Division of Geological & Geophysical Surveys

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MAJOR-OXIDE, MINOR-OXIDE, TRACE-ELEMENT, AND GEOCHEMICAL DATA FROM ROCKS COLLECTED IN A PORTION OF THE FORTYMILE MINING DISTRICT, ALASKA, 1999

by

D.J. Szumigala, R.J. Newberry, M.B. Werdon, B.A. Finseth, D.S. Pinney, and R.L. Flynn

April 2000

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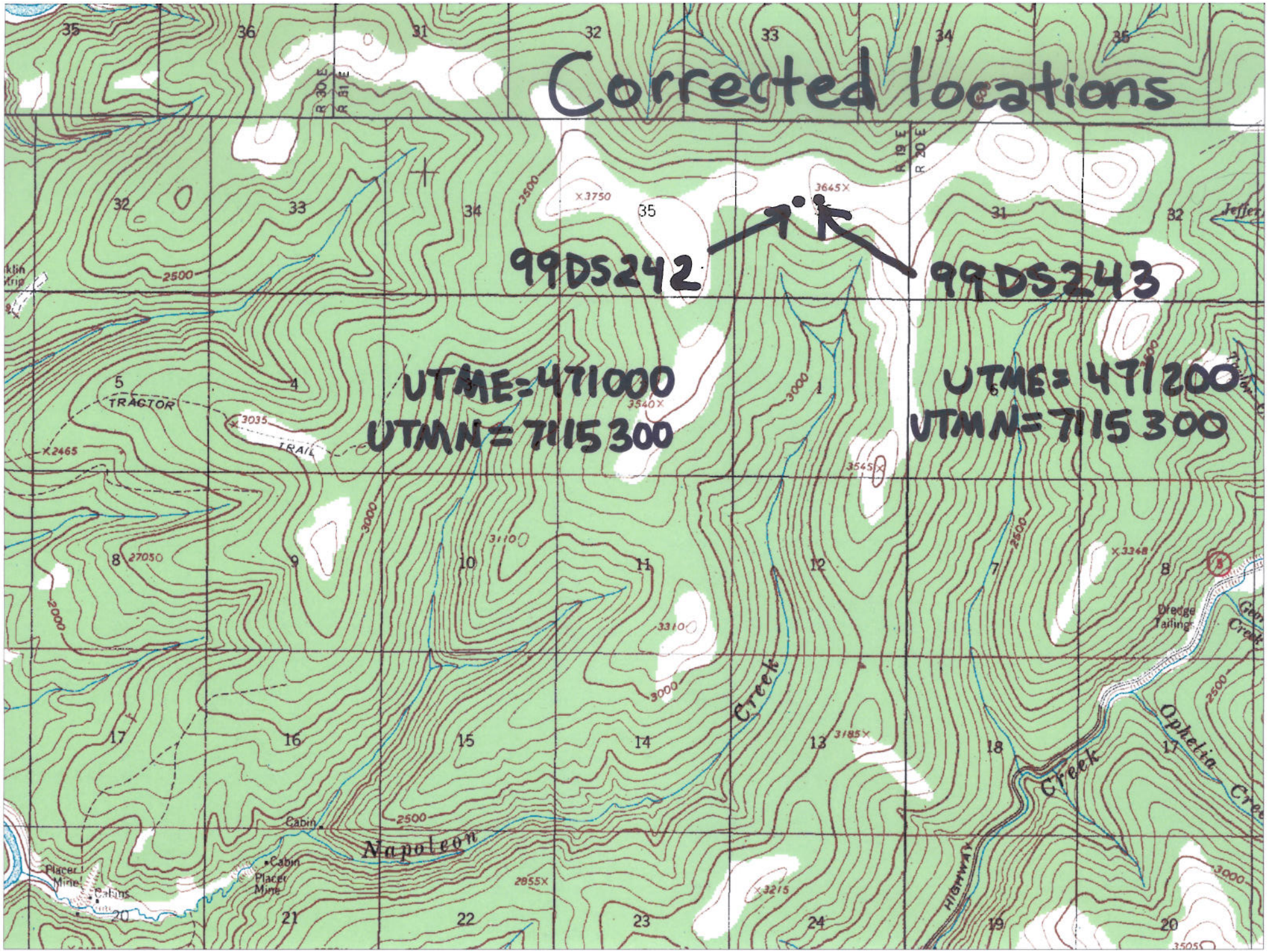
Corrected locations
99DS242
99DS243
UTME=471000
UTMN=7115300
UTME=471200
UTMN=7115300
TRACTOR
TRAIL
Napoleon
Creek
Ophelia
Creek
Dredge Tailings
Cabin
Placer Mine
Cabins
HIGHWAY
3645X
3750
3540X
3545X
3035
2465
27050
3100
3310
3185X
3348
2855X
3215
3500
3000
2500
2000

MAJOR-OXIDE, MINOR-OXIDE, TRACE-ELEMENT, AND GEOCHEMICAL DATA FROM ROCKS COLLECTED IN A PORTION OF THE FORTYMILE MINING DISTRICT, ALASKA, 1999

by

D.J. SZUMIGALA, R.J. NEWBERRY, M.B. WERDON,
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INTRODUCTION

The Alaska Division of Geological & Geophysical Surveys carried out a geological field survey including mapping and sampling of a portion of the Fortymile mining district in east-central Alaska from June through August, 1999. The fieldwork provides basic information critical to building an understanding of Alaska's geology and is part of an integrated program of airborne geophysical surveys followed by geological mapping programs. During 1999, 224 rock samples were collected for trace-element analysis, 158 samples were collected for whole rock (major and minor oxides, and petrogenetically important trace element data) analysis, and 12 $^{40}Ar/^{39}Ar$ age dates were completed. The locations of these samples are shown on Sheets 1 (whole rock and age dates) and 2 (trace-element geochemistry). Location data (in UTM coordinates with a NAD27, UTM zone 7 projection), an abbreviated description, and geochemical results for each sample are tabulated in Tables 1, 2, and 3.

ANALYTICAL METHODS

All trace-element geochemical analyses were performed by Chemex Labs, Inc. Rock samples were crushed so that at least 70 percent of the material passed through a –10 (2 mm) mesh screen. A 200-gram, representative split of the sample was then taken using a riffle splitter. The 200-gram sample was then pulverized in a chrome steel ring mill so that 95 percent of the sample passed through a –150 (106 micron) mesh screen.

Gold was analyzed on a 30 gram representative sample split using fire assay, AAS (atomic absorption spectroscopy) and ICP (inductively coupled plasma) methods. Fire assay and gravimetric techniques analyzed one sample (99DS242) containing greater than 10,000 parts per billion gold. One sample (99BAF01), containing greater than 1 percent copper, was further analyzed using AAS (atomic absorption spectroscopy). All other trace elements reported (34 elements) were analyzed by ICP-AES (inductively coupled plasma - atomic emission spectroscopy) methods after a nitric aqua regia digestion. Analytical detection limits are tabulated in Table 4.

Chemex Labs, Inc. performed whole rock analyses. Major and minor element oxides were determined by XRF (X-Ray Fluorescence) methods following a metaborate fusion. Trace elements (Ba, Nb, Rb, Sr, Y, and Zr) were also analyzed using XRF methods on a pressed pellet. Analytical detection limits are tabulated in Table 5.

The University of Alaska Fairbanks (UAF) Geochronology Laboratory analyzed $^{40}Ar/^{39}Ar$ dates. Eleven mineral separates for $^{40}Ar/^{39}Ar$ dating were concentrated to greater than 95% purity (visual inspection) using standard heavy liquid, magnetic separation, and paper friction techniques followed by hand-picking under a binocular microscope. Thin-section examination of the samples prior to crushing indicated that the chosen minerals were free from alteration and sufficiently coarse for mechanical separation. The samples and standards were irradiated to convert ^{40}K to ^{39}Ar at a nuclear reactor. The irradiated samples were step heated on-line in a Modifications Ltd. low-blank furnace at UAF and the extracted argon was purified in a two-stage process. The ^{40}Ar and ^{39}Ar gasses were measured using a Nuclide 6-60-SGA 15-cm mass spectrometer. There is a 1-sigma analytical error for the reported ages. In general, the plateau age is considered to be the best-interpreted age.

Table 1. Rock samples collected in Fortymile mining district during 1999, and analyzed for major-oxides, minor oxides, and trace elements.

SAMPLE	Easting	Northing	Description
99DS006	456844	7106621	amphibolite
99DS009	457327	7106669	amphibolite
99DS010A	457697	7107003	massive greenstone
99DS010B	457697	7107003	greenstone porphyry
99DS029	458804	7107838	greenstone
99DS031	459197	7107868	gabbro/hornblende andesite
99DS031B	459197	7107868	diabase
99DS035	459879	7108048	metatuff/greenstone
99DS036	459779	7108055	greenstone
99DS038B	460177	7108898	quartz diorite dike
99DS040B	460885	7109051	quartz-sericite phyllite
99DS041	461145	7109061	greenschist metatuff
99DS046	454125	7103922	gabbro
99DS054	460237	7107300	medium grained gabbro
99DS071B	459101	7109101	foliated tuffaceous greenstone
99DS077	459053	7109952	fine-grained, foliated, biotite-rich porphyritic granite
99DS085	451151	7116889	biotite quartzite
99DS086	451122	7117112	biotite-white mica-quartz schist
99DS086B	451122	7117112	biotite rich quartzite
99DS088	451044	7117522	foliated biotite monzonite
99DS092	450435	7118270	quartz monzonite
99DS095	450603	7118317	white mica-biotite-quartz-feldspar schist
99DS117	465417	7098129	amphibolite
99DS119	465081	7098176	augen gneiss
99DS123	463865	7098199	gabbro
99DS124	463839	7098287	greenstone
99DS132	463069	7099221	chert/silicified breccia
99DS136	462537	7098903	gabbro
99DS148	459236	7099966	porphyritic diorite
99DS175	473351	7105302	garnet-white mica-biotite quartzofeldspathic gneiss
99DS181	472806	7104835	garnet-white mica-biotite quartzofeldspathic gneiss
99DS188	454681	7103122	diorite with coarse hornblende
99DS236	455021	7104841	Taylor Mountain Batholith (TMB) quartz monzonite
99DS244	469400	7115300	Napoleon pluton-monzonite
99MBW007A	453852	7110109	porphyritic granite
99MBW013	452677	7112214	gabbro dike, Tertiary? gabbro dike in monzonite pluton
99MBW014	452118	7113181	hornblende-biotite quartz monzodiorite
99MBW035A	455066	7110263	porphyritic rhyodacite dike
99MBW041	454389	7111670	altered aplite dike
99MBW045	455213	7109271	fine-grained gabbro
99MBW063	451209	7108350	fine-grained, porphyritic metagabbro

Table 1. Rock samples collected in Fortymile mining district during 1999, and analyzed for major-oxides, minor oxides, and trace elements.

SAMPLE	Easting	Northing	Description
99MBW064	451266	7108322	meta-plutonic rock of intermediate composition, TMB type??
99MBW067	451109	7108035	porphyritic meta-andesite
99MBW076	452228	7104989	rhyodacite tuff
99MBW079	451832	7105237	siliceous welded? tuff
99MBW094	449978	7107011	fine-grained gabbro
99MBW097	449653	7106902	clinopyroxenite meta-gabbro/diabase
99MBW100	449643	7107799	Lilliwig Pit meta-plutonic
99MBW105	449441	7106836	gabbro
99MBW113	448804	7108741	porphyritic quartz diorite
99MBW119A	448240	7109365	biotite gabbro?
99MBW120	448072	7109374	porphyritic foliated medium-grained hornblende diorite
99MBW126A	449432	7108317	porphyritic meta-diorite
99MBW134A	450008	7109069	foliated meta-plutonic rock
99MBW135	450037	7108977	gabbro
99MBW137A	449994	7108682	hornblende tonalite
99MBW140F	450255	7107981	rhyodacite
99MBW140L	450255	7107981	gabbro with diabasic texture
99MBW140N	450255	7107981	tonalite
99MBW140P	450255	7107981	hornblende diorite?
99MBW164	467027	7106718	granodiorite
99MBW165E	466900	7106721	garnet-bearing aplite dike
99MBW167	466000	7107000	granodiorite
99MBW178	464666	7105674	altered felsic tuff
99MBW182	465130	7105574	chloritic feldspar-quartz [granite] gneiss
99MBW183	465321	7105526	schist
99MBW190	466902	7104799	porphyritic andesite dike
99MBW198	467063	7102554	orthogneiss [metagranodiorite]
99MBW199	467096	7102397	orthogneiss [meta-granodiorite]
99MBW204	467238	7102269	amphibolite gneiss
99MBW211A	467391	7101547	augen gneiss
99MBW212	467387	7101272	aplite dike
99MBW213	467396	7101314	augen gneiss [meta-granite]
99MBW224	468058	7100399	muscovite-quartz schist
99MBW226	468129	7100233	feldspar-white mica schist
99MBW229A	468207	7100015	amphibolite
99MBW231A	468394	7099716	amphibolite
99MBW253	467563	7099135	quartz-feldspar-biotite schist
99MBW256	467329	7099057	amphibolite
99MBW263A	466991	7098594	meta-plutonic (orthogneiss)
99MBW278	465784	7097379	foliated? granite
99MBW285A	465213	7096793	mafic dike

Table 1. Rock samples collected in Fortymile mining district during 1999, and analyzed for major-oxides, minor oxides, and trace elements.

SAMPLE	Easting	Northing	Description
99MBW294	458032	7097679	fine-grained, equigranular quartz monzonite
99MBW299	457499	7098906	fine-grained, equigranular quartz monzodiorite
99MBW300A	457379	7099095	porphyritic latite? dike
99MBW308A	457580	7099562	porphyritic andesite? dike
99MBW320	456804	7100986	fine-grained hornblende quartz diorite
99MBW323	457751	7102342	Chicken amphibolite
99MBW337	459412	7102010	amphibolite
99MBW359	460091	7094987	altered biotite quartz monzonite/quartz monzodiorite
99MBW401A	464378	7094703	fresh gabbro dike
99MBW401B	464378	7094703	amphibolite
99MBW623	469077	7099709	altered, medium-grained granodiorite orthogneiss
99MBW639	470443	7099008	fine- to medium-grained granodiorite orthogneiss
99RN040PC	490471	7186097	Eagle Bluff, pC greenstone-looks like MORB!
99RN041MP	478050	7120750	Jurassic? Pluton along Taylor Highway
99RN042-70M	488040	7156592	greenstone along Taylor Highway, near Solomon Creek
99RN047A	440742	7076099	Orthogneiss from Lake George Terrane
99RN049A	444801	7096299	Taylor Mountain batholith tonalite, slightly foliated, milepost 58
99RN049B	444801	7096299	mafic dike in TMB at milepost 58
99RN050	454590	7104544	Tertiary? gabbro
99RN052A	455438	7104185	foliated tonalite-TMB type-near Chicken
99RN052B	455438	7104185	mafic dike in Chicken 'TMB'
99RN053	452697	7104941	Tertiary? gabbro
99RN054	452540	7104862	gabbro
99RN055	451656	7104600	Tertiary? gabbro
99RN056A	456229	7104553	hornblende-quartz diorite-TMB type
99RN056B	456229	7104553	metagabbro/amphibolite
99RN057A	456386	7104531	orthogneiss? mixed with TMB-type stuff
99RN061A	457431	7104669	Taylor Mountain type dike
99RN061B	457431	7104669	microgabbro dike--Tertiary??
99RN062	457880	7104857	Chicken amphibolite
99RN065	463961	7105415	(Tertiary?) gabbro
99RN066B	464164	7105433	greenstone
99RN068B	458615	7105064	amphibolite
99RN069A	459212	7104619	non-foliated quartz monzonite dike cuts TMB-type stuff
99RN069B	459212	7104619	amphibolite
99RN069C	459212	7104619	foliated intermediate igneous rock [TMB-type tonalite??]
99RN071A	459855	7104178	greenschist/greenstone
99RN071B	459855	7104178	microgabbro and greenstone
99RN074	460130	7103930	meta-mafic tuff
99RN075	460602	7103505	green chloritic metatuff-greenschist
99RN076C	463160	7103682	TMT amphibolite-above Wall Street mine

Table 1. Rock samples collected in Fortymile mining district during 1999, and analyzed for major-oxides, minor oxides, and trace elements.

