28	45 34 34	112 0 8	5.0	1.0	.70	.3	3,000	.7	N	N	<10	150	3.0	N	N
TR2A29	45 34 26	112 0 30	3.0	.5	.70	.3	2,000	N	N	N	10	200	5.0	N	N
TR2A30	45 34 17	112 1 10	7.0	2.0	1.00	.5	3,000	.5	N	N	15	300	2.0	N	N

Table 1. Stream sediment samples from the Middle Mountain-Tobacco Root Further Planning area, Montana

sample	S-CO	S-CR	S-CU	S-LA	S-MO	S-NB	S-NI	S-PR	S-SB	S-SC	S-SN	S-SR	S-V	S-W	S-Y	S-ZN	S-ZR
TR1A49	20	500	70	50	5	N	150	50	N	10	N	200	100	N	15	N	200
TR1A50	50	200	500	70	50	N	150	70	N	10	N	200	100	N	50	700	500
TR1A51	5	30	20	70	10	<20	10	30	N	7	N	200	70	N	30	N	700
TR1A52	30	200	100	30	20	N	100	150	N	15	N	150	200	N	20	<200	300
TR1A53	70	300	1,000	300	70	<20	70	70	N	50	N	300	300	N	150	200	>1,000
TR1A54	50	150	500	100	70	N	30	50	N	30	N	200	200	N	50	N	1,500
TR1A57	30	300	70	20	N	N	100	30	N	15	N	200	100	N	15	N	200
TR1A58	30	100	100	50	N	N	70	15	N	30	N	200	200	N	50	N	500
TR1A59	20	200	30	30	N	N	70	30	N	10	N	200	70	N	15	N	150
TR1A60	30	300	50	50	N	N	100	50	N	20	N	200	100	N	20	200	500
TR1A61	50	150	70	20	5	N	100	50	N	20	N	100	150	N	50	300	300
TR1A62	30	200	50	30	N	N	70	70	N	20	N	150	150	N	30	<200	200
TR1A63	30	150	30	30	N	N	70	30	N	20	N	150	150	N	20	N	200
TR1A64	20	150	30	50	N	N	50	50	N	20	N	200	150	N	30	N	300
TR1A65	20	150	30	20	N	N	50	100	N	15	N	100	100	N	20	N	100
TR1A66	50	300	100	50	7	N	150	100	N	30	N	150	200	N	30	500	300
TR1A67	70	200	150	50	10	N	150	150	N	30	N	150	200	N	30	700	300
TR1A68	70	100	300	50	15	N	100	150	N	20	N	100	200	N	30	500	150
TR1A69	N	10	15	30	15	30	<5	20	N	<5	N	200	50	N	15	N	100
TR2A01	10	70	300	50	15	<20	30	2,000	N	7	N	150	70	N	15	200	300
TR2A02	30	500	30	70	N	<20	150	50	N	30	N	200	200	N	30	N	700
TR2A03	30	200	50	50	5	N	150	50	N	20	N	200	200	N	30	N	200
TR2A04	20	150	50	30	5	N	100	20	N	20	N	200	150	N	30	N	200
TR2A05	30	200	70	50	10	<20	100	100	N	20	N	200	200	N	30	N	500
TR2A06	7	20	20	100	5	20	10	50	N	7	N	500	70	N	20	N	700
TR2A07	7	20	15	70	5	20	10	70	N	10	N	700	70	N	30	N	700
TR2A08	10	15	10	100	10	30	7	50	N	10	N	500	100	N	30	N	700
TR2A09	10	50	30	100	15	20	15	100	N	20	N	1,000	150	N	50	N	500
TR2A10	10	20	30	100	10	<20	15	50	N	10	N	500	70	N	30	N	500
TR2A11	7	20	50	70	20	<20	10	50	N	7	N	500	70	N	20	N	300
TR2A12	5	30	10	70	N	20	10	50	N	7	N	700	50	N	30	N	300
TR2A13	10	70	50	50	15	N	20	30	N	15	N	200	100	N	30	N	200
TR2A14	10	50	100	100	10	20	10	70	N	10	N	1,000	150	N	70	N	1,000
TR2A15	5	20	20	50	10	<20	7	30	N	5	N	500	30	N	20	N	300
TR2A16	7	20	30	70	5	<20	10	50	N	7	N	700	50	N	20	N	300
TR2A18	10	50	70	100	15	20	15	70	N	10	N	700	70	N	50	N	700
TR2A20	7	20	50	100	15	20	10	50	N	7	N	700	70	N	50	N	700
TR2A22	10	20	70	100	7	20	15	50	N	7	N	500	70	N	30	N	700
TR2A24	30	150	150	100	30	<20	20	70	N	15	N	500	150	N	50	200	1,000
TR2A25	20	70	500	100	30	<20	20	70	N	10	N	500	100	N	70	500	700
TR2A26	30	50	500	100	50	N	30	50	N	10	N	200	100	N	70	300	500
TR2A27	15	30	500	50	20	<20	100	200	N	10	N	200	70	N	30	500	300
TR2A28	20	100	200	20	15	N	100	50	N	20	N	150	150	N	20	300	300
TR2A29	30	30	700	150	50	N	15	20	N	10	N	200	100	N	70	200	300
TR2A30	50	200	500	150	70	N	100	50	N	20	N	300	150	N	50	300	700

Table 1. Stream sediment samples from the Middle Mountain-Tobacco Root Further Planning area, Montana

sample	S-TH	AA-AU-P	INST-HG	AA-TE	AA-CJ-P	AA-ZN-P	AA-CD-P	AA-SI-P	AA-SB-P	CM-AS	CM-W	CM-W-P
TR1A49	N	--	--	--	--	60	--	--	<1	<10	--	--
TR1A50	N	--	--	--	--	940	--	--	2	<10	--	--
TR1A51	N	--	--	--	--	45	--	--	N	10	--	--
TR1A52	N	--	--	--	--	160	--	--	2	20	--	--
TR1A53	N	--	--	--	--	360	--	--	1	20	--	--
TR1A54	N	--	--	--	--	180	--	--	2	20	--	--
TR1A57	N	--	--	--	--	110	--	--	<1	<10	--	--
TR1A58	N	--	--	--	--	65	--	--	N	10	--	--
TR1A59	N	--	--	--	--	90	--	--	<1	<10	--	--
TR1A60	N	--	--	--	--	280	--	--	<1	<10	--	--
TR1A61	N	--	--	--	--	430	--	--	N	20	--	--
TR1A62	N	--	--	--	--	110	--	--	N	20	--	--
TR1A63	N	--	--	--	--	120	--	--	N	30	--	--
TR1A64	N	--	--	--	--	95	--	--	1	60	--	--
TR1A65	N	--	--	--	--	160	--	--	N	30	--	--
TR1A66	N	--	--	--	--	400	--	--	2	20	--	--
TR1A67	N	--	--	--	--	840	--	--	1	20	--	--
TR1A68	N	--	--	--	--	790	--	--	1	40	--	--
TR1A69	N	--	--	--	--	20	--	--	1	10	--	--
TR2A01	N	--	--	--	--	190	--	--	2	10	--	--
TR2A02	N	--	--	--	--	60	--	--	N	10	--	--
TR2A03	N	--	--	--	--	140	--	--	N	15	--	--
TR2A04	N	--	--	--	--	50	--	--	N	10	--	--
TR2A05	N	--	--	--	--	80	--	--	N	20	--	--
TR2A06	N	--	--	--	--	45	--	--	N	10	--	--
TR2A07	<100	--	--	--	--	50	--	--	N	10	--	--
TR2A08	100	--	--	--	--	35	--	--	N	10	--	--
TR2A09	N	--	--	--	--	75	--	--	N	20	--	--
TR2A10	N	--	--	--	--	75	--	--	N	15	--	--
TR2A11	N	--	--	--	--	85	--	--	N	10	--	--
TR2A12	N	--	--	--	--	35	--	--	N	10	--	--
TR2A13	N	--	--	--	--	70	--	--	N	10	--	--
TR2A14	N	--	--	--	--	50	--	--	N	10	--	--
TR2A15	N	--	--	--	--	40	--	--	N	10	--	--
TR2A16	N	--	--	--	--	45	--	--	N	10	--	--
TR2A18	N	--	--	--	--	45	--	--	N	10	--	--
TR2A20	N	--	--	--	--	35	--	--	1	<10	--	--
TR2A22	N	--	--	--	--	55	--	--	N	10	--	--
TR2A24	N	--	--	--	--	240	--	--	N	10	--	--
TR2A25	N	--	--	--	--	460	--	--	1	10	--	--
TR2A26	N	--	--	--	--	670	--	--	N	15	--	--
TR2A27	N	--	--	--	--	1,100	--	--	3	20	--	--
TR2A28	N	--	--	--	--	690	--	--	1	40	--	--
TR2A29	N	--	--	--	--	390	--	--	N	10	--	--
TR2A30	N	--	--	--	--	300	--	--	N	10	--	--