SAMPLE	Easting	Northing	Description
99RN083B	465410	7105862	Walker Fork granodiorite-dike?
99RN084A	466447	7106054	amphibolite
99RN087	467198	7106448	Walker Fork biotite granodiorite
99RN088	468182	7106885	Walker Fork biotite granodiorite
99RN091	469089	7105952	amphibolite
99RN096C	470718	7106567	amphibolite
99RN098A	471003	7106543	amphibolite
99RN101A	471777	7107979	metagabbro/amphibolite
99RN103B	476434	7113114	metagabbro/garnet amphibolite
99RN105B	475609	7112409	metagabbro/amphibolite
99RN105D	475609	7112409	fine-grained granite dike associated hornfelsed? meta rocks (giant garnet)
99RN119B	473080	7110216	least-altered granitic dike above Jack Wade Creek dredge
99RN122A	477892	7113839	amphibolite
99RN133	458401	7105928	foliated, TMB-type tonalite
99RN136	457256	7112893	Chicken pluton-granite
99RN140	458662	7112107	fine-grained plagioclase-chlorite schist
99RN141	458662	7112107	chloritized granitic dike in metamorphic rocks near Chicken pluton
99RN143	458725	7109150	biotite-granodiorite dike-(looks like Cretaceous-type)
99RN151A	482036	7114937	amphibolite
99RN152A	484375	7111290	amphibolite
99RN157C	459793	7112462	foliated quartz monzonite diorite--TMB type?
99RN176A	453874	7115925	biotite-plagioclase amphibolite
99RN182	454440	7116134	amphibolite
99RN188A	461051	7114628	amphibolite
99RN196C	462410	7115292	garnet-bearing amphibolite
99RN202	451831	7104357	biotite-clinopyroxenite gabbro
99RN207A	455378	7103333	quartz monzodiorite along Mosquito Fork, near Chicken
99RN294A	463917	7118658	dike of chloritized, coarse-grained granodiorite along South Fork
99RN296A	463221	7720365	granodiorite-tonalite orthogneiss?
99RN298A	462683	7120514	granodiorite orthogneiss?
99RN302	461683	7120117	granite orthogneiss
99RN305A	461818	7121465	altered (Tertiary?) leucogranite
99RN310	462197	7122843	amphibolite-stratigraphically above RN312
99RN312	462531	7123282	amphibolite-stratigraphically below RN310
99RN343	475893	7103902	granodiorite orthogneiss?

Table 1. Rock samples collected in Fortymile mining district during 1999, and analyzed for major-oxides, minor oxides, and trace elements.

SAMPLE	Al_2O_3	CaO	Cr_2O_3	Fe_2O_3	K_2O	MgO	MnO	Na_2O	P_2O_5	SiO_2	TiO_2	LOI	TOTAL	Ba	Rb	Sr	Nb	Zr	Y
99DS006	15.71	9.73	<.01	12.40	0.35	5.69	0.21	3.47	0.22	48.42	2.08	1.33	99.61	165	14	316	6	126	28
99DS009	16.09	7.14	<.01	8.84	0.45	4.48	0.17	4.27	0.25	55.10	1.41	1.05	99.25	290	14	362	10	150	32
99DS010A	15.06	9.64	<.01	11.55	0.41	6.20	0.21	3.32	0.24	49.33	1.71	1.20	98.87	125	18	258	8	117	32
99DS010B	18.95	8.89	<.01	9.55	0.93	4.92	0.16	3.41	0.20	50.46	1.10	1.41	99.98	240	24	358	10	90	20
99DS029	15.52	11.17	<.01	10.71	0.26	6.04	0.18	3.26	0.20	48.23	1.62	2.38	99.57	140	10	186	6	108	28
99DS031	14.65	6.08	<.01	7.66	3.02	5.37	0.13	2.31	0.25	53.60	0.60	5.67	99.34	1025	66	360	10	87	18
99DS031B	14.99	9.90	<.01	10.46	0.38	7.65	0.18	3.42	0.20	49.63	1.67	1.03	99.51	260	16	252	6	102	26
99DS035	14.60	11.79	<.01	9.53	0.17	5.43	0.17	3.30	0.20	49.87	1.27	3.11	99.44	85	8	200	8	105	28
99DS036	14.10	10.76	<.01	8.74	0.18	5.91	0.14	4.37	0.20	50.95	1.36	2.32	99.03	70	10	178	6	99	26
99DS038B	17.82	5.95	<.01	3.67	2.07	0.90	0.15	4.30	0.19	60.48	0.36	2.74	98.63	1140	60	624	14	102	22
99DS040B	10.12	0.12	<.01	2.31	2.46	0.58	0.01	1.57	0.06	80.01	0.30	2.01	99.55	800	62	54	10	108	24
99DS041	16.54	1.38	<.01	5.86	0.95	3.53	0.09	5.44	0.13	61.00	0.64	2.97	98.53	1200	20	252	8	129	26
99DS046	15.76	8.64	<.01	10.38	0.95	5.06	0.20	2.74	0.36	50.06	1.75	3.49	99.39	495	26	346	18	201	30
99DS054	17.03	3.83	<.01	9.17	0.39	2.94	0.22	6.94	0.46	55.15	1.22	1.63	98.98	155	12	164	10	237	44
99DS071B	13.21	1.37	<.01	4.36	2.13	1.03	0.08	2.87	0.09	71.34	0.46	2.62	99.56	1310	48	126	10	165	34
99DS077	14.28	4.43	<.01	5.39	4.03	2.43	0.11	2.33	0.31	63.72	0.58	1.93	99.54	1550	94	810	14	141	24
99DS085	11.77	0.90	<.01	5.48	1.02	1.59	0.08	3.37	0.05	73.60	0.40	1.28	99.54	505	22	298	8	102	32
99DS086	14.97	0.55	<.01	6.17	4.30	1.95	0.21	1.07	0.07	66.37	0.72	2.16	98.54	740	154	78	22	138	28
99DS086B	1.40	0.66	<.01	1.23	0.20	0.59	0.06	0.01	0.15	94.71	0.08	0.48	99.57	125	12	10	8	30	18
99DS088	13.76	1.77	<.01	2.07	4.81	0.58	0.05	2.50	0.10	71.99	0.26	0.75	98.64	2510	124	466	12	183	16
99DS092	15.05	1.59	<.01	0.73	2.48	0.17	0.02	5.63	0.03	71.99	0.09	0.53	98.31	2930	48	944	8	54	6
99DS095	20.60	1.46	<.01	2.69	6.13	2.25	0.03	2.74	0.20	60.09	0.47	1.93	98.59	6870	126	502	12	51	8
99DS117	14.84	4.10	<.01	10.86	1.15	2.55	0.29	5.83	0.49	57.55	1.30	0.61	99.57	305	26	102	8	105	36
99DS119	14.04	2.05	<.01	2.93	3.97	0.60	0.07	2.98	0.07	71.50	0.28	1.16	99.65	1285	106	202	14	129	28
99DS123	15.84	3.43	0.01	4.82	3.03	1.78	0.08	3.51	0.30	62.06	0.58	3.52	98.96	1180	94	560	10	129	20
99DS124	14.96	2.93	<.01	5.41	2.00	3.00	0.09	4.59	0.32	61.45	0.69	3.97	99.41	815	56	264	12	159	22
99DS132	12.28	4.06	0.01	2.71	0.61	0.12	0.04	4.72	0.03	73.32	0.20	1.52	99.62	110	12	256	26	552	115
99DS136	16.88	6.53	<.01	8.14	1.40	3.82	0.14	2.99	0.13	57.11	0.74	1.86	99.74	610	34	430	6	81	24
99DS148	16.98	4.67	<.01	5.74	2.91	2.24	0.14	3.04	0.29	59.48	0.52	3.35	99.36	1510	68	822	14	135	20
99DS175	11.34	0.97	<.01	3.32	2.63	1.16	0.08	0.90	0.09	77.34	0.51	1.36	99.70	550	94	66	18	333	28
99DS181	14.16	0.71	<.01	5.80	3.00	2.10	0.06	1.19	0.10	70.06	0.65	1.59	99.42	565	140	58	20	243	30
99DS188	16.67	6.26	<.01	7.59	1.47	3.31	0.14	2.89	0.13	57.73	0.66	1.95	98.80	855	36	324	8	75	22
99DS236	17.83	5.09	<.01	3.86	1.51	0.96	0.12	4.51	0.18	63.05	0.42	0.90	98.43	1005	38	784	12	114	20
99DS244	17.66	4.24	<.01	5.61	5.19	1.66	0.12	4.23	0.35	57.98	0.48	1.77	99.29	2010	96	1150	10	108	26
99MBW007A	14.08	3.83	<.01	5.14	4.46	2.06	0.10	2.23	0.30	64.92	0.59	1.26	98.97	1900	112	554	16	147	28
99MBW013	15.30	8.99	0.01	10.22	0.94	5.97	0.16	2.53	0.35	48.94	1.74	3.93	99.08	480	36	310	18	231	38
99MBW014	13.61	6.88	<.01	9.61	2.65	4.35	0.18	2.24	0.39	57.10	1.03	1.07	99.11	1250	72	372	18	183	40
99MBW035A	14.12	3.48	<.01	4.41	4.30	1.64	0.09	2.99	0.29	64.24	0.50	3.34	99.40	1665	96	518	16	138	22
99MBW041	16.56	1.16	<.01	0.42	7.30	0.04	0.02	3.51	0.03	69.36	0.11	0.59	99.10	2080	172	602	8	63	14
99MBW045	14.16	8.74	<.01	10.95	1.77	3.68	0.20	2.75	0.63	50.55	3.03	2.90	99.36	920	44	406	30	279	42
99MBW063	15.00	8.91	<.01	11.99	0.71	6.51	0.20	2.73	0.22	48.98	1.94	2.28	99.47	240	24	190	6	117	34

Table 1. Rock samples collected in Fortymile mining district during 1999, and analyzed for major-oxides, minor oxides, and trace elements.

SAMPLE	Al_2O_3	CaO	Cr_2O_3	Fe_2O_3	K_2O	MgO	MnO	Na_2O	P_2O_5	SiO_2	TiO_2	LOI	TOTAL	Ba	Rb	Sr	Nb	Zr	Y
99MBW064	13.91	3.67	<.01	2.31	0.49	0.65	0.04	3.53	0.06	72.91	0.25	1.24	99.06	480	16	288	8	108	18
99MBW067	16.90	9.25	<.01	10.54	0.88	4.77	0.18	3.33	0.30	48.94	2.03	2.03	99.15	260	24	304	12	156	34
99MBW076	10.82	1.00	<.01	0.72	5.45	0.11	0.01	0.62	0.03	74.60	0.10	6.47	99.93	720	242	168	42	198	72
99MBW079	22.68	1.93	<.01	3.97	3.19	1.27	0.04	1.79	0.15	60.40	0.93	3.30	99.65	1480	142	280	26	210	48
99MBW094	17.13	9.96	0.02	9.50	0.63	3.69	0.21	2.88	0.47	48.36	2.07	4.76	99.68	610	14	370	22	270	36
99MBW097	14.93	9.32	0.06	10.21	0.40	11.39	0.20	2.08	0.12	46.89	0.89	3.24	99.73	160	14	140	6	60	20
99MBW100	16.66	5.08	<.01	4.75	3.11	1.25	0.08	3.11	0.23	62.80	0.50	1.66	99.23	1960	74	892	14	132	14
99MBW105	15.47	8.74	<.01	11.09	1.11	6.43	0.18	2.86	0.42	50.39	2.01	0.83	99.53	625	28	324	20	243	36
99MBW113	18.23	5.26	<.01	3.63	1.38	1.36	0.12	4.06	0.26	63.19	0.33	1.97	99.79	865	48	874	16	72	16
99MBW119A	14.35	4.01	<.01	5.94	4.14	2.67	0.12	2.06	0.40	63.27	0.65	1.96	99.57	1585	110	572	16	141	28
99MBW120	17.00	5.24	<.01	4.97	2.39	1.27	0.09	3.31	0.25	61.88	0.51	1.76	98.67	1810	52	876	14	153	18
99MBW126A	18.10	9.79	<.01	10.42	0.41	2.96	0.17	3.11	0.18	50.28	1.15	2.55	99.12	260	12	426	8	90	22
99MBW134A	15.70	5.48	<.01	6.41	0.90	2.07	0.13	2.77	0.09	63.66	0.45	0.91	98.57	565	20	268	6	87	28
99MBW135	14.21	7.95	<.01	12.34	0.80	4.99	0.23	3.22	0.30	51.43	1.80	1.30	98.57	465	24	244	4	141	42
99MBW137A	16.04	5.98	<.01	4.55	0.49	1.83	0.09	3.48	0.07	65.45	0.41	1.27	99.66	225	14	270	8	84	22
99MBW140F	14.69	4.06	<.01	5.04	4.03	2.00	0.11	2.28	0.31	63.95	0.56	2.40	99.43	1665	102	632	16	153	26
99MBW140L	14.82	12.11	0.01	10.27	0.90	8.09	0.17	1.81	0.10	47.82	0.91	2.07	99.08	115	36	252	4	54	22
99MBW140N	16.82	6.14	<.01	6.39	1.75	2.79	0.10	3.05	0.08	59.54	0.45	1.61	98.72	425	70	310	6	66	24
99MBW140P	14.87	10.04	<.01	11.87	0.71	5.76	0.22	3.08	0.18	49.53	1.64	1.42	99.32	145	28	248	4	108	30
99MBW164	15.90	3.84	<.01	4.00	3.36	1.15	0.12	2.91	0.17	66.95	0.41	0.65	99.46	2320	94	496	12	111	30
99MBW165E	15.90	1.14	<.01	0.25	2.67	<.01	0.01	5.90	0.02	72.81	0.03	0.33	99.06	1425	46	954	6	51	4
99MBW167	16.03	4.06	<.01	4.36	2.79	1.25	0.13	3.16	0.19	65.67	0.45	0.85	98.94	1785	94	474	14	138	30
99MBW178	13.19	3.01	<.01	0.91	3.12	0.47	0.04	2.05	0.13	72.49	0.19	3.83	99.43	1630	88	212	10	105	10
99MBW182	14.59	1.20	<.01	0.82	3.60	0.14	0.01	4.16	0.01	72.96	0.09	0.57	98.15	3200	62	1190	8	75	8
99MBW183	13.69	0.90	<.01	0.39	4.20	<.01	0.01	3.86	0.01	75.37	0.03	0.29	98.75	1505	140	102	40	93	120
99MBW190	17.83	6.82	<.01	7.14	1.67	2.35	0.15	3.05	0.31	57.55	0.68	1.48	99.03	2210	46	704	12	144	30
99MBW198	15.91	2.82	<.01	1.52	1.43	0.32	0.03	4.63	0.07	70.79	0.17	1.21	98.90	1245	36	662	10	93	10
99MBW199	16.69	4.54	<.01	3.41	1.62	1.04	0.06	3.95	0.14	66.78	0.35	1.40	99.98	1290	42	616	10	141	14
99MBW204	15.85	6.44	<.01	13.61	0.73	3.96	0.21	4.38	0.42	50.97	1.61	1.44	99.62	575	22	302	12	102	26
99MBW211A	12.96	1.33	<.01	2.74	4.33	0.65	0.05	2.83	0.05	73.04	0.25	1.07	99.30	1080	118	164	14	126	30
99MBW212	15.08	0.20	<.01	0.75	5.87	0.04	<.01	4.33	0.04	72.74	0.05	0.43	99.53	2710	90	122	6	78	10
99MBW213	13.98	1.41	<.01	3.58	2.28	1.43	0.05	4.51	0.18	69.25	0.33	1.66	98.66	1000	64	194	14	105	20
99MBW224	16.43	1.27	<.01	0.56	1.20	0.01	0.02	6.53	<.01	73.16	0.05	0.52	99.75	900	24	676	26	75	2
99MBW226	16.74	2.60	<.01	1.35	2.56	0.20	0.05	4.40	0.06	70.11	0.11	1.06	99.24	1770	68	816	10	87	8
99MBW229A	17.25	8.24	<.01	11.83	0.72	7.28	0.25	3.07	0.29	47.10	0.89	2.61	99.53	245	20	366	6	48	16
99MBW231A	14.19	10.36	0.05	11.64	0.49	9.25	0.28	1.80	0.19	48.53	0.80	1.48	99.06	100	14	152	6	60	18
99MBW253	15.86	4.21	<.01	3.94	2.39	1.16	0.06	3.67	0.11	66.08	0.39	1.40	99.27	1720	46	476	10	99	16
99MBW256	17.56	4.97	<.01	10.18	1.00	5.33	0.19	4.81	0.04	52.81	0.30	1.76	98.95	345	26	290	6	33	10
99MBW263A	14.29	0.69	<.01	0.94	1.19	0.20	0.03	6.87	0.06	73.80	0.12	0.59	98.78	1595	22	948	12	99	16
99MBW278	17.66	1.63	<.01	1.00	2.45	0.18	0.02	6.83	0.04	68.75	0.13	0.45	99.14	2280	34	2530	14	114	10
99MBW285A	15.91	5.72	<.01	5.93	2.64	4.88	0.11	3.46	0.19	55.73	0.64	3.90	99.11	950	118	566	16	150	24

Table 1. Rock samples collected in Fortymile mining district during 1999, and analyzed for major-oxides, minor oxides, and trace elements.