Table 1. Stream sediment samples from the Middle Mountain-Tobacco Root Further Planning area, Montana

sample	LATITUDE		LONGITUDE		S-FEZ	S-MGZ	S-CAZ	S-TIX	S-WN	S-AG	S-AS	S-AU	S-S	S-BA	S-SE	S-SI	S-CD
TR2A31	45 34 11	112 1 18	112 1 18	112 1 18	3.0	.5	.50	.3	1,000	N	N	N	15	150	2.0	N	N
TR2A32	45 34 4	112 1 18	112 1 18	112 1 18	5.0	.7	1.00	.3	1,000	N	N	N	10	200	5.0	N	N
TR2A33	45 33 32	111 57 33	111 57 33	111 57 33	7.0	2.0	1.00	.5	1,500	.5	N	N	10	300	1.5	N	N
TR2A34	45 33 9	111 58 37	111 58 37	111 58 37	2.0	.5	1.00	.3	1,000	1.0	N	N	10	300	7.0	N	N
TR2A35	45 32 38	111 59 23	111 59 23	111 59 23	5.0	1.5	1.50	.5	3,000	.7	N	N	20	500	3.0	N	N
TR2A36	45 34 31	111 59 20	111 59 20	111 59 20	5.0	1.0	.70	.5	3,000	1.0	N	N	20	500	7.0	N	N
TR2A37	45 32 34	111 59 20	111 59 20	111 59 20	10.0	3.0	3.00	.5	3,000	.7	N	N	15	700	2.0	N	N
TR3A01	45 36 10	112 12 7	112 12 7	112 12 7	2.0	1.0	10.00	.1	700	N	N	N	20	300	1.0	N	N
TR3A02	45 35 32	112 11 10	112 11 10	112 11 10	1.5	2.0	3.00	.1	500	N	N	N	50	200	1.0	N	N
TR3A03	45 35 34	112 10 20	112 10 20	112 10 20	3.0	2.0	2.00	.2	1,500	N	N	N	100	500	2.0	N	N
TR3A04	45 35 23	112 9 41	112 9 41	112 9 41	3.0	1.0	1.50	.2	700	N	N	N	70	500	1.5	N	N
TR3A05	45 35 47	112 9 23	112 9 23	112 9 23	5.0	1.0	1.00	.3	1,000	N	N	N	20	300	1.5	N	<20
TR3A06	45 35 42	112 9 9	112 9 9	112 9 9	5.0	1.5	1.00	.3	1,000	N	N	N	20	200	1.5	N	<20
TR3A07	45 35 53	112 9 5	112 9 5	112 9 5	5.0	1.5	1.00	.2	700	N	N	N	15	300	1.5	N	N
TR3A08	45 35 53	112 8 27	112 8 27	112 8 27	7.0	1.5	1.00	.2	1,000	N	N	N	20	500	1.5	N	20
TR3A09	45 35 49	112 8 31	112 8 31	112 8 31	5.0	1.5	1.00	.2	1,000	N	N	N	20	300	1.5	N	N
TR3A10	45 34 27	112 13 0	112 13 0	112 13 0	5.0	1.5	2.00	.3	1,000	N	N	N	50	500	1.5	N	N
TR3A13	45 33 42	112 13 42	112 13 42	112 13 42	3.0	1.0	3.00	.2	700	N	N	N	70	500	1.5	N	N
TR3A14	45 33 52	112 12 2	112 12 2	112 12 2	3.0	1.0	1.00	.3	500	N	N	N	100	500	1.5	N	N
TR3A15	45 33 46	112 12 4	112 12 4	112 12 4	5.0	1.5	2.00	.3	1,000	N	N	N	70	700	1.5	N	N
TR3A16	45 33 28	112 10 42	112 10 42	112 10 42	3.0	1.0	1.50	.3	1,000	N	N	N	70	700	1.5	N	N
TR3A18	45 32 45	112 12 24	112 12 24	112 12 24	5.0	1.5	1.50	.3	1,000	N	N	N	100	500	1.5	N	N
TR3A19	45 32 23	112 10 45	112 10 45	112 10 45	5.0	1.0	1.00	.3	1,000	<.5	N	N	50	500	1.5	N	N
TR3A20	45 31 30	112 10 34	112 10 34	112 10 34	10.0	2.0	7.00	.7	2,000	.5	N	N	30	700	1.5	N	N
TR3A21	45 32 20	112 9 43	112 9 43	112 9 43	7.0	1.5	3.00	.5	1,500	N	N	N	10	200	1.0	N	N
TR3A22	45 32 21	112 9 48	112 9 48	112 9 48	5.0	1.5	2.00	.5	1,500	<.5	N	N	50	500	1.5	N	N
TR3A24	45 31 25	112 9 4	112 9 4	112 9 4	7.0	5.0	7.00	.7	2,000	N	N	N	10	300	2.0	N	N
TR3A25	45 31 36	112 8 20	112 8 20	112 8 20	7.0	1.0	1.00	.3	1,500	3.0	N	N	20	300	1.0	N	N
TR3A26	45 32 34	112 7 54	112 7 54	112 7 54	7.0	1.5	1.00	.3	1,000	N	N	N	20	300	1.0	N	N
TR3A27	45 32 40	112 7 50	112 7 50	112 7 50	5.0	1.0	1.00	.3	1,000	N	N	N	30	500	1.5	N	N
TR3A28	45 33 25	112 7 23	112 7 23	112 7 23	5.0	1.0	.70	.3	1,000	N	N	N	30	500	2.0	N	N
TR3A29	45 33 32	112 7 8	112 7 8	112 7 8	5.0	1.0	1.00	.3	1,000	.5	N	N	30	500	2.0	N	N
TR3A30	45 33 42	112 7 4	112 7 4	112 7 4	5.0	1.0	1.00	.3	1,500	1.0	N	N	20	300	2.0	N	N
TR3A31	45 35 56	112 7 16	112 7 16	112 7 16	5.0	1.0	1.00	.3	1,000	N	N	N	20	500	2.0	N	N
TR3A32	45 34 15	112 7 6	112 7 6	112 7 6	7.0	1.5	1.50	.3	1,500	1.0	N	N	20	500	1.5	N	N
TR3A33	45 34 29	112 7 26	112 7 26	112 7 26	3.0	1.0	1.00	.3	700	N	N	N	30	500	1.5	N	N
TR3A34	45 34 32	112 7 7	112 7 7	112 7 7	5.0	.7	1.00	.3	1,000	7.0	N	N	30	200	1.5	N	N
TR3A35	45 34 38	112 6 30	112 6 30	112 6 30	5.0	1.0	1.00	.3	1,000	1.0	N	N	30	300	1.5	N	N
TR3A36	45 34 54	112 5 37	112 5 37	112 5 37	5.0	1.0	1.00	.3	1,000	N	N	N	30	300	2.0	N	N
TR3A37	45 34 50	112 5 37	112 5 37	112 5 37	7.0	1.0	1.00	.3	1,500	N	N	N	20	500	2.0	N	N
TR3A38	45 33 45	112 6 4	112 6 4	112 6 4	7.0	2.0	1.00	.3	1,000	N	N	N	20	200	1.5	N	N
TR3A39	45 31 11	112 8 28	112 8 28	112 8 28	7.0	2.0	1.50	.5	2,000	5.0	N	N	20	300	1.0	N	N
TR3A40	45 32 19	112 6 15	112 6 15	112 6 15	7.0	2.0	1.50	.5	3,000	N	N	N	20	300	1.5	N	N
TR3A41	45 32 24	112 6 4	112 6 4	112 6 4	5.0	1.5	1.00	.3	2,000	N	N	N	30	500	2.0	N	N
TR3A42	45 32 49	112 5 57	112 5 57	112 5 57	5.0	1.5	1.00	.5	5,000	.7	N	N	30	500	2.0	N	N

Table 1. Stream sediment samples from the Middle Mountain-Tobacco Root Further Planning area, Montana

sample	S-CO	S-CR	S-CU	S-LA	S-MO	S-NB	S-NI	S-PB	S-SB	S-SC	S-SN	S-SR	S-V	S-W	S-Y	S-ZN	S-ZR
TR2A31	20	15	200	70	70	N	15	50	N	7	N	200	70	V	20	<200	300
TR2A32	20	15	700	200	100	N	10	50	N	15	N	300	100	50	100	N	300
TR2A33	30	150	200	150	50	N	100	50	N	20	N	500	200	<50	50	N	500
TR2A34	7	30	700	200	50	N	10	70	N	5	N	700	70	V	70	N	500
TR2A35	30	30	300	200	50	20	15	70	N	20	N	700	200	<50	50	<200	1,200
TR2A36	30	70	150	30	15	V	50	150	N	20	N	300	200	<50	30	<200	300
TR2A37	50	100	300	200	20	<20	30	100	N	30	N	700	200	<50	50	<200	>1,200
TR3A01	10	70	20	30	N	N	15	100	N	7	20	700	70	V	15	N	100
TR3A02	10	50	15	20	N	N	20	30	N	5	N	200	50	V	10	N	100
TR3A03	15	150	20	30	N	<20	50	70	N	7	N	200	70	V	20	N	150
TR3A04	15	200	70	30	N	<20	50	100	N	10	N	150	100	V	20	200	200
TR3A05	20	200	70	30	10	<20	70	100	N	15	N	200	100	N	15	300	150
TR3A06	30	200	100	20	N	N	100	150	N	20	20	150	150	N	20	500	300
TR3A07	30	700	100	30	10	N	150	200	N	15	N	150	150	N	15	300	200
TR3A08	30	700	500	30	30	V	100	700	N	15	N	200	150	V	20	700	200
TR3A09	30	700	70	20	5	V	150	70	N	20	N	200	150	V	15	<200	70
TR3A10	30	300	50	30	N	N	100	70	N	20	N	200	100	N	20	<200	150
TR3A13	15	150	30	50	N	N	50	300	N	7	N	200	70	N	15	200	200
TR3A14	15	150	15	30	N	<20	50	50	N	7	N	200	70	V	30	<200	300
TR3A15	20	500	70	50	N	<20	50	2,000	N	10	N	200	100	V	20	500	300
TR3A16	15	300	30	30	N	<20	50	100	N	10	N	150	70	V	30	N	700
TR3A18	20	300	50	30	5	<20	50	70	N	10	N	150	100	N	15	N	150
TR3A19	20	700	20	50	N	<20	100	70	N	10	N	150	150	N	15	N	500
TR3A20	30	300	30	500	N	V	100	200	N	50	N	200	300	V	70	N	700
TR3A21	30	100	20	30	N	N	70	20	N	30	N	100	200	V	30	N	500
TR3A22	20	200	20	200	N	N	70	70	N	15	N	100	100	V	30	N	500
TR3A24	30	200	50	70	5	N	30	30	N	50	N	200	300	N	100	N	1,200
TR3A25	30	150	100	20	N	N	70	150	N	15	N	150	200	N	15	<200	300
TR3A26	30	200	30	50	N	V	70	15	N	20	N	150	200	V	20	N	700
TR3A27	30	150	50	50	N	V	100	30	N	15	N	200	150	V	30	N	200
TR3A28	30	200	50	20	5	N	100	50	N	15	N	150	150	N	15	N	200
TR3A29	20	200	70	50	N	V	100	30	N	20	N	200	150	N	30	N	300
TR3A30	30	200	70	30	N	<20	100	200	N	20	N	150	150	N	20	N	300
TR3A31	20	200	20	30	N	N	50	30	N	15	10	150	100	N	20	N	700
TR3A32	30	200	50	50	N	N	100	50	N	20	N	200	150	V	20	N	700
TR3A33	20	160	20	50	N	N	50	30	N	10	N	200	100	N	15	N	300
TR3A34	20	100	100	20	N	N	70	500	N	10	N	150	100	N	15	N	500
TR3A35	30	300	50	30	N	N	100	70	N	15	N	200	150	V	15	N	500
TR3A36	30	200	50	30	5	<20	100	50	N	15	N	200	150	V	20	N	300
TR3A37	30	200	70	20	N	V	100	50	N	15	N	150	150	V	15	N	150
TR3A38	50	300	100	20	N	N	100	30	N	20	N	100	150	N	15	N	150
TR3A39	50	300	150	30	N	N	100	70	N	20	N	150	200	V	20	N	200
TR3A40	50	500	100	30	N	N	150	100	N	20	N	150	150	V	20	<200	300
TR3A41	20	150	50	30	N	N	50	30	N	10	N	150	100	V	30	N	150
TR3A42	30	200	70	30	N	N	70	30	N	15	N	150	150	N	20	N	200