SAMPLE	Al_2O_3	CaO	Cr_2O_3	Fe_2O_3	K_2O	MgO	MnO	Na_2O	P_2O_5	SiO_2	TiO_2	LOI	TOTAL	Ba	Rb	Sr	Nb	Zr	Y
99MBW294	16.50	3.50	<.01	3.16	2.97	0.98	0.09	4.82	0.16	66.31	0.34	0.57	99.40	2210	60	954	10	102	18
99MBW299	17.61	3.47	<.01	2.44	1.80	0.74	0.07	5.44	0.11	66.77	0.31	0.86	99.62	1205	36	942	14	102	12
99MBW300A	16.21	4.07	<.01	5.73	2.71	1.84	0.10	3.73	0.33	62.15	0.64	1.48	98.99	1600	60	770	14	141	22
99MBW308A	16.03	5.48	<.01	7.76	2.41	3.80	0.15	3.25	0.40	56.55	0.75	1.91	98.49	1540	52	884	20	123	18
99MBW320	17.73	5.81	<.01	5.40	2.29	1.60	0.14	3.61	0.25	60.81	0.55	1.43	99.62	915	58	704	12	99	22
99MBW323	15.18	9.49	<.01	11.77	0.51	5.34	0.19	3.19	0.22	49.65	2.06	1.66	99.26	125	14	348	8	138	30
99MBW337	14.23	6.65	<.01	13.90	0.41	5.03	0.22	3.51	0.29	50.00	2.68	2.53	99.45	165	16	294	8	180	34
99MBW359	17.28	2.65	<.01	4.03	2.44	1.26	0.11	5.38	0.22	63.65	0.53	1.84	99.39	1940	50	1385	12	141	24
99MBW401A	14.88	7.88	<.01	13.28	1.19	5.99	0.20	3.02	0.57	47.89	2.76	2.33	99.99	585	44	404	20	261	42
99MBW401B	13.60	7.65	0.01	8.33	0.87	9.30	0.17	3.80	0.16	53.65	0.72	1.58	99.84	365	28	356	6	75	20
99MBW623	15.96	2.74	<.01	0.97	0.57	0.20	0.03	5.88	0.04	72.34	0.09	0.63	99.45	1015	18	724	6	39	4
99MBW639	16.12	2.50	<.01	0.59	0.97	0.09	0.01	6.29	0.02	71.76	0.05	0.36	98.76	1005	14	856	4	60	6
99RN040PC	11.09	10.96	<.01	16.02	0.18	4.33	0.18	1.29	0.12	49.05	1.13	5.48	99.83	95	16	50	8	69	30
99RN041MP	14.99	4.54	<.01	5.72	3.72	2.08	0.12	2.40	0.34	63.88	0.65	0.79	99.23	2220	96	698	16	165	26
99RN042-70M	16.56	4.35	<.01	10.00	1.11	10.45	0.14	3.06	0.33	46.11	1.52	6.18	99.81	450	28	140	14	186	24
99RN047A	13.32	1.58	<.01	3.07	4.49	0.60	0.09	3.12	0.12	70.19	0.43	2.23	99.24	630	230	114	38	207	42
99RN049A	18.12	4.76	<.01	4.25	1.70	1.37	0.11	5.45	0.22	61.48	0.53	1.23	99.22	1185	32	1165	14	147	26
99RN049B	13.74	8.56	<.01	8.47	3.07	7.58	0.16	2.22	0.29	52.39	0.62	2.25	99.35	1120	50	704	10	84	18
99RN050	17.42	9.96	<.01	8.13	1.03	4.26	0.16	2.98	0.38	49.58	1.81	3.69	99.40	505	32	356	20	213	34
99RN052A	18.04	5.63	<.01	4.38	1.61	1.22	0.14	4.25	0.20	62.25	0.47	1.05	99.24	1185	40	702	16	129	28
99RN052B	13.73	7.37	0.01	8.31	2.72	6.52	0.14	2.19	0.29	54.51	0.64	3.03	99.46	1065	58	622	10	93	20
99RN053	15.67	9.04	<.01	11.47	0.99	5.70	0.17	3.12	0.39	49.85	2.07	0.97	99.44	475	30	346	16	213	36
99RN054	15.66	9.73	<.01	11.03	0.87	4.06	0.18	3.08	0.37	48.05	2.03	3.11	98.17	485	22	372	20	210	36
99RN055	14.64	9.01	<.01	11.21	1.22	7.08	0.16	2.39	0.46	47.88	1.78	3.87	99.70	610	34	434	20	204	30
99RN056A	17.55	5.04	<.01	3.85	1.53	1.16	0.12	4.21	0.18	64.24	0.42	1.43	99.73	1010	40	676	14	132	22
99RN056B	17.25	10.16	<.01	11.24	0.68	4.89	0.17	3.18	0.22	48.64	1.93	1.26	99.62	280	14	340	10	132	28
99RN057A	15.08	3.40	<.01	3.33	0.87	0.89	0.13	4.22	0.11	69.08	0.32	1.40	98.83	500	22	310	8	108	24
99RN061A	15.23	3.90	<.01	5.59	0.78	1.18	0.14	4.83	0.23	64.78	0.67	1.42	98.75	385	16	260	8	174	32
99RN061B	16.38	10.13	<.01	10.73	0.57	5.61	0.17	3.24	0.25	48.54	1.97	1.90	99.49	215	20	318	8	138	28
99RN062	15.17	13.89	<.01	13.16	0.33	7.33	0.23	1.13	0.04	44.52	1.26	2.33	99.39	95	14	360	4	30	12
99RN065	15.21	7.81	<.01	10.78	0.67	6.27	0.14	2.41	0.42	46.77	2.10	6.83	99.41	315	30	368	14	198	34
99RN066B	14.37	3.51	<.01	3.87	2.57	2.31	0.09	4.09	0.18	63.04	0.44	4.39	98.86	1600	76	368	14	129	22
99RN068B	14.24	8.91	<.01	14.15	0.37	4.77	0.27	3.52	0.42	47.08	3.65	1.30	98.68	135	14	264	10	195	36
99RN069A	17.33	3.18	<.01	2.34	3.07	0.62	0.07	5.60	0.12	63.05	0.31	2.85	98.54	1280	62	964	22	99	10
99RN069B	15.34	8.19	<.01	13.36	1.00	4.27	0.22	2.64	0.45	49.69	1.95	1.81	98.92	410	26	348	8	168	32
99RN069C	15.88	5.19	<.01	6.26	1.08	2.44	0.13	3.57	0.10	62.83	0.60	1.40	99.48	655	20	312	8	114	26
99RN071A	13.00	9.87	0.01	9.21	0.19	7.11	0.16	3.02	0.16	44.21	1.24	11.53	99.71	40	10	122	6	87	24
99RN071B	13.50	6.71	<.01	11.53	0.19	4.57	0.17	3.43	0.24	48.82	1.84	8.22	99.22	85	12	190	6	117	28
99RN074	15.16	8.02	0.01	10.00	0.33	6.97	0.16	2.26	0.19	44.49	1.42	10.20	99.21	55	16	148	6	93	22
99RN075	13.35	8.28	0.02	10.10	0.13	8.74	0.17	2.68	0.15	44.03	1.20	10.91	99.76	30	10	112	8	84	14
99RN076C	17.72	6.00	<.01	13.69	0.84	7.32	0.21	2.24	0.27	43.52	1.31	6.20	99.32	335	34	310	8	78	22

Table 1. Rock samples collected in Fortymile mining district during 1999, and analyzed for major-oxides, minor oxides, and trace elements.

SAMPLE	Al_2O_3	CaO	Cr_2O_3	Fe_2O_3	K_2O	MgO	MnO	Na_2O	P_2O_5	SiO_2	TiO_2	LOI	TOTAL	Ba	Rb	Sr	Nb	Zr	Y
99RN083B	16.69	4.80	<.01	5.00	2.54	1.59	0.13	3.07	0.21	63.57	0.53	1.53	99.66	2260	76	616	12	135	28
99RN084A	14.37	13.11	0.03	6.05	0.73	10.38	0.12	1.37	0.04	50.46	0.29	2.39	99.34	345	24	282	6	24	12
99RN087	16.42	4.25	<.01	4.46	2.74	1.28	0.12	2.94	0.22	65.83	0.48	0.99	99.73	2520	84	538	14	144	24
99RN088	16.01	4.16	<.01	4.36	2.74	1.21	0.13	3.09	0.20	65.82	0.44	0.63	98.79	1800	88	468	14	144	28
99RN091	16.69	8.57	<.01	9.25	2.03	6.66	0.16	3.21	0.32	49.45	1.59	1.21	99.14	1005	50	334	30	150	24
99RN096C	14.24	6.69	<.01	11.01	0.62	5.10	0.13	4.37	0.16	54.74	1.55	1.02	99.63	230	18	142	8	111	32
99RN098A	15.26	5.99	<.01	10.58	1.76	8.36	0.17	4.12	0.10	50.36	1.12	1.94	99.76	1070	56	214	8	81	28
99RN101A	5.86	11.29	0.14	7.92	0.66	16.01	0.18	0.94	0.08	54.42	0.27	1.88	99.65	315	20	90	6	42	12
99RN103B	16.41	6.42	<.01	10.67	0.65	2.83	0.25	5.15	0.95	52.79	2.43	1.17	99.72	405	16	446	78	303	36
99RN105B	11.29	4.78	<.01	6.89	1.26	3.32	0.15	2.35	0.20	67.37	0.69	1.31	99.61	430	34	128	6	90	28
99RN105D	14.98	1.94	<.01	0.82	3.43	0.23	0.03	4.24	0.03	72.48	0.09	0.63	98.90	2140	82	942	10	63	12
99RN119B	14.65	1.92	<.01	0.56	2.41	0.32	0.01	4.99	0.04	73.97	0.12	0.43	99.42	2580	42	1050	10	69	20
99RN122A	15.97	6.51	<.01	8.17	1.57	2.88	0.17	3.86	0.22	58.04	0.95	1.46	99.80	485	40	246	10	81	22
99RN133	17.27	5.68	<.01	4.60	1.35	1.32	0.12	3.95	0.21	63.34	0.46	1.23	99.53	825	28	640	12	108	16
99RN136	15.13	2.70	<.01	2.18	3.72	0.67	0.06	3.63	0.08	69.59	0.24	0.53	98.53	1825	106	716	12	102	20
99RN140	12.16	8.64	0.03	14.51	1.42	10.31	0.20	1.93	0.89	43.32	3.51	2.62	99.54	295	40	514	66	303	20
99RN141	14.13	2.88	<.01	4.99	4.60	2.17	0.10	2.20	0.30	65.47	0.58	2.05	99.47	1785	102	554	16	135	24
99RN143	17.15	3.21	<.01	2.45	2.16	0.62	0.04	4.20	0.09	67.69	0.28	1.26	99.15	1490	50	1035	10	120	8
99RN151A	15.02	8.98	0.02	10.01	1.49	5.00	0.18	1.92	0.09	54.43	0.56	1.41	99.11	740	36	250	6	57	18
99RN152A	15.14	8.29	<.01	12.36	0.67	4.76	0.21	2.41	0.41	52.06	1.78	1.10	99.19	375	12	540	32	153	22
99RN157C	17.89	5.25	<.01	5.85	2.43	1.57	0.14	4.74	0.36	59.54	0.56	1.01	99.34	1575	52	1460	32	177	22
99RN176A	12.35	10.22	<.01	14.09	1.63	9.56	0.29	1.64	0.23	46.23	1.19	1.36	98.79	260	34	160	8	54	24
99RN182	14.76	8.34	<.01	11.94	0.57	6.88	0.22	3.05	0.24	50.94	0.99	1.05	98.98	170	16	270	6	60	20
99RN188A	13.02	10.09	<.01	15.40	1.77	9.67	0.24	1.67	0.61	42.91	1.64	2.52	99.54	675	38	252	12	42	24
99RN196C	15.22	5.69	<.01	11.39	0.74	4.33	0.19	4.23	0.18	55.41	1.08	1.31	99.77	370	24	184	8	66	22
99RN202	14.59	8.85	<.01	10.00	1.67	3.97	0.15	2.79	0.60	51.26	2.24	2.43	98.55	865	46	434	30	285	42
99RN207A	15.30	4.33	<.01	5.61	4.80	1.96	0.13	3.15	0.36	58.85	0.66	3.68	98.83	1715	70	952	18	126	20
99RN294A	15.19	2.53	<.01	1.14	2.09	0.32	0.02	4.87	0.04	70.30	0.15	1.69	98.34	650	54	422	8	117	10
99RN296A	14.55	5.46	<.01	7.70	3.53	2.85	0.14	2.05	0.48	60.49	0.89	1.25	99.39	2050	76	644	18	210	34
99RN298A	15.42	3.56	<.01	4.04	3.30	1.15	0.11	3.13	0.22	66.69	0.41	1.54	99.57	1505	88	692	16	162	28
99RN302	15.44	1.02	0.01	0.95	3.32	0.07	0.02	5.40	0.03	72.38	0.09	0.22	98.95	3630	52	952	8	45	6
99RN305A	14.71	1.46	<.01	0.61	3.39	0.08	0.03	5.68	0.05	70.48	0.09	1.60	98.18	3870	52	696	10	66	8
99RN310	16.06	7.50	0.01	9.33	1.69	7.36	0.23	4.11	0.36	50.30	1.40	0.93	99.28	975	36	238	8	126	24
99RN312	17.70	15.66	0.01	8.87	0.49	5.73	0.16	1.26	0.19	45.41	0.61	3.15	99.24	285	12	402	6	45	18
99RN343	15.66	2.74	<.01	1.30	1.40	0.45	0.03	5.84	0.04	70.15	0.11	0.41	98.13	1480	30	1090	6	69	6

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Sample	Easting	Northing	Description	Au	Ag	Al	As	B	Ba
99BAF01	453852	7110109	Purdy fault gouge with supergene copper	1055	72.6	0.30	308	10	<10
99BAF02	453852	7110109	iron-oxide stained, and pyrite-bearing layer in Purdy pit	35	0.8	1.52	22	<10	40
99BAF03	453852	7110109	Purdy calcified fault breccia	225	78.6	0.32	134	<10	10
99DS004	456246	7106289	iron oxide stained quartz veinlets in amphibolite	<5	<.2	1.69	4	<10	80
99DS012	458022	7107317	select sample of quartz veined greenstone	<5	<.2	1.25	<2	<10	<10
99DS013	458160	7107455	quartz-iron oxide-malachite veins in greenstone	<5	<.2	1.26	<2	<10	10
99DS015	458233	7107737	quartz-sulfide veins in chloritized greenstone	15	<.2	1.28	6	<10	30
99DS018	455735	7106840	quartz-potassium feldspar-sulfide veined quartz monzonite	<5	<.2	1.39	<2	<10	140
99DS019B	456024	7107480	green clay with relic quartz monzonite texture	<5	<.2	2.23	6	<10	120
99DS024	456901	7108199	select sample of quartz-limonite veined greenstone	<5	<.2	2.44	6	<10	10
99DS031	459197	7107868	gabbro with 1% disseminated fine-grained pyrhhotite blobs	<5	<.2	2.44	4	<10	70
99DS040C	460885	7109051	specular hematite coated fracture surfaces and stockwork quartz veins in phyllite	<5	<.2	1.17	2	<10	870
99DS041	461145	7109061	metatuff	<5	<.2	2.52	2	<10	210
99DS045B	453326	7110851	select sample of quartz veined aplite with weak iron oxide stain	70	1.4	0.15	2	<10	200
99DS046	454125	7103922	gabbro with weak carbonate alteration	<5	<.2	2.09	<2	<10	30
99DS048	454991	7105492	select sample of calcite veins in gabbro and calcite breccia	<5	<.2	0.89	12	<10	60
99DS054	460237	7107300	gabbro with pyrhhotite clots	<5	<.2	1.63	<2	<10	20
99DS060	460605	7105817	quartz-sericite phyllite with quartz veins and limonite stain	<5	<.2	0.57	4	<10	420
99DS060B	460605	7105817	aplite with quartz veins and limonite stains	<5	<.2	0.76	<2	<10	290
99DS061	460747	7105496	select sample of quartz-calcite veined tuff/phyllite in greenstone	<5	<.2	1.94	10	<10	130
99DS064	459522	7108751	quartz-pyrrhotite +/- feldspar veins in greenschist metatuff	5	<.2	1.85	<2	<10	10
99DS071B	459101	7109160	foliated tuff with minor quartz veining and iron oxide stain	<5	<.2	1.58	2	<10	200
99DS077	459053	7109952	foliated, biotite-rich granite	<5	<.2	2.11	<2	<10	230
99DS085	451151	7116889	biotite quartzite with minor quartz veining	<5	<.2	1.38	<2	<10	130
99DS086	451122	7117112	biotite-white mica-quartz schist with limonite stained quartz veins	<5	<.2	1.70	2	<10	110
99DS086B	451122	7117112	biotite quartzite	<5	<.2	0.34	<2	<10	40
99DS089	450990	7117517	banded marble with iron oxide staining	<5	<.2	0.07	10	<10	110
99DS091	450689	7117817	select sample of pyrite-bearing marble and calcite breccia	<5	<.2	0.03	14	10	10
99DS107	462385	7105769	quartz veined and pyrite rich chert (limestone) breccia	65	0.6	0.47	6	<10	180
99DS109B	462417	7106521	select sample of ankerite and pyrite veins in phyllitic mudstone	<5	0.2	1.05	<2	<10	220
99DS111	462519	7106379	disseminated pyrite and pyrite-calcite veinlets in greenstone	<5	<.2	1.71	<2	<10	300
99DS113B	465771	7097715	select sample of banded, and vuggy epithermal quartz-calcite veins	<5	<.2	0.28	<2	<10	90
99DS132	463069	7099221	chert/silicified breccia and epidote-filled fractures in greenstone	<5	<.2	0.78	<2	<10	100
99DS153	460606	7100026	select sample of potassium feldspar veined Taylor Mountain granodiorite	5	<.2	0.72	<2	<10	30
99DS158	461048	7100486	disseminated pyrite and calcite veins in calc-phyllite	<5	0.2	2.71	2	<10	670
99DS159	461214	7100246	disseminated pyrite in tuffaceous greenstone	<5	<.2	1.74	<2	<10	440
99DS163	472797	7115610	select sample of carbonate altered monzonite	<5	<.2	0.95	<2	<10	460
99DS187	469293	7105386	discontinuous pyrite veins in banded gneiss	25	0.6	1.63	2	<10	930
99DS188	454681	7103122	select sample of quartz veined diorite with pyrite	5	<.2	2.51	<2	<10	60

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Sample	Easting	Northing	Description	Au	Ag	Al	As	B	Ba
99DS196	456504	7104054	select sample of greenstone, with calcite, chlorite and pyrite veins	5	0.2	2.85	<2	<10	10
99DS196B	456504	7104054	pyrite and calcite veined foliated granodiorite (TMB)	<5	<.2	1.84	<2	<10	40
99DS198	456304	7104328	fractured greenstone and fault gouge	<5	<.2	3.92	<2	<10	50
99DS201	455822	7104711	leached greenstone with calcite veining	10	<.2	1.94	<2	<10	70
99DS201C	455822	7104711	select sample of calcite veins in greenstone	<5	<.2	1.88	<2	<10	270
99DS223	466171	7109461	orange-black marble breccia with very fine grained sulfides	10	<.2	0.07	<2	<10	30
99DS224C	466085	7103505	fault breccia with calcite veinlets and igneous texture	75	<.2	2.20	2	<10	70
99DS226	469273	7105580	churn drill sample at 30 foot depth of biotite (chlorite) quartz schist (placer gold contamination?)	525	0.2	1.10	6	<10	660
99DS226C	469273	7105580	light gray granular quartzite from churn drill hole (new water well at BLM campground)	<5	0.4	1.35	10	<10	440
99DS227	471600	7107450	quartz-biotite-feldspar schist with hematite+quartz open-spaced veins	<5	<.2	0.96	<2	<10	120
99DS232	472450	7107430	limonite-stained quartzite with slickensides and quartz+limonite veins (limonite casts after ?pyrite)	5	1	0.84	10	<10	170
99DS235B	454811	7104879	select sample of calcite veins in gabbro	<5	<.2	4.34	2	80	10
99DS242	471000	7115300	altered Napoleon pluton	178100	53.2	0.29	2	<10	50
99DS243	471200	7115300	altered, pyrite-bearing Napoleon pluton from trench	2910	9.2	0.46	<2	<10	90
99MBW004	454317	7109735	iron-stained phyllite with bright orange clay soil, possible fault(?)	85	<.2	3.90	8	<10	210
99MBW007A	453852	7110109	Purdy fault gouge	<5	<.2	1.32	<2	<10	80
99MBW007B	453852	7110109	K-feldspar veins in granite	<5	<.2	1.08	<2	<10	80
99MBW013	452677	7112214	gabbro dike	<5	<.2	3.12	<2	<10	40
99MBW014	452118	7113181	hornblende-biotite quartz-monzodiorite	<5	<.2	2.39	<2	<10	240
99MBW023A	456796	7111741	massive milky quartz with patches and veins of limonite	<5	<.2	0.12	16	<10	70
99MBW023B	456796	7111741	fractured pink quartz-monzonite/quartz-monzodiorite	<5	<.2	0.88	2	<10	80
99MBW035A	455066	7110263	porphyritic rhyodacite dike	<5	<.2	1.62	2	<10	50
99MBW035B	455066	7110263	calcite veins in phyllite	10	0.2	1.13	2	<10	30
99MBW041	454389	7111670	altered aplite dike	<5	<.2	0.76	<2	<10	120
99MBW045	455213	7109271	fine grained gabbro	<5	<.2	1.26	2	<10	90
99MBW058	451315	7109570	phyllite cut by quartz and limonite veins	5	<.2	0.83	<2	<10	130
99MBW063	451209	7108350	fine-grained porphyritic meta-gabbro	<5	<.2	2.33	<2	<10	50
99MBW064	451266	7108322	rock of intermediate composition	<5	<.2	1.27	<2	<10	80
99MBW067	451109	7108035	porphyritic meta-andesite	<5	<.2	2.10	<2	<10	60
99MBW076	452228	7104989	rhyodacite tuff	<5	<.2	1.28	2	<10	510
99MBW079	451832	7105237	siliceous welded? tuff	<5	<.2	5.96	32	<10	190
99MBW084	451367	7105842	silica-cemented Tertiary(?) sandstone/conglomerate	5	<.2	0.73	10	<10	90
99MBW094	449978	7107011	fine grained Tertiary? gabbro	<5	<.2	2.94	<2	<10	60
99MBW097	449653	7106902	clinopyroxene meta-gabbro/diabase	<5	<.2	3.11	<2	<10	30
99MBW100	449643	7107799	Lilliwig Pit meta-plutonic	<5	<.2	1.70	<2	<10	160
99MBW105	449441	7106836	gabbro	<5	<.2	2.07	<2	<10	40
99MBW113	448804	7108741	porphyritic quartz diorite	<5	<.2	1.88	<2	<10	140
99MBW114	448906	7108602	disseminated pyrite in intermediate composition pluton	<5	<.2	1.53	2	<10	110
99MBW120	448072	7109374	porpyritic foliated medium grained hornblende diorite	<5	<.2	2.34	2	<10	260

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Sample	Easting	Northing	Description	Au	Ag	Al	As	B	Ba
99MBW122A	447887	7109328	stockwork quartz+limonite+/-chlorite veined and altered pluton	<5	<.2	0.34	<2	<10	50
99MBW124	447445	7109455	quartz veins in highly foliated greenstone	10	<.2	1.64	14	<10	510
99MBW125A	449748	7107750	pyrite and pyrhhotite(?) veins in granular altered greenstone(?)	10	0.2	2.05	66	<10	10
99MBW126A	449432	7108317	foliated porphyritic metadiorite	5	<.2	2.83	<2	<10	70
99MBW134A	450008	7109069	foliated metaplutonic rock	<5	<.2	3.70	<2	<10	380
99MBW135	450037	7108977	gabbro	<5	<.2	1.93	<2	<10	230
99MBW137A	449994	7108682	hornblende tonalite	<5	<.2	1.40	<2	<10	30
99MBW137B	449994	7108682	chlorite-pyrite-limonite cemented, aplite-clast breccia	<5	<.2	1.24	6	<10	100
99MBW137C	449994	7108682	altered pluton cut by calcite and secondary biotite/chlorite(?) and pyrite/limonite veins	<5	<.2	2.16	2	<10	60
99MBW137D	449994	7108682	altered greenstone cut by calcite + iron carbonate + hematite veins	15	<.2	1.42	4	<10	10
99MBW138	449946	7107574	gabbro cut by quartz+chlorite veins	<5	<.2	1.10	<2	<10	10
99MBW139A	450014	7107538	milky quartz intergrown with epidote, chlorite, and pyrite/limonite	10	<.2	0.72	<2	<10	<10
99MBW139C	450014	7107538	pyrite-quartz-calcite-chalcopyrite vein material	35	<.2	1.42	2	<10	50
99MBW140E	450255	7107981	silicified zone of gray quartz, epidote, chlorite, pyrite, and calcite	30	<.2	0.60	22	<10	<10
99MBW140F	450255	7107981	rhyodacite	<5	<.2	1.85	2	<10	120
99MBW140L	450255	7107981	gabbro with diabasic texture	<5	<.2	1.76	<2	<10	10
99MBW140M	450255	7107981	iron-stained zone in pyrite veined siliceous pluton	<5	<.2	0.90	4	<10	30
99MBW140N	450255	7107981	tonalite	<5	<.2	2.54	<2	<10	110
99MBW140P	450255	7107981	hornblende diorite?	<5	<.2	1.37	<2	<10	10
99MBW150	449964	7108435	Fe-stained siliceous rock	<5	<.2	0.71	<2	<10	70
99MBW152	450018	7108570	quartz veined foliated pluton	<5	<.2	1.50	4	<10	80
99MBW155	468700	7106746	quartz monzodiorite cut by quartz+limonite veins	<5	0.2	1.65	10	<10	510
99MBW157	468385	7107465	chlorite-pyrite-limonite - epidote altered aplite dike	<5	<.2	1.36	6	<10	270
99MBW161	467404	7106929	fractured granodiorite cut by quartz veins	<5	<.2	1.25	18	<10	2240
99MBW164	467027	7106718	granodiorite	<5	<.2	1.30	<2	<10	610
99MBW165A	466900	7106721	gossanous fault zone in granodiorite	<5	0.2	0.39	2	<10	80
99MBW165B	466900	7106721	silica along fault in granodiorite	15	1	0.43	8	<10	100
99MBW165C	466900	7106721	altered granodiorite cut by pale blue quartz veins	10	0.4	0.21	12	<10	30
99MBW165D	466900	7106721	fault breccia - granodiorite & granodiorite clasts cut by limonite+quartz+calcite+/-iron carbonate veins	55	<.2	0.41	6	<10	80
99MBW165E	466900	7106721	garnet-bearing aplite dike	<5	<.2	0.28	<2	<10	70
99MBW166	466792	7107212	granodiorite cut by quartz veins	<5	<.2	1.48	<2	<10	390
99MBW167	466000	7107000	granodiorite	<5	<.2	1.60	<2	<10	560
99MBW172	464255	7105840	brecciated siliceous rock with drusy quartz in fractures and limonite staining.	<5	<.2	0.34	10	<10	530
99MBW178	464666	7105674	altered felsic tuff	<5	<.2	0.80	20	<10	230
99MBW179	464705	7105690	numerous quartz veins in phyllite some brecciated	<5	<.2	1.03	16	<10	150
99MBW182	465130	7105574	chloritic feldspar-quartz [granite] gneiss	<5	<.2	0.54	2	<10	160
99MBW183	465321	7105526	schist	<5	<.2	0.31	<2	<10	70
99MBW185B	465873	7105307	quartz veined, brecciated gneiss	<5	<.2	0.43	2	<10	70
99MBW185C	465873	7105307	silica breccia with pyrite in gneiss	10	0.2	0.53	8	<10	200

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Sample	Easting	Northing	Description	Au	Ag	Al	As	B	Ba
99MBW190	466902	7104799	porphyritic andesite dike	<5	<.2	3.61	2	<10	1260
99MBW192	467078	7104478	ankerite veined, faulted and brecciated (cemented by chlorite) schist	<5	<.2	1.56	<2	<10	250
99MBW193A	467105	7104425	quartz and pyrite veined schist	<5	0.4	0.30	6	10	790
99MBW194B	467251	7104268	color-banded siliceous schist/gneiss(?) cut by limonite-filled fractures	<5	0.8	0.32	<2	<10	80
99MBW198	467063	7102554	orthogneiss [meta-granodiorite]	<5	<.2	0.82	<2	<10	190
99MBW199	467096	7102397	orthogneiss [meta-granodiorite]	<5	<.2	1.17	<2	<10	90
99MBW202	467320	7104031	quartz-veined augen gneiss with disseminated pyrite	<5	<.2	0.40	<2	<10	50
99MBW203	467170	7102285	brecciated schist cemented by crystalline quartz	30	<.2	0.41	2	<10	70
99MBW204	467238	7102269	amphibolite gneiss	<5	<.2	2.00	<2	<10	90
99MBW211A	467391	7101547	augen gneiss	<5	<.2	0.86	<2	<10	40
99MBW212	467387	7101272	aplite dike	<5	<.2	0.27	<2	<10	80
99MBW213	467396	7101314	augen gneiss [meta-granite]	<5	<.2	1.31	<2	<10	90
99MBW218	467589	7101380	iron-stained quartzite cut by numerous crystalline quartz veins	<5	<.2	0.21	2	<10	60
99MBW219A	467652	7100928	quartzite with disseminated limonite cut by quartz veins	<5	0.2	0.24	6	<10	50
99MBW219B	467652	7100928	black quartzite with iron staining	<5	<.2	0.21	6	<10	10
99MBW222	467845	7100657	graphitic schist cut by quartz veins with limonite pseudomorphs after pyrite	<5	0.4	0.61	2	<10	200
99MBW223	467999	7100518	granular siliceous quartzite with iron staining	<5	1.2	0.13	14	<10	120
99MBW224	468058	7100399	muscovite-quartz schist	<5	<.2	0.31	<2	<10	90
99MBW226	468129	7100233	feldspar-white mica schist	<5	<.2	0.59	<2	<10	110
99MBW229A	468207	7100015	amphibolite	<5	<.2	3.39	2	<10	60
99MBW231A	468394	7099716	amphibolite	<5	<.2	2.49	<2	<10	10
99MBW235C	464980	7105996	chalcedonic quartz vein	<5	<.2	0.19	<2	<10	60
99MBW253	467563	7099135	quartz-feldspar-biotite schist	<5	<.2	1.44	<2	<10	80
99MBW255	467424	7099067	quartz veined metaplutonic rock with limonite after pyrite	<5	<.2	0.71	<2	<10	80
99MBW256	467329	7099057	amphibolite	<5	<.2	2.12	<2	<10	20
99MBW263A	466991	7098594	meta-plutonic (orthogneiss)	<5	<.2	0.45	<2	<10	80
99MBW263B	466990	7098594	iron-stained silicified gneiss	<5	<.2	0.17	<2	<10	420
99MBW278	465784	7097379	foliated? granite	<5	<.2	0.45	<2	<10	100
99MBW285A	465213	7096793	mafic dike	<5	0.2	3.14	2	<10	460
99MBW294	458032	7097679	fine grained, equigranular quartz monzonite	<5	<.2	0.67	6	<10	80
99MBW299	457499	7098906	fine grained, equigranular quartz monzodiorite	<5	<.2	0.75	<2	<10	70
99MBW300A	457379	7099095	porphyritic dike	<5	<.2	1.55	<2	<10	290
99MBW308A	457580	7099562	porphyritic andesite dike	<5	<.2	2.22	<2	<10	370
99MBW320	456804	7100986	fine grained hornblende quartz diorite	<5	<.2	1.37	<2	<10	70
99MBW323	457751	7102342	Chicken amphibolite	<5	<.2	1.93	<2	<10	30
99MBW331	458410	7100634	quartz-monzonite with early stockwork k-feldspar & quartz veins, and late epidote & hematite veins	<5	<.2	1.38	<2	<10	50
99MBW337	459412	7102010	amphibolite	<5	<.2	2.38	<2	<10	40
99MBW357	459998	7095310	pink altered kspar-bearing plutonic rock cut by quartz and chlorite veins	<5	<.2	1.07	4	<10	70
99MBW359	460091	7094987	altered biotite quartz monzonite/monzodiorite	<5	<.2	1.30	<2	<10	110

Table 2. Rock samples collected in a portion of the Fortymile mining district during 1999, and analyzed for trace elements.