Table 1. Stream sediment samples from the Middle Mountain-Tobacco Root Further Planning area, Montana

sample	S-TH	AA-AU-P	INST-HG	AA-TE	AA-CU-P	AA-ZN-P	AA-CD-P	AA-BI-P	AA-SS-P	CM-AS	CM-W	CM-J-P
TR2A31	N	--	--	--	--	180	--	--	N	10	--	--
TR2A32	N	--	--	--	--	130	--	--	N	20	--	--
TR2A33	N	--	--	--	--	110	--	--	N	20	--	--
TR2A34	N	--	--	--	--	110	--	--	N	10	--	--
TR2A35	N	--	--	--	--	120	--	--	N	10	--	--
TR2A36	N	--	--	--	--	170	--	--	9	20	--	--
TR2A37	N	--	--	--	--	110	--	--	1	20	--	--
TR3A01	N	--	--	--	--	90	--	--	<1	<10	--	--
TR3A02	N	--	--	--	--	60	--	--	3	<10	--	--
TR3A03	N	--	--	--	--	100	--	--	3	20	--	--
TR3A04	N	--	--	--	--	200	--	--	2	40	--	--
TR3A05	N	--	--	--	--	360	--	--	1	<10	--	--
TR3A06	N	--	--	--	--	440	--	--	1	<10	--	--
TR3A07	N	--	--	--	--	340	--	--	4	10	--	--
TR3A08	N	--	--	--	--	840	--	--	5	80	--	--
TR3A09	N	--	--	--	--	140	--	--	1	10	--	--
TR3A10	N	--	--	--	--	120	--	--	2	10	--	--
TR3A13	N	--	--	--	--	200	--	--	2	10	--	--
TR3A14	N	--	--	--	--	160	--	--	2	<10	--	--
TR3A15	N	--	--	--	--	400	--	--	3	40	--	--
TR3A16	N	--	--	--	--	140	--	--	2	20	--	--
TR3A18	N	--	--	--	--	120	--	--	5	20	--	--
TR3A19	N	--	--	--	--	100	--	--	1	10	--	--
TR3A20	N	--	--	--	--	120	--	--	N	10	--	--
TR3A21	N	--	--	--	--	65	--	--	N	<10	--	--
TR3A22	N	--	--	--	--	85	--	--	N	10	--	--
TR3A24	N	--	--	--	--	45	--	--	N	<10	--	--
TR3A25	N	--	--	--	--	150	--	--	5	40	--	--
TR3A26	N	--	--	--	--	60	--	--	<1	<10	--	--
TR3A27	N	--	--	--	--	90	--	--	<1	<10	--	--
TR3A28	N	--	--	--	--	110	--	--	1	<10	--	--
TR3A29	N	--	--	--	--	90	--	--	1	10	--	--
TR3A30	N	--	--	--	--	130	--	--	5	40	--	--
TR3A31	N	--	--	--	--	90	--	--	1	<10	--	--
TR3A32	N	--	--	--	--	80	--	--	1	20	--	--
TR3A33	N	--	--	--	--	80	--	--	<1	<10	--	--
TR3A34	N	--	--	--	--	170	--	--	4	40	--	--
TR3A35	N	--	--	--	--	85	--	--	1	10	--	--
TR3A36	N	--	--	--	--	160	--	--	<1	<10	--	--
TR3A37	N	--	--	--	--	100	--	--	1	10	--	--
TR3A38	N	--	--	--	--	110	--	--	1	10	--	--
TR3A39	N	--	--	--	--	130	--	--	1	20	--	--
TR3A40	N	--	--	--	--	180	--	--	1	10	--	--
TR3A41	N	--	--	--	--	95	--	--	<1	<10	--	--
TR3A42	N	--	--	--	--	110	--	--	<1	10	--	--

Table 1. Stream sediment samples from the Middle Mountain-Tobacco Root Further Planning area, Montana

sample	LATITUDE		LONGITUDE		S-FEZ	S-MGX	S-CAZ	S-TIX	S-MN	S-AG	S-AS	S-AU	S-B	S-BA	S-3E	S-BI	S-CD
TR3A43	45 32	55	112 6	3	7.0	1.5	1.50	.5	2,000	.5	N	N	20	300	1.0	N	N
TR3A44	45 33	29	112 5	13	10.0	2.0	1.50	.5	2,000	1.0	N	N	15	500	1.5	N	N
TR3A45	45 33	23	112 5	10	10.0	1.5	1.00	.7	2,000	.7	N	N	20	300	1.5	N	N
TR3A46	45 30	41	112 6	38	10.0	2.0	1.50	.5	2,000	5.0	N	N	20	500	1.0	10	N
TR3A48	45 31	5	112 4	41	5.0	1.0	1.00	.5	1,000	.5	N	N	30	500	1.0	N	N
TR3A49	45 31	26	112 4	23	7.0	2.0	1.50	.5	2,000	N	N	N	15	500	1.0	<10	N
TR3A51	45 31	30	112 4	21	7.0	2.0	1.50	.5	3,000	N	N	N	15	500	1.0	N	N
TR3A52	45 31	47	112 4	17	5.0	1.5	1.50	.3	1,500	<.5	N	N	15	500	1.5	N	N
TR3A53	45 31	55	112 3	58	7.0	3.0	5.00	.5	3,000	.5	N	N	10	300	2.0	N	N
TR3A54	45 32	13	112 3	37	5.0	2.0	5.00	.5	1,000	<.5	N	N	20	300	1.5	N	N
TR3A55	45 32	18	112 3	20	7.0	2.0	2.00	.5	5,000	.5	N	N	50	500	2.0	N	N
TR3A56	45 32	27	112 2	55	7.0	3.0	2.00	.5	1,500	.5	N	N	30	300	1.5	N	N
TR3A57	45 32	34	112 3	0	5.0	3.0	2.00	.5	1,500	N	N	N	20	300	1.5	N	N
TR3A59	45 31	26	112 2	56	7.0	2.0	1.50	.5	3,000	N	N	N	20	500	1.0	N	N
TR3A60	45 31	8	112 1	45	10.0	5.0	3.00	.5	3,000	N	N	N	20	300	1.0	N	N
TR3A61	45 31	16	112 1	5	5.0	3.0	2.00	.3	1,500	N	N	N	20	200	1.0	N	N
TR3A62	45 33	3	112 2	23	7.0	3.0	2.00	.7	2,000	N	N	N	<10	200	1.5	N	N
TR3A63	45 33	22	112 3	3	5.0	1.5	1.50	.5	2,000	1.0	N	N	100	700	3.0	N	N
TR3A64	45 33	26	112 3	0	3.0	1.5	.70	.3	1,000	N	N	N	<10	150	2.0	N	N
TR4A01A	45 45	7	112 7	5	3.0	3.0	10.00	.5	1,500	.5	N	N	100	500	2.0	N	N
TR4A01B	45 45	5	112 7	10	3.0	1.5	10.00	.3	700	N	N	N	100	300	1.5	N	N
TR4A02	45 44	58	112 5	32	3.0	1.5	2.00	.3	1,500	N	N	N	100	700	1.5	N	N
TR4A03	45 45	0	112 5	26	3.0	1.0	1.00	.3	1,000	N	N	N	100	700	2.0	N	N
TR4A04	45 44	17	112 3	0	3.0	2.0	2.00	.3	1,000	N	N	N	100	500	2.0	N	N
TR4A05	45 44	38	112 4	11	3.0	1.5	2.00	.3	1,000	N	N	N	100	500	2.0	N	N
TR4A06	45 44	20	112 3	50	5.0	1.0	1.00	.3	1,500	N	N	N	150	700	2.0	N	N
TR4A07	45 44	21	112 3	40	3.0	1.0	1.50	.2	1,000	N	N	N	100	500	1.5	N	N
TR4A08	45 44	7	112 3	2	3.0	.7	.50	.3	700	N	N	N	100	700	2.0	N	N
TR4A09	45 44	5	112 2	57	3.0	5.0	10.00	.3	700	N	N	N	100	500	1.5	N	N
TR4A10	45 44	57	112 2	40	3.0	2.0	7.00	.3	1,000	N	N	N	100	500	1.5	N	N
TR4A11	45 43	57	112 5	21	5.0	1.0	1.00	.5	1,000	N	N	N	100	700	2.0	N	N
TR4A12	45 44	25	112 7	55	2.0	5.0	15.00	.3	700	.7	N	N	30	200	1.0	N	N
TR4A13	45 43	57	112 8	13	2.0	2.0	10.00	.5	700	1.0	N	N	70	300	1.5	N	N
TR4A14	45 43	40	112 8	15	3.0	2.0	10.00	.5	1,000	.5	N	N	70	300	1.5	N	N
TR4A15	45 43	23	112 8	14	3.0	2.0	10.00	.5	1,000	N	N	N	150	300	2.0	N	N
TR4A16	45 42	37	112 7	59	10.0	2.0	3.00	.5	1,500	N	N	N	70	500	1.5	N	N
TR4A17	45 43	0	112 7	0	5.0	1.5	3.00	.5	1,500	N	N	N	100	500	1.5	N	N
TR4A18	45 42	57	112 6	52	7.0	1.5	3.00	.5	1,000	N	N	N	30	700	1.5	N	N
TR4A19	45 41	52	112 7	57	10.0	2.0	2.00	.5	1,500	N	N	N	15	300	1.0	N	N
TR4A20	45 41	57	112 6	58	10.0	2.0	2.00	.7	1,500	N	N	N	15	300	1.0	N	N
TR4A21	45 41	58	112 6	30	10.0	2.0	3.00	1.0	1,500	N	N	N	20	200	1.0	N	N
TR4A22	45 42	20	112 5	50	10.0	2.0	3.00	.5	1,500	N	N	N	20	300	1.0	N	N
TR4A23	45 42	16	112 5	55	15.0	3.0	3.00	10.0	1,500	N	N	N	30	300	1.0	N	N
TR4A24	45 42	20	112 5	50	7.0	1.5	1.50	.5	1,500	N	N	N	15	200	1.0	N	N
TR4A25	45 42	22	112 5	10	10.0	2.0	2.00	.7	2,000	N	N	N	10	150	1.0	N	N