Sample	Easting	Northing	Description	Au	Ag	Al	As	B	Ba
99MBW361	460217	7094727	siliceous fractured rock cut by limonite veins; rock contains disseminated pyrite	<5	<.2	0.38	<2	<10	830
99MBW375	461052	7093744	quartzite cut by numerous limonite-bearing quartz veins	<5	<.2	0.26	<2	<10	70
99MBW376	461136	7093706	quartzite cut by milky quartz veins with limonite	<5	0.2	0.56	2	<10	220
99MBW381	461763	7093522	limonite stained quartzite with rare quartz veins	<5	<.2	0.29	8	<10	120
99MBW386B	462213	7093752	orange soil sample adjacent to very large milky quartz vein	<5	<.2	2.28	8	<10	170
99MBW401A	464378	7094703	fresh gabbro dike	<5	<.2	1.92	<2	<10	70
99MBW401B	464378	7094703	amphibolite	<5	<.2	0.94	<2	<10	30
99MBW402	464458	7094747	quartzo-feldspathic gneiss with milky quartz veins along foliation	<5	<.2	0.03	2	<10	<10
99MBW607	468703	7104324	quartz-veined meta-plutonic rock	<5	<.2	0.21	<2	<10	30
99RN47A	440742	7076099	orthogneiss from Lake George Terrane	<5	<.2	1.13	<2	<10	40
99RN49A	444801	7096299	Taylor Mountain batholith, slightly foliated, at milepost 58	<5	<.2	0.89	<2	<10	60
99RN49B	444801	7096299	mafic dike in TMB at milepost 58	<5	<.2	1.92	<2	<10	110
99RN54	454540	7104862	gabbro	<5	<.2	1.63	<2	<10	40
99RN62	457880	7104857	amphibolite	<5	0.2	1.82	<2	<10	10
99RN66B	464164	7105433	greenstone	<5	<.2	1.56	<2	<10	360
99RN76A	463136	7103682	chalcedony cemented breccia	<5	0.2	0.27	6	<10	50
99RN76B	463136	7103682	sulfide bearing amphibolite from Taylor Mountain Terrane	<5	<.2	5.02	6	<10	200
99RN76C	463136	7103682	Taylor Mountain Terrane amphibolite	<5	<.2	4.67	<2	<10	120
99RN83	466448	7106054	quartz veined granodiorite	<5	0.2	2.16	<2	<10	420
99RN96A	470718	7106567	vein/fault breccia, open space filling with euhedral quartz	<5	0.2	1.53	6	<10	50
99RN96B	470718	7106567	vein/fault breccia	<5	1	0.84	18	<10	110
99RN100A	471368	7107424	pyrite veinlets disseminated in gneiss	<5	<.2	1.94	8	<10	440
99RN103A	476434	7113114	quartz-ankorite-pyrite-chlorite veins in amphibolite	10	<.2	1.86	10	<10	40
99RN105A	475609	7112409	disseminated sulfides in iron-stained joints	<5	<.2	1.46	10	<10	50
99RN105C	475609	7112409	stockwork veined aplite	<5	<.2	0.49	2	<10	80
99RN106A	475292	7112111	altered pyritic aplitic granite	<5	<.2	0.61	<2	<10	140
99RN106B	475292	7112111	disseminated pyrite in biotite-quartzite	<5	0.2	1.28	<2	<10	90
99RN114C	471901	7107998	disseminated pyrite-bearing schist also with retrograded vein	<5	<.2	1.69	14	<10	350
99RN116	472550	7109650	heavily iron-oxide stained rock	<5	<.2	0.96	46	<10	200
99RN117A	472461	7109441	slightly altered pyrite-bearing dike	<5	<.2	0.51	<2	<10	90
99RN119A	473250	7110200	aplitic dike rock with quartz-albite-chlorite	<5	<.2	0.54	<2	<10	200
99RN141	458752	7111975	chloritized granitic dike in metamorphic rocks near Chicken pluton	<5	<.2	1.68	<2	<10	120
99RN143	458725	7109150	biotite granodiorite dike	<5	<.2	1.23	<2	<10	160
99RN151A	482036	7114937	amphibolite	<5	<.2	2.71	<2	<10	140
99RN152A	484375	7111290	amphibolite	<5	<.2	2.61	<2	<10	260
99RN156A	459550	7112317	veined plutonic/schist? or very altered dike? possible fault	<5	<.2	0.40	10	<10	10
99RN157C	459793	7112462	foliated quartz monzodiorite	<5	<.2	1.38	<2	<10	90
99RN172C	462081	7114559	hornblende clinopyroxenite	<5	<.2	0.47	14	<10	10
99RN188A	461051	7114628	amphibolite	<5	<.2	3.58	<2	<10	120

Table 2. Rock samples collected in a portion of the Fortymile mining district during 1999, and analyzed for trace elements.

Sample	Easting	Northing	Description	Au	Ag	Al	As	B	Ba
99RN191	462078	7114495	cross-cutting calcite veinlets and minor disseminated pyrite in marble	<5	<.2	0.09	<2	<10	20
99RN196C	462410	7115292	garnet-bearing amphibolite	10	<.2	2.12	<2	<10	30
99RN202	451831	7104357	biotite-clinopyroxenite gabbro	<5	<.2	1.94	<2	<10	50
99RN206A	454855	7102710	pyrite veined tonalite/quartz diorite	<5	<.2	1.47	<2	<10	60
99RN207A	455378	7103333	quartz monzodiorite along Mosquito Fork	<5	<.2	1.58	<2	<10	60
99RN208C	455770	7103335	quartz and pyrite veins in Tertiary basalt type dike	10	2	0.08	<2	<10	<10
99RN210B	458792	7104011	quartz vein	<5	0.2	0.03	<2	<10	<10
99RN216A	458688	7103770	breccia with pyrite	<5	0.6	2.61	<2	<10	40
99RN216B	458688	7103770	pyrite veined amphibolite	<5	<.2	1.22	<2	<10	10
99RN240D	462449	7105757	quartz vein	10	0.2	0.54	8	<10	70
99RN245A	461141	7106670	quartz veined and pyrite-bearing metavolcanic	5	<.2	0.31	2	<10	180
99RN245B	461141	7106670	red-orange stained, abundant pyrite-bearing rock	<5	<.2	0.23	<2	10	90
99RN245D	461141	7106670	carbonate veins in slate? rock type	<5	<.2	0.03	6	40	10
99RN246A	461332	7106922	quartz-pyrite veins in altered dike	85	4.2	0.32	36	<10	<10
99RN251E	462877	7107888	silicified sandstone and conglomerate	<5	<.2	2.26	<2	<10	230
99RN252A	462757	7108217	red-stained conglomerate, hydrothermally altered?	<5	<.2	1.11	8	<10	100
99RN270A	462655	7111671	joint surface with iron-oxide coating	<5	<.2	2.67	<2	<10	90
99RN270C	462655	7111671	biotite clinopyroxenite	<5	<.2	3.88	<2	<10	190
99RN284A	463357	7116664	pyritic biotite-quartz schist	<5	<.2	3.03	2	<10	160
99RN286A	463350	7117090	quartz vein about 20 cm wide in shear zone	<5	<.2	0.09	<2	<10	20
99RN305A	461998	7121465	altered leucogranite	<5	<.2	0.32	<2	<10	540
99RN312	462531	7123282	amphibolite	<5	<.2	1.86	<2	<10	80
99RN313A	462588	7123741	pyrite-bearing fault breccia	<5	<.2	0.20	<2	<10	<10
99RN328C	463786	7104635	quartz-veined brecciated phyllite	<5	0.2	0.49	2	<10	110
99RN334E	475879	7116262	massive kspar and minor quartz veins in gneiss	<5	0.6	0.45	<2	<10	80
99RN343	475893	7103902	granodiorite orthogneiss	<5	<.2	0.50	<2	<10	70
99RN355	473900	7112219	cross-cutting quartz veins in biotite-garnet-feldspar gneiss	30	1	0.16	42	<10	80
99RF7	463000	7103550	epithermal vein, quartz after bladed calcite veins, iron-oxide stained	<5	<.2	0.05	<2	<10	50

Table 2. Rock samples collected in a portion of the Fortymile mining district during 1999, and analyzed for trace elements.

Sample	Be	Bi	Ca	Cd	Co	Cr	Cu	Fe	Ga	Hg	K	La	Mg	Mn	Mo	Na	Ni	P	Pb	S	Sb	Sc	Sr	Ti	Tl	U	V	W	Zn
99BAF01	<.5	Intf*	1.68	6.0	1	77	73600	8.38	<10	253	0.07	<10	0.07	375	1	<.01	11	Intf*	<2	3.20	2850	<1	23	<.01	<10	<10	9	<10	236
99BAF02	<.5	<2	1.76	0.5	31	55	267	5.46	<10	<1	0.21	10	0.67	220	2	0.04	23	4750	<2	2.59	8	6	50	0.01	<10	<10	73	<10	22
99BAF03	<.5	8	>15	20.5	5	9	3100	4.48	<10	148	0.16	<10	2.55	3360	2	<.01	7	610	14	1.56	1610	2	236	<.01	<10	<10	17	<10	626
99DS004	<.5	<2	1.54	1.0	15	38	54	2.71	<10	<1	0.08	<10	0.84	575	<1	0.17	17	1340	8	<.01	<2	8	41	0.19	<10	<10	90	<10	48
99DS012	<.5	<2	1.86	0.5	11	64	27	2.13	<10	<1	0.02	<10	0.21	210	<1	0.05	3	610	2	<.01	<2	5	60	0.40	<10	<10	79	<10	40
99DS013	<.5	<2	1.84	<.5	6	69	123	1.20	<10	<1	0.02	<10	0.43	225	<1	0.05	12	390	<2	<.01	<2	5	55	0.32	<10	10	54	<10	24
99DS015	<.5	<2	1.15	<.5	10	69	37	3.06	<10	<1	0.05	<10	0.75	435	1	0.05	5	820	6	<.01	<2	7	38	0.19	<10	<10	81	<10	44
99DS018	<.5	<2	0.85	<.5	5	74	4	1.63	<10	<1	0.17	<10	0.48	550	1	0.08	1	830	6	<.01	<2	2	130	0.05	<10	<10	35	<10	62
99DS019B	1	<2	2.12	<.5	8	39	11	2.32	<10	<1	0.37	10	0.60	820	<1	0.01	9	830	8	0.03	<2	4	61	0.04	<10	<10	34	<10	80
99DS024	<.5	<2	5.22	<.5	16	128	72	2.17	<10	<1	0.05	<10	2.00	520	1	0.09	45	380	<2	<.01	2	7	80	0.34	<10	<10	63	<10	32
99DS031	<.5	<2	2.65	<.5	17	116	42	3.78	<10	<1	0.10	<10	2.17	775	<1	0.06	18	900	2	0.01	<2	9	49	0.10	<10	<10	91	<10	52
99DS040C	<.5	<2	0.18	<.5	7	64	10	2.03	<10	<1	0.14	10	0.62	425	<1	0.07	8	280	<2	0.04	2	5	38	<.01	<10	<10	24	<10	18
99DS041	<.5	<2	0.45	0.5	12	25	33	3.34	<10	<1	0.09	<10	1.80	525	<1	0.05	7	440	<2	<.01	<2	9	22	0.09	<10	<10	72	<10	38
99DS045B	<.5	4	11.80	11.0	<1	82	22	0.30	<10	<1	0.01	<10	0.37	440	1	<.01	2	40	74	0.05	6	<1	120	<.01	<10	<10	5	10	50
99DS046	<.5	<2	1.44	0.5	33	33	16	4.43	<10	1	0.06	10	1.36	990	<1	0.39	56	1270	<2	0.01	<2	3	81	0.05	<10	<10	10	<10	74
99DS048	<.5	<2	>15	<.5	10	38	7	2.76	<10	<1	0.03	<10	0.89	4990	1	0.04	14	470	<2	0.09	4	6	537	0.04	<10	<10	35	<10	30
99DS054	<.5	<2	0.93	<.5	9	14	17	3.85	<10	<1	0.04	<10	1.03	605	<1	0.11	1	1640	<2	<.01	<2	6	19	0.08	<10	<10	35	<10	52
99DS060	<.5	<2	0.06	<.5	3	83	5	1.73	<10	<1	0.20	20	0.10	245	3	0.09	5	230	<2	0.01	<2	<1	13	<.01	<10	<10	9	<10	8
99DS060B	<.5	<2	0.16	<.5	1	124	3	0.53	<10	<1	0.39	30	0.07	65	<1	0.11	1	50	2	<.01	<2	<1	14	<.01	<10	<10	2	<10	6
99DS061	<.5	<2	0.27	<.5	12	157	54	2.88	<10	<1	0.19	<10	0.90	630	<1	0.06	16	460	8	<.01	<2	4	15	<.01	<10	<10	42	<10	54
99DS064	<.5	<2	1.28	<.5	13	49	13	6.63	<10	<1	0.07	<10	0.90	650	1	0.11	3	3390	<2	<.01	2	6	36	0.24	<10	<10	50	<10	94
99DS071B	<.5	<2	0.77	<.5	6	30	22	2.42	<10	1	0.26	<10	0.46	500	<1	0.05	3	330	<2	<.01	<2	4	20	0.04	<10	<10	18	<10	46
99DS077	<.5	4	1.55	<.5	9	63	10	2.83	<10	<1	0.90	10	1.16	610	<1	0.07	5	1010	2	0.10	4	7	262	0.15	<10	<10	93	<10	60
99DS085	<.5	<2	0.12	<.5	5	99	27	3.27	<10	<1	0.17	<10	0.84	315	<1	0.06	2	160	<2	<.01	<2	11	8	0.06	<10	<10	15	<10	50
99DS086	<.5	2	0.08	<.5	16	102	<1	2.29	<10	<1	0.84	30	0.85	700	<1	0.05	27	290	6	<.01	<2	3	5	0.12	<10	<10	28	<10	74
99DS086B	<.5	2	0.32	<.5	3	257	138	0.70	<10	<1	0.04	<10	0.26	270	1	<.01	7	620	<2	<.01	<2	<1	10	0.01	<10	<10	137	<10	16
99DS089	<.5	<2	>15	<.5	<1	18	1	0.18	<10	<1	0.01	<10	1.34	665	<1	<.01	3	120	10	0.03	<2	<1	137	<.01	<10	<10	3	<10	12
99DS091	<.5	<2	>15	1.0	<1	5	<1	0.13	<10	<1	0.01	<10	0.37	85	<1	<.01	<1	80	34	0.06	12	<1	279	<.01	<10	<10	1	<10	30
99DS107	<.5	<2	2.41	<.5	5	71	52	2.48	<10	<1	0.26	<10	0.79	770	18	0.05	7	350	10	0.77	<2	3	134	<.01	<10	<10	10	<10	32
99DS109B	<.5	<2	7.92	<.5	9	8	45	3.29	<10	<1	0.31	<10	1.79	2220	<1	0.03	7	560	<2	0.07	<2	4	447	<.01	<10	<10	31	<10	38
99DS111	<.5	<2	3.70	<.5	11	12	12	2.87	<10	<1	0.25	<10	1.13	785	<1	0.01	4	1040	<2	0.06	<2	1	189	<.01	<10	<10	19	<10	66
99DS113B	<.5	<2	0.28	<.5	1	132	8	0.51	<10	<1	0.08	<10	0.10	65	<1	0.04	3	190	<2	<.01	<2	<1	19	<.01	<10	<10	5	<10	10
99DS132	<.5	<2	0.27	<.5	4	100	1	1.50	<10	<1	0.18	<10	0.37	325	<1	0.11	4	400	<2	<.01	<2	1	41	0.01	<10	<10	29	<10	40
99DS153	<.5	<2	0.63	<.5	7	69	12	1.58	<10	<1	0.04	<10	0.28	265	1	0.08	3	250	<2	<.01	<2	1	57	0.10	<10	<10	28	<10	18
99DS158	0.5	<2	6.08	<.5	35	232	41	6.56	<10	<1	0.84	10	3.32	925	<1	0.03	123	2030	<2	0.06	2	9	290	0.21	<10	<10	146	<10	74
99DS159	<.5	<2	1.84	<.5	10	75	56	3.40	<10	<1	0.27	10	1.49	645	1	0.06	38	920	<2	0.19	<2	9	164	<.01	<10	<10	59	<10	52
99DS163	<.5	<2	8.11	<.5	18	28	13	4.68	<10	<1	0.12	10	2.32	1840	1	<.01	10	1000	<2	<.01	2	4	126	<.01	<10	<10	73	<10	116
99DS187	<.5	<2	0.50	<.5	36	74	294	3.86	<10	<1	0.64	<10	1.21	1180	1	0.08	115	880	<2	0.03	2	7	29	0.21	<10	<10	158	<10	116
99DS188	<.5	<2	2.79	<.5	15	43	66	2.96	<10	<1	0.17	<10	1.32	510	33	0.07	6	470	<2	0.29	<2	5	103	0.08	<10	<10	72	<10	40

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Sample	Be	Bi	Ca	Cd	Co	Cr	Cu	Fe	Ga	Hg	K	La	Mg	Mn	Mo	Na	Ni	P	Pb	S	Sb	Sc	Sr	Ti	Tl	U	V	W	Zn
99DS196	<.5	<2	6.22	<.5	27	39	86	5.30	10	<1	0.05	<10	2.07	1000	2	0.04	14	1100	<2	0.47	<2	13	143	0.32	<10	<10	172	<10	78
99DS196B	<.5	<2	2.26	<.5	13	39	13	2.80	<10	<1	0.09	<10	1.18	540	1	0.12	5	710	<2	0.09	<2	6	109	0.21	<10	<10	78	<10	42
99DS198	<.5	<2	3.66	<.5	19	57	54	3.30	<10	<1	0.09	<10	1.72	560	1	0.1	27	890	<2	0.12	<2	9	249	0.27	<10	<10	102	<10	48
99DS201	<.5	<2	5.02	<.5	8	31	4	3.52	<10	<1	0.17	10	1.30	1140	2	0.06	2	1160	4	0.07	<2	6	115	<.01	<10	<10	93	<10	66
99DS201C	<.5	<2	10.95	<.5	3	28	<1	1.42	<10	<1	0.12	<10	0.43	1090	2	0.07	<1	500	<2	<.01	<2	1	551	0.01	<10	<10	23	<10	32
99DS223	<.5	<2	>15	<.5	<1	7	<1	0.53	<10	<1	0.03	<10	3.37	270	7	<.01	6	80	<2	0.03	<2	<1	477	<.01	<10	<10	11	<10	8
99DS224C	<.5	<2	1.04	<.5	11	83	31	3.96	<10	<1	0.16	10	1.07	600	3	0.05	15	600	10	<.01	<2	8	27	<.01	<10	<10	102	<10	74
99DS226	<.5	<2	1.16	<.5	145	115	75	3.36	<10	<1	0.22	<10	0.75	925	10	0.06	72	670	<2	0.08	<2	6	64	0.07	<10	<10	72	960	106
99DS226C	<.5	<2	0.70	<.5	40	125	48	2.64	<10	<1	0.38	<10	0.99	655	3	0.05	24	520	<2	0.38	<2	5	28	0.05	<10	<10	51	190	58
99DS227	<.5	<2	0.11	<.5	4	94	4	1.75	<10	<1	0.21	10	0.55	190	<1	0.08	5	240	<2	0.01	<2	3	14	0.01	<10	<10	15	<10	52
99DS232	<.5	<2	0.04	<.5	2	286	148	2.74	<10	<1	0.08	<10	0.24	120	5	<.01	21	360	2	0.01	<2	1	7	<.01	<10	<10	56	<10	168
99DS235B	1	<2	>15	<.5	4	6	2	0.84	<10	<1	0.07	<10	0.38	530	9	2.05	1	430	<2	<.01	<2	<1	288	0.06	<10	20	11	10	18
99DS242	<.5	<2	0.16	<.5	3	94	2	3.83	<10	1	0.08	<10	0.03	25	2	0.13	<1	650	<2	2.27	<2	<1	15	<.01	<10	<10	7	500	2
99DS243	<.5	<2	0.50	<.5	5	118	1	2.43	<10	<1	0.09	10	0.16	190	1	0.11	1	840	2	1.22	<2	2	24	<.01	<10	<10	25	90	14
99MBW004	<.5	<2	0.42	<.5	22	95	85	4.93	10	<1	0.29	10	1.87	755	1	0.02	30	390	<2	<.01	<2	12	27	0.05	<10	<10	146	<10	60
99MBW007A	<.5	2	1.09	<.5	6	88	<1	2.63	<10	<1	0.18	30	0.79	510	1	0.11	5	930	<2	<.01	<2	8	45	0.13	<10	<10	84	<10	46
99MBW007B	<.5	<2	0.60	<.5	4	78	3	2.04	<10	<1	0.20	10	0.49	315	<1	0.1	3	840	<2	<.01	<2	5	37	0.13	<10	10	62	<10	28
99MBW013	<.5	<2	1.98	<.5	27	53	27	4.35	<10	<1	0.11	10	2.08	665	<1	0.39	56	1220	<2	0.05	<2	3	103	0.09	<10	<10	28	<10	70
99MBW014	<.5	<2	2.23	0.5	11	67	26	4.02	<10	<1	0.82	20	1.56	810	<1	0.22	7	870	2	0.04	<2	16	36	0.20	<10	<10	126	<10	88
99MBW023A	<.5	<2	0.03	<.5	13	275	15	5.05	<10	<1	0.05	<10	0.02	80	1	<.01	8	140	4	0.05	<2	<1	6	<.01	<10	<10	30	170	2
99MBW023B	<.5	<2	0.66	<.5	2	118	5	0.93	<10	<1	0.22	10	0.13	170	<1	0.06	2	440	<2	<.01	<2	3	107	0.08	<10	<10	27	<10	14
99MBW035A	<.5	<2	1.96	<.5	8	72	13	3.07	<10	<1	0.15	20	0.95	655	<1	0.06	4	1110	2	0.26	<2	8	54	0.07	<10	<10	87	<10	66
99MBW035B	<.5	<2	5.09	<.5	8	47	33	2.27	<10	<1	0.16	<10	0.53	430	1	0.07	<1	780	<2	0.68	2	1	110	<.01	<10	<10	49	<10	32
99MBW041	0.5	<2	0.30	<.5	<1	78	1	0.29	<10	<1	0.26	<10	0.06	100	<1	0.1	2	70	10	<.01	<2	<1	50	0.03	<10	<10	9	10	10
99MBW045	<.5	2	1.51	<.5	15	24	31	4.36	<10	<1	0.08	30	0.61	1045	<1	0.25	13	2360	<2	0.09	<2	3	85	0.12	<10	<10	19	<10	84
99MBW058	1	<2	0.10	<.5	<1	68	8	1.11	<10	<1	0.40	30	0.07	170	1	0.04	2	40	2	<.01	<2	<1	23	0.01	<10	<10	3	<10	70
99MBW063	<.5	4	1.36	<.5	21	50	52	3.63	<10	<1	0.11	<10	1.48	470	<1	0.12	33	810	2	<.01	<2	8	32	0.22	<10	<10	110	<10	38
99MBW064	<.5	<2	0.54	<.5	7	95	5	1.35	<10	<1	0.06	<10	0.38	195	1	0.07	4	160	<2	<.01	<2	2	42	0.06	<10	<10	22	<10	12
99MBW067	<.5	<2	1.45	<.5	17	20	38	2.79	<10	<1	0.12	<10	1.17	365	4	0.1	13	950	<2	<.01	2	7	49	0.21	<10	<10	85	<10	40
99MBW076	<.5	<2	0.65	<.5	1	5	3	0.31	<10	<1	0.71	20	0.06	70	1	0.36	1	60	34	<.01	<2	<1	158	<.01	<10	<10	2	<10	30
99MBW079	2.5	<2	0.93	<.5	20	18	1	2.59	10	1	0.16	30	0.72	245	6	0.28	36	100	2	<.01	4	9	128	<.01	<10	<10	16	<10	154
99MBW084	<.5	<2	0.11	<.5	2	206	4	0.76	<10	<1	0.17	10	0.16	90	5	0.05	5	170	6	<.01	<2	1	26	<.01	<10	<10	11	<10	16
99MBW094	1	<2	1.88	<.5	34	69	25	3.81	<10	<1	0.07	10	1.04	1000	3	0.34	72	1580	2	0.03	2	5	103	0.15	<10	<10	23	<10	90
99MBW097	<.5	<2	1.11	<.5	23	217	6	2.78	<10	<1	0.08	<10	2.85	430	3	0.11	102	480	<2	<.01	<2	5	29	0.17	<10	<10	56	<10	50
99MBW100	<.5	<2	1.30	<.5	7	67	<1	2.65	<10	<1	0.46	10	0.77	390	5	0.07	3	780	<2	0.01	<2	1	157	0.13	<10	<10	38	<10	44
99MBW105	<.5	<2	1.44	<.5	26	36	23	4.63	<10	<1	0.08	10	2.25	735	2	0.36	42	1520	2	0.05	<2	2	87	0.07	<10	<10	11	<10	72
99MBW113	<.5	<2	1.18	<.5	7	65	56	1.26	<10	<1	0.19	10	0.73	425	4	0.08	5	940	2	<.01	<2	1	264	0.07	<10	<10	23	<10	38
99MBW114	<.5	<2	0.98	<.5	3	52	1	1.10	<10	<1	0.26	<10	0.47	180	<1	0.1	2	1160	<2	<.01	2	1	106	0.08	<10	<10	28	<10	10
99MBW120	<.5	<2	1.49	<.5	7	44	7	3.05	<10	<1	0.71	<10	0.80	445	4	0.15	4	850	2	0.02	2	1	166	0.14	<10	<10	43	<10	90

Table 2. Rock samples collected in a portion of the Fortymile mining district during 1999, and analyzed for trace elements.

Sample	Be	Bi	Ca	Cd	Co	Cr	Cu	Fe	Ga	Hg	K	La	Mg	Mn	Mo	Na	Ni	P	Pb	S	Sb	Sc	Sr	Ti	Tl	U	V	W	Zn
99MBW122A	<.5	<2	0.20	<.5	2	125	1	0.70	<10	<1	0.08	10	0.10	120	4	0.11	2	30	2	<.01	<2	<1	12	0.01	<10	<10	6	<10	<2
99MBW124	<.5	<2	0.11	<.5	3	97	1	1.75	<10	<1	0.76	20	0.64	345	<1	0.05	1	40	2	0.04	<2	1	33	0.03	<10	<10	10	<10	24
99MBW125A	<.5	<2	2.52	<.5	45	103	360	2.80	<10	<1	0.03	<10	0.28	180	3	0.01	3	1200	<2	1.03	<2	4	211	0.28	<10	<10	58	<10	2
99MBW126A	<.5	<2	1.44	<.5	21	27	109	4.25	<10	<1	0.02	<10	1.44	735	3	0.05	9	630	<2	<.01	<2	7	88	0.30	<10	<10	129	<10	66
99MBW134A	<.5	<2	1.57	<.5	12	104	11	3.90	<10	<1	0.62	<10	1.09	575	3	0.39	4	290	<2	0.03	4	11	99	0.12	<10	<10	86	<10	54
99MBW135	<.5	<2	1.61	<.5	16	70	27	3.81	<10	<1	0.21	<10	1.19	440	3	0.17	20	900	<2	0.10	<2	10	54	0.18	<10	<10	112	<10	46
99MBW137A	<.5	<2	1.13	<.5	1	75	1	0.48	<10	<1	0.07	<10	0.23	75	<1	0.08	2	260	4	<.01	2	3	72	0.12	<10	<10	31	<10	6
99MBW137B	<.5	<2	0.10	<.5	24	48	<1	1.71	<10	<1	0.33	<10	0.50	170	<1	0.03	7	430	<2	0.06	<2	1	12	<.01	<10	<10	26	<10	18
99MBW137C	<.5	<2	1.13	<.5	10	58	13	2.82	<10	1	0.19	<10	1.16	545	<1	0.06	2	280	<2	0.01	<2	8	41	0.07	<10	<10	63	<10	36
99MBW137D	<.5	<2	>15	<.5	16	40	8	2.54	<10	1	0.08	<10	1.10	3740	<1	<.01	17	300	<2	0.06	<2	15	332	0.01	<10	<10	59	<10	38
99MBW138	<.5	<2	0.75	<.5	8	161	15	1.60	<10	<1	0.01	<10	0.53	260	<1	0.02	9	500	<2	<.01	<2	3	38	0.16	<10	<10	51	<10	24
99MBW139A	<.5	<2	0.53	<.5	4	129	289	1.11	<10	<1	0.02	<10	0.28	165	<1	0.08	5	120	<2	0.08	<2	2	46	0.03	<10	<10	15	<10	10
99MBW139C	<.5	<2	2.53	<.5	9	139	603	1.94	<10	<1	0.01	<10	0.93	600	<1	0.05	12	210	<2	0.11	<2	4	81	0.09	<10	<10	41	<10	28
99MBW140E	<.5	<2	3.31	<.5	11	126	73	1.69	<10	<1	0.02	<10	0.48	450	197	0.06	25	260	<2	0.43	<2	6	34	0.10	<10	<10	20	<10	12
99MBW140F	<.5	<2	1.70	<.5	7	68	5	3.32	<10	1	0.76	30	1.14	660	4	0.07	4	1210	<2	0.11	<2	10	76	0.14	<10	<10	92	<10	68
99MBW140L	<.5	<2	1.51	<.5	9	84	1	1.68	<10	<1	0.14	<10	1.11	235	4	0.07	22	340	<2	<.01	<2	4	62	0.16	<10	<10	55	<10	18
99MBW140M	<.5	<2	0.53	<.5	7	121	4	0.98	<10	<1	0.10	10	0.18	90	<1	0.12	3	170	<2	0.09	<2	1	47	0.03	<10	<10	8	<10	4
99MBW140N	<.5	<2	1.11	<.5	13	56	31	2.48	<10	<1	0.73	<10	1.19	290	4	0.13	6	230	<2	0.06	<2	5	76	0.12	<10	<10	56	<10	34
99MBW140P	<.5	<2	1.39	<.5	15	24	56	2.19	<10	<1	0.09	<10	0.76	275	3	0.11	14	670	<2	0.12	<2	6	44	0.14	<10	<10	77	<10	24
99MBW150	<.5	<2	0.28	<.5	1	66	14	0.85	<10	<1	0.14	<10	0.11	110	<1	0.1	1	100	<2	<.01	<2	1	28	0.01	<10	<10	2	<10	8
99MBW152	<.5	<2	0.67	<.5	7	140	26	1.40	<10	1	0.13	<10	0.52	200	<1	0.09	3	160	<2	<.01	<2	2	63	0.01	<10	<10	26	<10	20
99MBW155	<.5	4	0.54	<.5	3	123	5	2.42	<10	<1	0.58	10	0.72	790	1	0.13	2	810	12	0.01	<2	5	48	0.17	<10	<10	38	<10	70
99MBW157	<.5	<2	0.67	<.5	3	67	1	2.06	<10	<1	0.28	10	0.65	655	<1	0.06	1	900	10	0.25	<2	2	69	0.10	<10	<10	32	<10	60
99MBW161	<.5	<2	3.31	0.5	4	95	10	1.84	<10	<1	0.36	10	0.51	805	2	0.04	1	680	14	0.09	<2	1	303	<.01	<10	10	15	<10	42
99MBW164	<.5	<2	0.47	<.5	5	80	1	2.44	<10	<1	0.54	10	0.63	675	2	0.09	3	570	6	<.01	<2	4	37	0.13	<10	<10	37	<10	54
99MBW165A	<.5	<2	0.09	<.5	<1	94	1	0.97	<10	<1	0.21	<10	0.03	20	5	0.05	1	250	24	0.18	<2	<1	10	<.01	<10	<10	6	<10	12
99MBW165B	0.5	<2	0.30	<.5	2	62	3	0.91	<10	<1	0.25	<10	0.06	145	63	<.01	1	320	24	0.38	<2	<1	9	<.01	<10	<10	4	<10	22
99MBW165C	<.5	<2	0.05	<.5	1	164	1	0.93	<10	<1	0.11	<10	0.03	95	2	<.01	3	110	6	0.50	<2	<1	4	<.01	<10	<10	2	<10	12
99MBW165D	1	<2	7.69	<.5	1	63	<1	2.68	<10	<1	0.17	10	0.12	1775	<1	0.01	1	160	22	0.17	2	3	231	<.01	<10	<10	9	<10	86
99MBW165E	<.5	<2	0.05	<.5	<1	78	4	0.21	<10	<1	0.11	<10	0.02	30	<1	0.09	1	10	2	<.01	<2	<1	25	<.01	<10	<10	1	<10	6
99MBW166	<.5	<2	0.41	<.5	4	114	1	2.77	<10	<1	0.45	10	0.60	910	3	0.11	3	720	8	0.08	<2	4	43	0.11	<10	<10	28	90	76
99MBW167	<.5	<2	0.62	<.5	6	88	3	2.72	<10	<1	0.69	20	0.66	720	3	0.09	3	570	6	<.01	<2	4	44	0.14	<10	<10	43	<10	60
99MBW172	<.5	<2	0.07	<.5	3	167	8	0.78	<10	<1	0.09	<10	0.12	100	1	0.04	7	200	6	0.01	<2	<1	19	<.01	<10	<10	9	<10	16
99MBW178	<.5	<2	2.28	<.5	1	48	26	0.45	<10	<1	0.38	<10	0.08	285	2	0.03	6	440	4	<.01	<2	<1	27	<.01	<10	<10	4	<10	16
99MBW179	<.5	<2	0.16	<.5	5	168	3	1.53	<10	<1	0.20	10	0.35	150	<1	<.01	12	280	2	<.01	<2	1	8	<.01	<10	<10	13	<10	28
99MBW182	<.5	<2	0.06	<.5	<1	107	3	0.57	<10	<1	0.19	<10	0.08	60	<1	0.07	2	80	6	<.01	<2	<1	37	<.01	<10	<10	3	<10	30
99MBW183	<.5	<2	0.05	<.5	<1	118	4	0.34	<10	<1	0.14	<10	0.01	45	<1	0.08	2	<10	16	<.01	<2	1	6	<.01	<10	<10	2	<10	2
99MBW185B	<.5	<2	0.06	<.5	5	222	5	0.91	<10	<1	0.09	<10	0.15	400	1	<.01	9	90	<2	<.01	<2	1	5	<.01	<10	<10	11	<10	26
99MBW185C	<.5	<2	0.03	<.5	2	187	7	1.11	<10	<1	0.09	<10	0.21	105	1	<.01	5	110	<2	<.01	<2	1	10	<.01	<10	<10	14	<10	30