Table 1. Stream sediment samples from the Middle Mountain-Tobacco Root Further Planning area, Montana

sample	S-CO	S-CR	S-CU	S-LA	S-MO	S-V3	S-NI	S-PB	S-SB	S-SC	S-SN	S-SR	S-V	S-W	S-Y	S-ZN	S-ZR
TR3A43	50	500	70	30	N	N	150	100	N	20	N	150	200	V	20	<200	300
TR3A44	50	700	100	30	N	V	200	150	N	30	N	150	200	V	20	300	200
TR3A45	50	300	100	30	N	V	150	150	N	20	N	150	150	V	20	500	200
TR3A46	50	500	150	50	15	N	100	50	N	20	N	150	150	N	20	200	200
TR3A48	20	150	100	20	N	<20	70	20	N	15	N	150	150	N	15	N	300
TR3A49	50	500	70	20	N	V	100	30	N	30	N	100	150	N	20	N	500
TR3A51	50	500	100	70	20	N	100	30	N	30	N	200	150	V	30	<200	300
TR3A52	20	200	70	30	7	N	70	30	N	15	N	150	150	N	20	N	300
TR3A53	50	300	150	100	20	N	150	70	N	30	N	200	300	N	50	<200	700
TR3A54	20	200	50	70	N	N	100	50	N	30	N	200	200	N	50	N	700
TR3A55	20	150	100	70	5	N	100	50	N	30	N	150	200	N	50	<200	300
TR3A56	30	150	100	70	7	N	100	70	N	30	N	200	300	V	30	<200	500
TR3A57	50	300	150	50	50	N	150	70	N	30	N	200	200	V	30	200	500
TR3A59	50	700	70	50	N	<20	150	30	N	20	N	150	200	V	30	N	300
TR3A60	50	700	100	70	5	V	200	50	N	50	N	100	300	V	50	N	500
TR3A61	30	300	70	N	N	V	150	30	N	30	N	100	150	V	20	N	300
TR3A62	70	300	300	100	100	N	200	30	N	50	N	150	200	N	50	N	700
TR3A63	20	150	50	100	N	20	100	150	N	20	N	200	200	N	50	200	500
TR3A64	30	150	150	20	50	N	150	20	N	20	N	100	150	V	20	N	200
TR4A01A	15	70	30	70	N	<20	50	70	N	15	N	200	150	N	30	N	300
TR4A01B	15	100	30	70	<5	V	50	50	N	15	N	200	150	N	30	N	200
TR4A02	20	150	20	30	N	<20	30	70	N	10	N	150	100	N	20	N	300
TR4A03	15	100	20	50	N	<20	50	50	N	10	N	150	100	N	20	N	200
TR4A04	20	200	30	50	N	N	70	30	N	10	N	150	100	V	15	N	150
TR4A05	15	100	30	30	N	<20	50	50	N	10	N	200	70	V	15	N	200
TR4A06	20	150	30	50	N	<20	50	20	N	10	N	200	100	N	20	N	200
TR4A07	15	100	30	30	N	V	50	30	N	7	N	150	70	N	10	N	150
TR4A08	15	100	20	30	N	<20	30	20	N	7	N	150	70	N	10	N	300
TR4A09	15	300	50	30	5	<20	50	70	N	10	N	200	70	N	15	N	300
TR4A10	15	150	20	30	N	V	50	30	N	7	N	200	70	V	15	N	300
TR4A11	15	100	30	50	N	20	30	30	N	10	N	200	100	N	20	N	500
TR4A12	10	50	30	50	N	N	30	100	N	10	N	150	70	N	50	N	300
TR4A13	10	50	50	50	N	N	30	100	N	10	N	200	150	V	30	N	300
TR4A14	15	70	30	70	N	V	30	100	N	15	N	200	150	V	50	N	300
TR4A15	20	70	20	50	N	N	50	30	N	20	N	200	150	N	30	N	300
TR4A16	50	500	70	30	N	N	100	30	N	20	N	200	200	N	20	N	200
TR4A17	20	200	50	50	N	N	70	50	N	15	N	150	150	N	20	N	200
TR4A18	20	200	50	30	N	N	50	30	N	20	N	300	200	N	20	N	700
TR4A19	50	500	50	30	N	N	100	20	N	30	N	200	200	V	20	N	300
TR4A20	50	700	70	30	N	V	150	20	N	30	N	200	200	V	30	N	500
TR4A21	50	500	100	30	N	N	70	20	N	30	N	200	200	N	20	N	>1,000
TR4A22	50	300	100	20	N	N	100	20	N	30	N	200	200	V	20	N	200
TR4A23	50	300	150	50	N	N	100	15	N	30	N	200	200	V	20	N	700
TR4A24	30	500	70	20	N	V	100	20	N	20	N	150	200	V	15	<200	200
TR4A25	50	500	70	20	N	V	100	10	N	50	N	200	300	V	30	200	700

Table 1. Stream sediment samples from the Middle Mountain-Tobacco Root Further Planning area, Montana

sample	S-TH	AA-AU-P	INST-HG	AA-TE	AA-CU-P	AA-ZN-P	AA-CD-P	AA-BI-P	AA-SS-P	CM-AS	CM-W	CM-J-P
TR3A43	N	--	--	--	--	120	--	--	<1	10	--	--
TR3A44	N	--	--	--	--	190	--	--	<1	10	--	--
TR3A45	N	--	--	--	--	280	--	--	<1	20	--	--
TR3A46	N	--	--	--	--	130	--	--	1	10	--	--
TR3A48	N	--	--	--	--	55	--	--	<1	<10	--	--
TR3A49	N	--	--	--	--	80	--	--	<1	10	--	--
TR3A51	N	--	--	--	--	120	--	--	1	10	--	--
TR3A52	N	--	--	--	--	70	--	--	N	<10	--	--
TR3A53	N	--	--	--	--	160	--	--	1	10	--	--
TR3A54	N	--	--	--	--	140	--	--	N	<10	--	--
TR3A55	N	--	--	--	--	130	--	--	N	<10	--	--
TR3A56	N	--	--	--	--	150	--	--	N	<10	--	--
TR3A57	N	--	--	--	--	180	--	--	N	10	--	--
TR3A59	N	--	--	--	--	90	--	--	<1	10	--	--
TR3A60	N	--	--	--	--	70	--	--	N	20	--	--
TR3A61	N	--	--	--	--	75	--	--	N	10	--	--
TR3A62	N	--	--	--	--	120	--	--	1	10	--	--
TR3A63	N	--	--	--	--	180	--	--	1	10	--	--
TR3A64	N	--	--	--	--	220	--	--	N	20	--	--
TR4A01A	N	--	--	--	--	90	--	--	N	20	--	--
TR4A01B	N	--	--	--	--	70	--	--	1	20	--	--
TR4A02	N	--	--	--	--	120	--	--	2	20	--	--
TR4A03	N	--	--	--	--	95	--	--	1	10	--	--
TR4A04	N	--	--	--	--	75	--	--	<1	10	--	--
TR4A05	N	--	--	--	--	90	--	--	1	10	--	--
TR4A06	N	--	--	--	--	90	--	--	<1	10	--	--
TR4A07	N	--	--	--	--	130	--	--	<1	10	--	--
TR4A08	N	--	--	--	--	65	--	--	1	20	--	--
TR4A09	N	--	--	--	--	90	--	--	<1	10	--	--
TR4A10	N	--	--	--	--	60	--	--	<1	10	--	--
TR4A11	N	--	--	--	--	70	--	--	1	20	--	--
TR4A12	N	--	--	--	--	85	--	--	N	10	--	--
TR4A13	N	--	--	--	--	100	--	--	1	10	--	--
TR4A14	N	--	--	--	--	85	--	--	N	10	--	--
TR4A15	N	--	--	--	--	65	--	--	N	40	--	--
TR4A16	N	--	--	--	--	90	--	--	<1	10	--	--
TR4A17	N	--	--	--	--	130	--	--	2	10	--	--
TR4A18	N	--	--	--	--	110	--	--	N	<10	--	--
TR4A19	N	--	--	--	--	40	--	--	N	<10	--	--
TR4A20	N	--	--	--	--	60	--	--	<1	10	--	--
TR4A21	N	--	--	--	--	40	--	--	<1	<10	--	--
TR4A22	N	--	--	--	--	55	--	--	<1	10	--	--
TR4A23	N	--	--	--	--	60	--	--	<1	<10	--	--
TR4A24	N	--	--	--	--	85	--	--	<1	<10	--	--
TR4A25	N	--	--	--	--	40	--	--	<1	<10	--	--

Table 1. Stream sediment samples from the Middle Mountain-Tobacco Root Further Planning area, Montana

sample	LATITUDE	LONGITUDE	S-FEZ	S-MG%	S-Cd%	S-TIX	S-MN	S-AG	S-AS	S-AU	S-B	S-BA	S-3E	S-BI	S-CD
TR4A26	45 42 29	112 5 8	7.0	2.0	1.50	.5	1,500	N	N	N	15	300	1.0	N	N
TR4A27	45 42 7	112 5 8	7.0	2.0	1.50	.5	1,500	N	N	N	20	200	1.0	N	N
TR4A28	45 41 35	112 7 47	7.0	3.0	7.00	1.0	2,000	N	N	N	10	200	1.0	N	N
TR4A29	45 41 20	112 7 5	7.0	3.0	10.00	1.0	2,000	N	N	N	10	150	1.0	N	N
TR4A30	45 41 7	112 6 10	5.0	2.0	7.00	.7	1,500	.5	N	N	20	150	1.0	N	N
TR4A31	45 41 9	112 6 3	3.0	1.5	3.00	.5	1,000	N	N	N	10	100	1.0	N	N
TR4A32	45 41 8	112 5 38	7.0	1.5	1.50	.5	1,500	N	N	N	30	150	1.5	N	N
TR4A33	45 41 10	112 8 10	10.0	3.0	7.00	1.0	1,500	N	N	N	10	100	1.0	N	N
TR4A34	45 41 38	112 8 45	7.0	3.0	7.00	.7	2,000	.5	N	N	20	300	1.0	N	N
TR4A35A	45 39 56	112 7 30	3.0	1.5	2.00	.3	1,500	N	N	N	50	500	1.5	N	N
TR4A35B	45 39 55	112 7 15	3.0	1.0	.70	.3	500	N	N	N	30	150	1.0	N	N
TR4A36	45 40 8	112 7 15	10.0	3.0	5.00	.7	1,500	N	N	N	<10	150	1.0	N	N
TR4A37	45 40 10	112 6 50	7.0	3.0	5.00	.7	2,000	.7	N	N	<10	150	1.0	N	N
TR4A38	45 40 10	112 5 40	7.0	3.0	3.00	.5	2,000	.5	N	N	<10	150	1.0	N	N
TR4A39	45 39 37	112 6 36	5.0	2.0	2.00	.5	3,000	N	N	N	30	500	1.5	N	N
TR4A40	45 39 31	112 6 20	3.0	1.5	2.00	.5	1,000	N	N	N	<10	100	1.0	N	N
TR4A41	45 39 26	112 6 18	3.0	1.5	5.00	.5	1,500	.5	N	N	15	200	1.5	N	N
TR4A42	45 39 22	112 6 25	7.0	2.0	2.00	.5	1,000	N	N	N	20	150	<1.0	N	N
TR4A43	45 38 38	112 5 55	3.0	1.0	2.00	.5	2,000	N	N	N	10	200	1.0	N	N
TR4A44	45 38 35	112 6 3	5.0	2.0	3.00	.5	2,000	<.5	N	N	20	200	1.0	N	N
TR4A45	45 40 12	112 9 41	3.0	3.0	5.00	.3	1,000	.5	N	N	100	300	1.5	N	N
TR4A46	45 39 49	112 9 43	5.0	2.0	2.00	.5	1,500	N	N	N	70	500	1.5	N	N
TR4A48	45 39 17	112 9 23	3.0	1.5	1.50	.3	1,000	N	N	N	30	300	1.5	N	N
TR4A49	45 39 15	112 9 28	5.0	2.0	2.00	.3	2,000	.5	N	N	30	500	1.5	N	N
TR4A50	45 39 2	112 8 27	3.0	1.5	1.00	.3	2,000	N	N	N	30	500	1.5	N	N
TR4A51A	45 38 42	112 7 26	5.0	1.5	1.00	.3	1,500	.5	N	N	50	500	1.5	N	N
TR4A51B	45 38 43	112 7 37	5.0	2.0	1.50	.5	2,000	.5	N	N	50	500	1.5	N	N
TR4A52	45 39 0	112 10 43	5.0	2.0	10.00	.5	1,500	N	N	N	150	500	2.0	N	N
TR4A53	45 38 59	112 9 45	5.0	2.0	1.00	.5	1,500	N	N	N	70	500	1.5	N	N
TR4A54	45 38 35	112 8 55	7.0	3.0	1.00	.5	3,000	N	N	N	10	300	1.0	N	N
TR4A55	45 38 43	112 9 7	3.0	1.5	1.00	.5	2,000	N	N	N	50	500	2.0	N	N
TR4A56	45 38 44	112 11 15	5.0	3.0	10.00	.3	1,500	N	N	N	150	300	2.0	N	N
TR4A57	45 38 14	112 9 54	5.0	3.0	7.00	.5	1,000	N	N	N	300	300	2.0	N	N
TR4A58	45 37 31	112 11 18	7.0	2.0	1.50	.3	2,000	N	N	N	20	300	1.0	N	N
TR4A59	45 37 15	112 10 48	5.0	1.0	1.00	.3	1,000	N	N	N	50	500	1.5	N	N
TR4A60	45 37 6	112 9 30	5.0	1.5	1.00	.3	1,500	<.5	N	N	30	300	1.5	N	N
TR4A61	45 37 18	112 8 27	7.0	1.0	1.00	.3	1,000	N	N	N	30	300	1.0	N	N
TR4A62	45 37 27	112 7 36	3.0	1.0	1.00	.3	1,000	N	N	N	20	300	1.0	N	N
TR4A63	45 37 26	112 7 41	7.0	1.5	1.50	.3	1,000	N	N	N	30	500	1.5	N	N
TR4A64	45 37 10	112 8 25	7.0	1.5	1.00	.3	2,000	.7	N	N	20	500	1.0	N	N
TR4A65	45 36 37	112 7 45	7.0	1.0	.70	.3	1,500	1.0	N	N	30	500	2.0	N	N
TR4A66	45 36 15	112 7 10	7.0	1.5	1.00	.3	2,000	N	N	N	15	500	1.0	N	N
TR4A67	45 37 0	112 11 30	5.0	3.0	7.00	.3	700	N	N	N	100	200	1.0	N	N
TR4A68	45 36 28	112 10 55	5.0	5.0	10.00	.3	700	N	N	N	100	300	1.0	N	N
TR4A69	45 36 22	112 10 52	3.0	2.0	2.00	.3	700	<.5	N	N	50	300	1.0	N	N