Table 2. Rock samples collected in a portion of the Fortymile mining district during 1999, and analyzed for trace elements.

Sample	Be	Bi	Ca	Cd	Co	Cr	Cu	Fe	Ga	Hg	K	La	Mg	Mn	Mo	Na	Ni	P	Pb	S	Sb	Sc	Sr	Ti	Tl	U	V	W	Zn
99MBW190	<.5	<2	2.08	<.5	10	36	12	4.19	10	<1	1.09	<10	1.20	780	3	0.27	3	1190	<2	0.07	<2	5	177	0.17	<10	<10	94	<10	82
99MBW192	<.5	<2	0.44	<.5	8	96	11	2.22	<10	<1	0.25	<10	0.86	575	<1	0.06	21	360	<2	<.01	<2	3	26	0.02	<10	<10	32	<10	54
99MBW193A	<.5	<2	0.03	<.5	4	232	23	1.22	<10	<1	0.10	<10	0.03	45	3	0.03	11	170	10	0.07	<2	<1	21	<.01	<10	<10	7	<10	32
99MBW194B	<.5	<2	0.05	<.5	5	287	48	1.74	<10	<1	0.09	<10	0.06	160	1	<.01	10	230	12	<.01	<2	1	7	<.01	<10	<10	12	<10	26
99MBW198	<.5	<2	0.52	<.5	1	112	2	0.50	<10	<1	0.16	<10	0.13	90	<1	0.08	1	270	<2	<.01	<2	<1	74	0.03	<10	<10	8	<10	40
99MBW199	<.5	<2	0.54	<.5	5	84	8	1.31	<10	<1	0.14	<10	0.59	190	3	0.05	1	470	<2	<.01	<2	<1	61	0.08	<10	<10	16	<10	58
99MBW202	<.5	<2	0.09	<.5	3	68	14	0.82	<10	<1	0.19	10	0.10	65	<1	0.05	1	90	2	<.01	<2	<1	11	0.03	<10	<10	4	<10	8
99MBW203	<.5	<2	0.03	<.5	3	157	9	1.02	<10	<1	0.09	<10	0.14	140	1	0.03	4	130	<2	<.01	<2	<1	4	<.01	<10	<10	7	<10	20
99MBW204	<.5	<2	1.41	<.5	20	24	5	5.54	<10	<1	0.17	<10	1.38	595	2	0.19	7	1490	<2	<.01	<2	10	32	0.11	<10	<10	126	<10	48
99MBW211A	<.5	<2	0.23	<.5	4	64	5	1.39	<10	<1	0.21	20	0.34	255	2	0.03	1	190	2	<.01	<2	1	17	0.06	<10	<10	9	<10	32
99MBW212	<.5	<2	0.03	<.5	1	64	2	0.50	<10	<1	0.15	30	0.04	30	<1	0.06	<1	50	2	<.01	<2	<1	9	<.01	<10	<10	3	<10	4
99MBW213	<.5	<2	0.29	<.5	10	59	4	2.03	<10	<1	0.22	<10	0.77	295	3	0.06	5	760	<2	<.01	<2	3	19	0.04	<10	<10	19	<10	34
99MBW218	<.5	<2	<.01	<.5	3	204	10	1.00	<10	<1	0.08	<10	0.02	130	1	<.01	8	120	4	<.01	<2	<1	4	<.01	<10	<10	14	<10	8
99MBW219A	<.5	<2	<.01	<.5	1	154	11	0.93	<10	<1	0.14	<10	0.02	65	14	<.01	5	130	12	0.03	<2	<1	13	<.01	<10	<10	15	<10	14
99MBW219B	<.5	<2	<.01	<.5	1	182	19	0.76	<10	<1	0.02	<10	0.05	40	2	<.01	5	120	160	<.01	<2	<1	5	<.01	<10	<10	11	<10	34
99MBW222	<.5	<2	0.48	<.5	2	178	45	1.37	<10	<1	0.16	<10	0.18	55	1	<.01	44	2310	10	<.01	<2	1	50	<.01	<10	<10	54	<10	128
99MBW223	<.5	<2	0.02	<.5	1	159	29	0.99	<10	<1	0.03	<10	0.01	25	9	0.01	14	950	30	0.01	<2	1	16	<.01	<10	<10	40	<10	58
99MBW224	<.5	<2	0.04	<.5	<1	54	3	0.20	<10	<1	0.10	<10	0.01	45	<1	0.11	2	30	<2	<.01	<2	<1	19	<.01	<10	<10	1	<10	6
99MBW226	<.5	<2	0.27	<.5	<1	84	<1	0.24	<10	<1	0.18	<10	0.02	70	1	0.07	2	140	<2	<.01	<2	<1	66	<.01	<10	<10	1	<10	8
99MBW229A	<.5	<2	1.88	<.5	20	119	<1	4.18	<10	<1	0.12	<10	2.41	840	3	0.25	32	1060	8	<.01	<2	13	77	0.10	<10	<10	114	<10	48
99MBW231A	<.5	<2	2.05	<.5	17	180	6	2.69	<10	<1	0.10	<10	1.93	675	2	0.26	52	650	<2	<.01	<2	11	27	0.05	<10	<10	65	<10	52
99MBW235C	<.5	<2	0.04	<.5	2	220	3	0.70	<10	<1	0.05	<10	0.05	145	3	<.01	8	60	6	<.01	<2	<1	5	<.01	<10	<10	3	<10	18
99MBW253	<.5	<2	0.78	<.5	8	100	2	1.74	<10	<1	0.12	<10	0.69	260	2	0.07	3	420	<2	<.01	<2	1	97	0.11	<10	<10	27	<10	54
99MBW255	<.5	<2	0.29	<.5	4	107	13	2.28	<10	<1	0.08	<10	0.37	220	<1	0.06	1	580	2	0.01	<2	1	21	0.07	<10	<10	10	<10	52
99MBW256	<.5	<2	0.68	<.5	17	23	38	3.39	<10	<1	0.07	<10	1.60	525	3	0.17	6	120	<2	<.01	<2	14	14	0.06	<10	<10	102	<10	44
99MBW263A	<.5	<2	0.15	<.5	1	56	<1	0.52	<10	<1	0.07	<10	0.16	155	<1	0.1	1	160	<2	<.01	<2	1	106	0.01	<10	<10	7	<10	18
99MBW263B	<.5	<2	0.12	<.5	1	216	36	0.71	<10	<1	0.04	<10	0.06	130	1	0.01	6	150	2	0.01	<2	<1	16	0.01	<10	<10	8	<10	12
99MBW278	<.5	<2	0.15	<.5	1	47	1	0.48	<10	<1	0.15	<10	0.11	70	1	0.1	2	130	<2	<.01	<2	<1	123	0.04	<10	<10	6	<10	32
99MBW285A	0.5	<2	2.25	<.5	17	168	24	3.54	10	<1	1.58	<10	2.57	640	4	0.11	64	660	54	<.01	<2	9	93	0.21	<10	<10	84	<10	70
99MBW294	<.5	<2	0.53	<.5	3	85	3	1.50	<10	<1	0.11	<10	0.29	270	1	0.1	2	560	2	<.01	<2	1	44	0.07	<10	<10	34	<10	30
99MBW299	<.5	<2	0.42	<.5	4	52	2	1.35	<10	<1	0.13	<10	0.36	330	1	0.08	3	430	<2	<.01	<2	1	55	0.07	<10	<10	27	<10	40
99MBW300A	<.5	<2	0.89	<.5	9	38	17	2.99	<10	<1	0.13	<10	0.88	430	5	0.1	6	1220	<2	0.02	<2	4	94	0.09	<10	<10	56	<10	76
99MBW308A	<.5	<2	1.49	<.5	13	37	21	3.79	<10	<1	0.13	<10	1.36	715	1	0.19	12	1460	<2	0.01	<2	7	168	0.12	<10	<10	88	<10	50
99MBW320	<.5	<2	1.06	<.5	7	59	7	2.33	<10	<1	0.17	<10	0.62	505	2	0.09	3	830	2	<.01	<2	2	92	0.10	<10	<10	47	<10	52
99MBW323	<.5	<2	2.08	<.5	17	44	37	3.30	<10	<1	0.10	<10	1.34	540	2	0.18	16	580	<2	<.01	<2	11	56	0.25	<10	<10	116	<10	48
99MBW331	<.5	<2	1.03	<.5	7	69	4	2.43	<10	<1	0.10	<10	0.68	545	<1	0.08	3	920	<2	<.01	<2	1	74	0.11	<10	<10	49	<10	56
99MBW337	<.5	<2	1.34	<.5	28	29	30	5.56	10	<1	0.08	<10	1.70	765	1	0.13	13	1020	<2	<.01	<2	18	27	0.24	<10	<10	197	<10	76
99MBW357	<.5	<2	0.66	<.5	6	105	2	1.60	<10	<1	0.08	<10	0.36	265	<1	0.07	4	580	<2	<.01	<2	2	370	0.07	<10	<10	32	<10	40
99MBW359	<.5	<2	0.45	<.5	7	67	3	1.92	<10	<1	0.09	<10	0.55	490	<1	0.09	3	710	4	<.01	<2	2	155	0.08	<10	<10	40	<10	48

Table 2. Rock samples collected in a portion of the Fortymile mining district during 1999, and analyzed for trace elements.

Sample	Be	Bi	Ca	Cd	Co	Cr	Cu	Fe	Ga	Hg	K	La	Mg	Mn	Mo	Na	Ni	P	Pb	S	Sb	Sc	Sr	Ti	Tl	U	V	W	Zn
99MBW361	<.5	<2	0.04	<.5	2	126	8	0.93	<10	<1	0.20	10	0.03	260	<1	0.04	2	70	10	0.12	<2	<1	21	<.01	<10	<10	2	<10	26
99MBW375	<.5	2	<.01	<.5	3	247	45	1.04	<10	<1	0.07	<10	0.04	300	<1	<.01	10	120	4	<.01	<2	<1	3	<.01	<10	<10	7	<10	12
99MBW376	<.5	<2	0.03	<.5	2	154	43	2.89	<10	<1	0.13	10	0.08	70	5	<.01	11	620	6	0.02	<2	1	12	<.01	<10	<10	44	<10	32
99MBW381	<.5	<2	<.01	<.5	3	288	26	1.74	<10	<1	0.08	<10	0.01	55	2	<.01	13	350	2	<.01	<2	<1	2	<.01	<10	<10	17	<10	32
99MBW386B	<.5	<2	0.13	<.5	8	124	16	2.43	<10	<1	0.16	20	0.38	215	<1	0.03	16	200	70	0.01	<2	3	16	0.06	<10	<10	45	<10	102
99MBW401A	<.5	<2	1.56	<.5	24	37	26	4.32	10	<1	0.27	10	1.77	240	3	0.11	26	1470	<2	0.07	<2	4	37	0.27	<10	<10	81	<10	64
99MBW401B	<.5	<2	0.83	<.5	9	86	54	1.28	<10	<1	0.07	<10	1.00	185	1	0.11	29	570	<2	<.01	<2	5	15	0.07	<10	<10	48	<10	14
99MBW402	<.5	<2	<.01	<.5	1	249	12	0.62	<10	<1	<.01	<10	<.01	20	1	<.01	8	30	<2	<.01	<2	<1	<1	<.01	<10	<10	1	<10	2
99MBW607	<.5	<2	0.03	<.5	<1	128	1	0.41	<10	<1	0.06	<10	<.01	10	<1	0.16	2	30	<2	0.03	<2	<1	12	<.01	<10	<10	1	<10	<2
99RN47A	0.5	<2	0.87	<.5	5	123	3	1.99	<10	<1	0.30	40	0.33	615	<1	0.06	5	420	8	<.01	<2	4	14	0.06	<10	<10	22	<10	44
99RN49A	<.5	4	0.74	<.5	5	69	4	1.94	<10	<1	0.18	<10	0.47	415	<1	0.1	2	690	<2	<.01	<2	3	77	0.09	<10	<10	45	<10	38
99RN49B	<.5	<2	2.01	<.5	14	104	15	2.69	<10	<1	0.40	<10	1.49	540	<1	0.2	21	980	<2	<.01	<2	11	144	0.14	<10	<10	80	<10	22
99RN54	<.5	<2	1.42	<.5	27	38	16	4.29	<10	<1	0.05	10	1.00	780	<1	0.31	26	1300	<2	0.05	<2	3	68	0.08	<10	<10	14	<10	72
99RN62	<.5	12	1.33	<.5	20	34	92	2.69	<10	<1	0.04	<10	1.13	475	<1	0.07	14	10	<2	0.01	<2	10	51	0.23	<10	<10	177	<10	40
99RN66B	<.5	<2	2.32	<.5	7	67	9	2.28	<10	<1	0.22	<10	1.19	625	<1	0.05	20	710	4	0.33	2	4	114	<.01	<10	<10	31	<10	62
99RN76A	<.5	<2	0.04	<.5	<1	122	1	0.34	<10	<1	0.20	<10	0.01	10	<1	<.01	1	40	<2	0.05	<2	<1	10	<.01	<10	<10	3	<10	<2
99RN76B	<.5	<2	1.87	<.5	22	197	7	7.38	20	1	0.47	<10	4.40	1265	<1	0.01	23	890	<2	0.97	<2	17	45	0.09	<10	<10	183	<10	78
99RN76C	<.5	<2	1.67	<.5	14	147	5	7.26	<10	<1	0.26	<10	3.65	1210	<1	0.06	21	910	2	1.10	2	16	29	0.08	<10	<10	185	<10	38
99RN83	<.5	<2	1.46	<.5	7	63	10	3.59	<10	<1	0.45	10	0.99	795	2	0.13	<1	1000	6	0.07	2	6	70	0.17	<10	<10	68	<10	78
99RN96A	<.5	<2	0.19	<.5	7	110	103	2.17	<10	<1	0.15	<10	1.31	170	<1	0.02	13	190	<2	0.16	<2	5	6	<.01	<10	<10	32	<10	22
99RN96B	<.5	<2	0.16	<.5	5	125	12	1.84	<10	<1	0.16	<10	0.42	75	<1	0.06	3	420	<2	0.43	<2	5	12	<.01	<10	<10	25	<10	12
99RN100A	<.5	<2	0.87	<.5	10	69	31	2.87	<10	<1	0.77	<10	1.10	485	<1	0.08	5	750	<2	0.62	<2	4	95	0.15	<10	<10	62	<10	96
99RN103A	<.5	<2	2.00	<.5	14	26	84	3.90	10	<1	0.13	30	1.14	540	2	0.14	<1	3700	<2	0.44	<2	4	36	0.13	<10	<10	55	<10	82
99RN105A	<.5	<2	3.20	<.5	16	91	36	2.33	<10	<1	0.05	<10	0.53	650	<1	0.03	11	540	<2	0.77	<2	5	60	0.12	<10	<10	50	<10	46
99RN105C	<.5	<2	0.58	<.5	1	118	3	0.51	<10	<1	0.15	<10	0.05	100	<1	0.21	3	30	6	0.30	<2	<1	37	<.01	<10	<10	3	<10	4
99RN106A	<.5	<2	0.45	<.5	1	120	17	0.60	<10	<1	0.20	<10	0.15	170	<1	0.1	3	70	10	0.15	<2	1	42	0.01	<10	<10	7	<10	20
99RN106B	<.5	<2	0.92	<.5	27	196	147	2.98	<10	<1	0.27	<10	1.04	805	<1	0.03	90	260	<2	1.41	2	2	17	0.09	<10	<10	31	<10	86
99RN114C	<.5	<2	0.41	<.5	6	104	55	2.65	<10	<1	0.34	10	1.35	475	1	0.07	6	510	<2	0.64	<2	7	17	0.11	<10	<10	35	<10	48
99RN116	<.5	<2	0.22	<.5	4	56	8	1.71	<10	<1	0.13	10	0.51	200	<1	0.17	5	270	2	0.13	<2	4	16	0.02	<10	<10	47	<10	34
99RN117A	<.5	<2	0.09	<.5	1	99	10	0.49	<10	<1	0.16	<10	0.12	115	1	0.12	2	90	10	0.06	<2	<1	16	<.01	<10	<10	5	<10	18
99RN119A	<.5	4	0.26	<.5	<1	122	3	0.28	<10	<1	0.17	<10	0.08	40	<1	0.17	3	30	6	<.01	<2	<1	61	0.01	<10	<10	3	<10	8
99RN141	0.5	8	1.00	<.5	7	46	8	3.04	<10	<1	0.33	20	1.08	645	<1	0.06	4	1220	8	0.08	4	9	41	0.17	<10	<10	95	<10	62
99RN143	<.5	<2	0.49	<.5	3	56	1	1.46	<10	<1	0.22	<10	0.34	265	<1	0.09	1	410	4	<.01	<2	1	86	0.09	<10	<10	19	<10	24
99RN151A	<.5	2	2.14	<.5	16	99	5	3.67	<10	<1	0.51	<10	1.71	755	<1	0.21	16	330	6	0.03	6	15	36	0.14	<10	<10	125	<10	72
99RN152A	<.5	<2	2.03	<.5	16	54	24	3.99	<10	1	0.32	<10	1.42	635	<1	0.27	4	1570	<2	0.10	<2	17	39	0.11	<10	<10	131	<10	60
99RN156A	<.5	<2	0.13	<.5	1	79	6	0.74	<10	<1	0.10	<10	0.10	115	1	0.06	1	110	6	<.01	<2	<1	9	0.03	<10	<10	11	<10	10
99RN157C	<.5	6	1.29	<.5	7	22	8	3.10	<10	<1	0.19	20	0.56	690	<1	0.16	4	1330	<2	<.01	4	4	66	0.12	<10	<10	53	<10	40
99RN172C	<.5	<2	2.57	<.5	23	38	25	1.37	<10	<1	0.04	<10	0.95	240	<1	0.06	15	220	2	0.42	<2	8	55	0.06	<10	<10	41	<10	16
99RN188A	<.5	<2	2.70	<.5	24	68	45	5.47	10	1	0.42	<10	2.98	815	3	0.35	12	2030	<2	<.01	4	23	66	0.18	<10	<10	211	<10	82