Table 1. Stream sediment samples from the Middle Mountain-Tobacco Root Further Planning area, Montana

sample	S-CO	S-CR	S-CU	S-LA	S-MO	S-NB	S-NI	S-PB	S-SB	S-SC	S-SN	S-SR	S-SV	S-W	S-Y	S-ZN	S-ZR
TR4A26	30	500	100	20	N	V	150	20	N	20	N	200	200	V	20	N	200
TR4A27	30	500	70	20	N	V	100	20	N	20	N	200	200	N	20	N	500
TR4A28	50	300	70	50	N	N	70	15	N	50	N	200	300	N	50	N	1,500
TR4A29	30	200	100	50	N	V	70	20	N	50	N	300	300	N	50	N	>1,500
TR4A30	50	200	200	30	N	V	100	50	N	30	N	200	200	N	50	N	700
TR4A31	20	100	150	20	N	N	70	30	N	20	N	200	200	N	30	N	150
TR4A32	50	300	70	20	5	N	150	30	N	30	N	200	200	N	30	N	300
TR4A33	50	200	30	20	N	N	100	15	N	50	N	150	300	N	30	N	500
TR4A34	30	200	100	50	N	V	100	50	N	30	N	200	200	N	50	200	300
TR4A35A	15	200	20	30	N	N	50	30	N	15	N	200	100	N	20	N	300
TR4A35B	20	200	30	50	N	N	70	20	N	15	N	100	100	V	50	N	300
TR4A36	50	500	70	50	N	N	150	20	N	50	N	150	200	N	50	N	300
TR4A37	50	300	100	20	N	N	150	20	N	50	N	200	200	N	30	N	500
TR4A38	50	300	100	30	N	N	150	50	N	30	N	200	200	V	50	N	500
TR4A39	30	200	50	50	N	N	70	30	N	15	N	200	150	V	30	N	500
TR4A40	20	70	70	50	N	V	50	20	N	20	N	100	200	V	30	N	1,500
TR4A41	20	200	50	20	N	N	70	30	N	20	N	200	200	N	50	N	300
TR4A42	30	300	50	30	N	N	100	30	N	20	N	100	200	N	30	N	500
TR4A43	20	100	50	<20	5	N	70	30	N	15	N	150	300	V	20	N	500
TR4A44	50	200	100	<20	N	N	100	70	N	20	N	150	200	N	30	N	200
TR4A45	15	70	50	70	5	V	50	100	N	15	N	150	100	V	30	N	300
TR4A46	15	100	30	50	N	<20	50	50	N	15	N	150	100	N	50	N	500
TR4A48	15	100	30	20	N	N	50	70	N	15	N	150	100	N	20	N	200
TR4A49	20	150	70	30	N	N	70	100	N	20	N	150	150	V	20	N	200
TR4A50	15	100	70	20	N	N	50	70	N	15	N	100	100	V	20	N	200
TR4A51A	20	150	100	30	N	N	70	100	N	15	N	100	100	N	20	N	200
TR4A51B	20	150	100	50	N	N	70	70	N	20	N	150	100	N	30	N	200
TR4A52	15	150	30	50	7	N	50	70	N	15	N	200	200	N	50	N	500
TR4A53	15	150	20	30	N	<20	30	70	N	10	N	150	150	N	30	N	500
TR4A54	70	500	150	30	10	N	150	70	N	20	N	100	200	V	30	200	200
TR4A55	15	100	50	50	N	<20	50	50	N	15	N	150	100	N	30	<200	500
TR4A56	20	300	50	50	7	N	150	70	N	20	N	200	150	N	30	N	200
TR4A57	30	150	50	100	N	N	70	70	N	30	N	200	150	V	30	N	200
TR4A58	30	500	70	20	N	<20	100	30	N	15	N	200	150	N	20	N	300
TR4A59	15	100	50	30	N	<20	50	20	N	10	N	200	100	N	30	N	300
TR4A60	20	200	70	20	N	N	100	30	N	15	N	150	150	N	20	<200	300
TR4A61	20	300	70	30	N	N	100	30	N	15	N	200	100	N	30	N	300
TR4A62	15	200	50	20	N	N	50	20	N	10	N	200	70	N	20	<200	200
TR4A63	30	300	70	50	N	<20	150	30	N	20	N	200	150	V	30	N	200
TR4A64	30	300	70	20	5	N	100	50	N	15	N	150	150	N	20	<200	300
TR4A65	30	200	100	30	N	N	70	50	N	15	N	150	100	N	15	200	150
TR4A66	30	500	70	30	N	N	100	20	N	20	N	200	150	V	20	N	70
TR4A67	15	150	20	30	N	N	30	20	N	7	N	200	70	N	15	N	200
TR4A68	20	200	20	30	7	<20	50	20	N	10	N	200	70	N	15	N	300
TR4A69	15	70	50	20	N	<20	30	70	N	7	<10	150	100	N	20	N	200

Table 1. Stream sediment samples from the Middle Mountain-Tobacco Root Further Planning area, Montana

sample	S-TH	AA-AU-2	INST-HG	AA-TE	AA-CU-P	AA-ZN-P	AA-CD-P	AA-BI-P	AA-SB-P	CM-AS	CM-W	CM-W-P
TR4A26	N	--	--	--	--	70	--	--	<1	<10	--	--
TR4A27	N	--	--	--	--	60	--	--	<1	<10	--	--
TR4A28	N	--	--	--	--	55	--	--	N	10	--	--
TR4A29	N	--	--	--	--	75	--	--	N	10	--	--
TR4A30	N	--	--	--	--	45	--	--	N	10	--	--
TR4A31	N	--	--	--	--	70	--	--	N	10	--	--
TR4A32	N	--	--	--	--	100	--	--	N	10	--	--
TR4A33	N	--	--	--	--	35	--	--	N	10	--	--
TR4A34	N	--	--	--	--	160	--	--	N	10	--	--
TR4A35A	N	--	--	--	--	85	--	--	N	10	--	--
TR4A35B	N	--	--	--	--	55	--	--	N	10	--	--
TR4A36	N	--	--	--	--	45	--	--	N	10	--	--
TR4A37	N	--	--	--	--	60	--	--	N	10	--	--
TR4A38	N	--	--	--	--	70	--	--	N	10	--	--
TR4A39	N	--	--	--	--	75	--	--	N	40	--	--
TR4A40	N	--	--	--	--	50	--	--	N	10	--	--
TR4A41	N	--	--	--	--	40	--	--	N	10	--	--
TR4A42	N	--	--	--	--	70	--	--	N	10	--	--
TR4A43	N	--	--	--	--	65	--	--	N	15	--	--
TR4A44	N	--	--	--	--	85	--	--	N	10	--	--
TR4A45	N	--	--	--	--	90	--	--	5	10	--	--
TR4A46	N	--	--	--	--	90	--	--	N	<10	--	--
TR4A48	N	--	--	--	--	140	--	--	N	10	--	--
TR4A49	N	--	--	--	--	120	--	--	N	10	--	--
TR4A50	N	--	--	--	--	190	--	--	N	20	--	--
TR4A51A	N	--	--	--	--	170	--	--	N	20	--	--
TR4A51B	N	--	--	--	--	120	--	--	N	10	--	--
TR4A52	N	--	--	--	--	140	--	--	N	10	--	--
TR4A53	N	--	--	--	--	95	--	--	N	10	--	--
TR4A54	N	--	--	--	--	200	--	--	N	15	--	--
TR4A55	N	--	--	--	--	110	--	--	N	10	--	--
TR4A56	N	--	--	--	--	90	--	--	1	10	--	--
TR4A57	N	--	--	--	--	65	--	--	N	15	--	--
TR4A58	N	--	--	--	--	110	--	--	<1	10	--	--
TR4A59	N	--	--	--	--	75	--	--	1	10	--	--
TR4A60	N	--	--	--	--	160	--	--	<1	20	--	--
TR4A61	N	--	--	--	--	110	--	--	<1	10	--	--
TR4A62	N	--	--	--	--	150	--	--	<1	<10	--	--
TR4A63	N	--	--	--	--	80	--	--	1	<10	--	--
TR4A64	N	--	--	--	--	160	--	--	1	10	--	--
TR4A65	N	--	--	--	--	260	--	--	1	20	--	--
TR4A66	N	--	--	--	--	100	--	--	<1	10	--	--
TR4A67	N	--	--	--	--	60	--	--	3	10	--	--
TR4A68	N	--	--	--	--	65	--	--	3	10	--	--
TR4A69	N	--	--	--	--	120	--	--	1	<10	--	--

Table 1. Stream sediment samples from the Middle Mountain-Tobacco Root Further Planning area, Montana

sample	LATITUDE		LONGITUDE		S-FEZ	S-MG%	S-CA%	S-TIX	S-MN	S-AG	S-AS	S-AU	S-B	S-BA	S-BE	S-BI	S-CD
TR4A70	45 36 38	112 10 53	2.0	5.0	5.00	.2	500	N	N	200	<1.0	N	30	200	<1.0	N	N
TR4A71	45 36 36	112 9 53	5.0	1.5	1.50	.3	1,500	<.5	N	700	1.0	N	50	700	1.0	N	N
TR4A72	45 36 29	112 9 55	5.0	1.0	1.00	.3	1,500	.5	N	700	2.0	N	70	700	2.0	N	N
TR4A73	45 43 11	112 4 43	5.0	1.0	1.00	.3	1,000	N	N	500	<1.0	N	30	500	<1.0	N	N
TR4A74	45 43 5	112 4 39	5.0	1.5	1.50	.5	1,500	<.5	N	500	1.5	N	50	500	1.5	N	N
TR4A75	45 42 25	112 4 2	7.0	1.0	1.50	.3	1,500	<.5	N	500	1.0	N	20	500	1.0	N	N
TR4A76	45 42 44	112 7 40	10.0	3.0	5.00	.5	2,000	N	N	500	1.0	N	30	500	1.0	N	N
TR4A77	45 42 33	112 7 49	7.0	2.0	1.00	.5	1,500	2.0	N	500	1.0	N	20	500	1.0	N	N
TR4A78	45 42 45	112 7 8	7.0	2.0	1.00	.5	1,500	N	N	700	1.0	N	20	700	1.0	N	N
TR4A79	45 42 29	112 4 20	7.0	1.5	1.00	.3	1,500	N	N	700	1.5	N	30	700	1.5	N	N
TR4A80	45 42 20	112 3 58	7.0	1.0	1.00	.3	1,500	N	N	700	1.5	N	20	700	1.5	N	N
TR4A81	45 42 19	112 4 4	7.0	1.5	1.50	.5	1,500	N	N	200	1.0	N	20	200	1.0	N	N

Table 1. Stream sediment samples from the Middle Mountain-Tobacco Root Further Planning area, Montana

sample	S-CO	S-CR	S-CU	S-LA	S-MO	S-VB	S-NI	S-PB	S-SB	S-SC	S-SN	S-SR	S-V	S-W	S-Y	S-ZN	S-ZR
TR4A70	10	70	30	20	<5	N	15	20	N	5	N	200	70	N	10	N	150
TR4A71	20	150	50	50	N	N	50	50	N	15	N	200	150	N	30	N	500
TR4A72	20	150	70	50	N	<20	70	70	N	15	N	200	150	N	30	N	200
TR4A73	20	500	70	30	N	N	70	20	N	15	N	150	150	N	20	N	300
TR4A74	20	500	70	30	N	N	100	50	N	15	N	150	150	N	20	N	300
TR4A75	20	300	70	70	N	N	150	20	N	20	N	150	150	N	30	N	500
TR4A76	50	700	100	20	N	N	150	30	N	30	N	200	200	N	50	N	200
TR4A77	50	500	100	30	N	N	100	20	N	30	N	150	200	N	50	N	200
TR4A78	30	300	70	70	N	N	100	20	N	20	N	200	200	N	50	N	300
TR4A79	30	500	70	50	N	N	100	30	N	20	N	150	150	N	50	N	300
TR4A80	30	300	70	70	N	<20	100	20	N	20	N	150	150	N	70	N	700
TR4A81	30	500	100	30	N	N	150	100	N	20	N	200	200	N	50	N	500

Table 1. Stream sediment samples from the Middle Mountain-Tobacco Root Further Planning area, Montana

sample	S-TH	AA-AU-P	INST-HG	AA-TE	AA-CU-P	AA-ZN-P	AA-CD-P	AA-BI-P	AA-SB-P	CM-AS	CM-W	CM-J-P
TR4A70	N	--	--	--	--	55	--	--	2	<10	--	--
TR4A71	N	--	--	--	--	160	--	--	1	10	--	--
TR4A72	N	--	--	--	--	190	--	--	1	20	--	--
TR4A73	N	--	--	--	--	75	--	--	<1	10	--	--
TR4A74	N	--	--	--	--	80	--	--	<1	10	--	--
TR4A75	N	--	--	--	--	85	--	--	<1	<10	--	--
TR4A76	N	--	--	--	--	100	--	--	1	20	--	--
TR4A77	N	--	--	--	--	110	--	--	1	<10	--	--
TR4A78	N	--	--	--	--	110	--	--	<1	<10	--	--
TR4A79	N	--	--	--	--	85	--	--	<1	10	--	--
TR4A80	N	--	--	--	--	85	--	--	<1	10	--	--
TR4A81	N	--	--	--	--	75	--	--	1	<10	--	--

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