Table 2. Rock samples collected in a portion of the Fortymile mining district during 1999, and analyzed for trace elements.

Sample	Be	Bi	Ca	Cd	Co	Cr	Cu	Fe	Ga	Hg	K	La	Mg	Mn	Mo	Na	Ni	P	Pb	S	Sb	Sc	Sr	Ti	Tl	U	V	W	Zn
99RN191	<.5	<2	>15	<.5	<1	16	4	0.25	<10	<1	0.01	<10	0.34	105	<1	<.01	5	110	10	0.05	<2	<1	446	<.01	<10	<10	3	<10	6
99RN196C	<.5	<2	1.54	<.5	19	44	49	4.31	<10	<1	0.12	<10	1.48	610	4	0.27	7	630	2	0.06	<2	16	15	0.15	<10	<10	136	<10	76
99RN202	<.5	<2	1.68	<.5	17	28	19	4.01	<10	<1	0.08	30	0.86	560	<1	0.33	13	2370	<2	0.06	2	3	117	0.11	<10	<10	27	<10	86
99RN206A	<.5	<2	0.93	<.5	14	41	53	2.21	<10	<1	0.11	<10	1.09	355	1	0.06	7	500	<2	0.19	<2	4	33	0.08	<10	<10	52	<10	44
99RN207A	<.5	<2	2.01	<.5	10	41	32	3.20	<10	<1	0.24	10	1.06	885	<1	0.05	5	1380	2	0.66	4	4	166	0.08	<10	<10	84	<10	66
99RN208C	<.5	<2	1.75	<.5	12	197	1260	0.81	<10	<1	<.01	<10	0.05	135	1	0.02	5	<10	<2	0.50	<2	<1	23	<.01	<10	<10	3	<10	2
99RN210B	<.5	<2	0.36	<.5	7	206	115	1.27	<10	<1	<.01	<10	<.01	40	1	<.01	3	<10	<2	0.70	2	<1	5	<.01	<10	<10	3	<10	<2
99RN216A	<.5	<2	2.91	<.5	22	69	29	5.05	<10	<1	0.12	<10	2.22	940	1	0.04	18	800	<2	0.15	<2	10	41	0.23	<10	<10	134	<10	72
99RN216B	<.5	<2	1.44	<.5	20	29	47	3.57	<10	<1	0.09	<10	0.88	345	<1	0.16	5	880	<2	0.34	<2	9	24	0.28	<10	<10	133	<10	38
99RN240D	<.5	<2	0.78	<.5	5	145	24	1.58	<10	<1	0.03	<10	0.57	355	<1	0.04	3	210	2	0.28	2	6	49	<.01	<10	<10	25	<10	28
99RN245A	<.5	<2	0.30	<.5	2	75	19	1.26	<10	<1	0.15	10	0.12	190	9	0.06	1	20	<2	0.61	<2	<1	22	<.01	<10	<10	1	<10	6
99RN245B	<.5	<2	0.01	<.5	3	101	19	2.18	<10	<1	0.09	10	0.01	70	6	0.08	1	10	2	0.62	2	<1	5	<.01	<10	<10	1	<10	2
99RN245D	<.5	<2	>15	<.5	<1	3	<1	0.68	<10	4	0.01	<10	0.19	560	<1	0.01	2	<10	36	0.07	<2	<1	769	<.01	<10	<10	2	<10	20
99RN246A	<.5	10	0.53	<.5	8	165	8	7.16	<10	<1	0.19	<10	0.21	245	31	0.01	2	<10	28	>5.00	<2	<1	38	<.01	<10	<10	1	<10	8
99RN251E	0.5	<2	1.99	<.5	15	63	15	3.52	<10	<1	0.27	10	0.79	595	<1	0.05	20	770	6	0.05	<2	8	159	<.01	<10	<10	59	<10	80
99RN252A	<.5	<2	0.28	<.5	5	67	9	3.30	<10	<1	0.18	10	0.26	310	2	0.07	5	730	6	0.53	<2	3	28	<.01	<10	<10	25	<10	44
99RN270A	<.5	<2	4.27	<.5	13	13	<1	3.36	<10	<1	0.24	<10	2.29	370	<1	0.02	5	1760	<2	0.01	<2	5	116	<.01	<10	<10	71	<10	60
99RN270C	<.5	<2	3.56	<.5	30	4	25	6.95	<10	<1	0.15	<10	3.66	855	<1	0.01	3	1520	<2	0.08	<2	23	140	0.03	<10	<10	215	<10	102
99RN284A	<.5	<2	1.15	<.5	25	23	10	7.03	<10	<1	0.24	<10	2.73	545	<1	0.04	4	1160	<2	0.97	2	18	37	0.10	<10	<10	162	<10	92
99RN286A	<.5	<2	0.85	<.5	1	200	2	0.33	<10	<1	<.01	<10	0.07	195	1	<.01	4	20	4	0.01	<2	<1	19	<.01	<10	<10	4	<10	6
99RN305A	<.5	<2	0.95	<.5	<1	67	2	0.45	<10	<1	0.12	<10	0.05	200	1	0.09	<1	80	4	0.14	6	1	52	<.01	<10	<10	4	<10	14
99RN312	<.5	<2	2.76	<.5	14	48	89	1.65	<10	<1	0.10	<10	1.02	415	<1	0.11	20	610	<2	0.05	<2	5	80	0.09	<10	<10	42	<10	24
99RN313A	<.5	<2	2.50	<.5	2	145	2	1.12	<10	<1	0.01	<10	0.16	250	<1	0.01	3	50	2	0.61	<2	1	39	<.01	<10	<10	10	<10	14
99RN328C	<.5	<2	0.10	<.5	<1	189	6	0.75	<10	<1	0.24	<10	0.08	25	7	<.01	3	90	4	0.10	<2	<1	23	<.01	<10	<10	10	<10	<2
99RN334E	<.5	<2	0.14	<.5	3	32	13	1.08	<10	1	0.30	<10	0.13	370	<1	0.01	2	190	2	0.01	4	1	12	<.01	<10	<10	19	<10	2
99RN343	<.5	<2	0.20	<.5	2	102	2	0.64	<10	<1	0.11	<10	0.18	105	<1	0.11	2	80	<2	<.01	<2	1	33	0.03	<10	<10	12	<10	24
99RN355	<.5	<2	0.01	<.5	1	197	14	0.65	<10	<1	0.10	<10	0.01	20	1	<.01	6	270	80	0.03	<2	<1	14	<.01	<10	<10	18	<10	24
99RF7	<.5	<2	1.75	<.5	<1	108	5	0.36	<10	<1	0.01	<10	1.11	45	1	<.01	4	60	14	0.01	<2	<1	14	<.01	<10	<10	6	<10	6

Table 3. $^{40}Ar/^{39}Ar$ dates from rock samples collected in a portion of the Fortymile mining district.

Sample Number	Easting	Northing	Mineral Dated	Reset (Ma)	Plateau Age (Ma)	Interpreted Age (Ma)**
64AFr79	454247	7112423	hornblende	65 (L)	**191+/-2**	
64AFr79	454247	7112423	biotite	54 (i)	**196+/-2**	i196
69AFr900A	468500	7105180	biotite	none	**100+/-1**	i100
BL06372	474366	7102495	biotite	109 (m)	**182+/-1**	m182
BL06789	443171	7126684	biotite	174 (m)	**185+/-1**	i185
BL06790	459602	7134984	hornblende	85 (m)	**194+/-2**	i194
BL028394	457254	7105213	sericite	100 (i)	none	**i>166**
BL06720	449954	7107441	whole rock	excess Ar	**177+/-1**	
BL06720	449954	7107441	plagioclase	ca.100	none	**i>196**
BL06729	425655	7102810	biotite	65 (m)	**108+/-1**	i108
BL06719	450135	7107441	hornblende	excess Ar	**210+/-2**	
BL06719	450135	7107441	biotite	49Ma (L)	**211+/-2**	i211

Sample Number	Location/Description	Rock Description
64AFr79	North of Chicken pluton	biotite hornblende quartz diorite
64AFr79	North of Chicken pluton	biotite hornblende quartz diorite
69AFr900A	Walker Fork pluton	hornblende biotite granodiorite
BL06372	Walker Fork near Liberty Creek junction	coarse-grained biotite tonalite gneiss
BL06789	Mt. Warbelow	coarse-grained biotite granite
BL06790	"the pig" pluton	medium-grained hornblende monzodiorite
BL028394	Highway Copper Prospect	altered quartz monzonite dike
BL06720	Ingle Creek-dike	dacite porphyry dike
BL06720	Ingle Creek-dike	dacite porphyry dike
BL06729	North side of Mosquito Fork	fine-grained equigranular hornblende-biotite granodiorite
BL06719	Ingle Creek-Taylor Mountain Batholith?	medium-grained equigranular hornblende-biotite granodiorite
BL06719	Ingle Creek-Taylor Mountain Batholith?	medium-grained equigranular hornblende-biotite granodiorite

Notes: (Dates via 40Ar/39Ar method and analyzed by UAF Geochronology Lab, 1 sigma analytical error on ages), m=model age calculated from loss profiles, i=integrated age (more than one possible age for complex or disturbed samples), L=lowest temperature fraction age, ca.=circa. **Plateau Age is Best Interpreted Age. Best date for each sample in **bold**.

Table 4. Detection limits for geochemical analyses.

(Analytical methods: FA-AAS = Fire Assay-Atomic Absorption Spectroscopy, ICP-AES = Inductively Coupled Plasma-Atomic Emission Spectroscopy, FA-GRAV = Fire Assay-Gravimetric, FA-ICP-ARRAY = Fire Assay-Inductively Coupled Plasma, and AAS = Atomic Emission Spectroscopy) (ppm=parts per million, ppb=parts per billion, %=percent, g/t=grams/tonne)

Element	Units	Lower Detection Limit	Upper Detection Limit	Analytical Method
Au	ppb	5	10,000	FA-AAS
Ag	ppm	0.2	100	ICP-AES
Al	percent	0.01	15	ICP-AES
As	ppm	2	10,000	ICP-AES
Ba	ppm	10	10,000	ICP-AES
Be	ppm	0.5	100	ICP-AES
Bi	ppm	2	10,000	ICP-AES
Ca	percent	0.01	15	ICP-AES
Cd	ppm	0.5	500	ICP-AES
Co	ppm	1	10,000	ICP-AES
Cr	ppm	1	10,000	ICP-AES
Cu	ppm	1	10,000	ICP-AES
Fe	percent	0.01	15	ICP-AES
Ga	ppm	10	10,000	ICP-AES
Hg	ppm	1	10,000	ICP-AES
K	percent	0.01	10	ICP-AES
La	ppm	10	10,000	ICP-AES
Mg	percent	0.01	15	ICP-AES
Mn	ppm	5	10,000	ICP-AES
Mo	ppm	1	10,000	ICP-AES
Na	percent	0.01	10	ICP-AES
Ni	ppm	1	10,000	ICP-AES
P	ppm	10	10,000	ICP-AES
Pb	ppm	2	10,000	ICP-AES
Sb	ppm	2	10,000	ICP-AES
Sc	ppm	1	10,000	ICP-AES
Sr	ppm	1	10,000	ICP-AES
S	percent	0.01	5	ICP-AES
Ti	percent	0.01	10	ICP-AES
Tl	ppm	10	10,000	ICP-AES
U	ppm	10	10,000	ICP-AES
V	ppm	1	10,000	ICP-AES
W	ppm	10	10,000	ICP-AES
Zn	ppm	2	10,000	ICP-AES
Au2	g/t	0.07	1000	FA-GRAV
Cu1	percent	0.01	100	AAS

Table 5. Detection limits for major-oxide, minor-oxide and trace element analyses.
(*LOI = Loss on ignition)

Element	Units	Lower Detection Limit	Upper Detection Limit	Analytical Method
Al_2O_3	percent	0.01	100.00	XRF
CaO	percent	0.01	100.00	XRF
Cr_2O_3	percent	0.01	100.00	XRF
Fe_2O_3	percent	0.01	100.00	XRF
K_2O	percent	0.01	100.00	XRF
MgO	percent	0.01	100.00	XRF
MnO	percent	0.01	100.00	XRF
Na_2O	percent	0.01	100.00	XRF
P_2O_5	percent	0.01	100.00	XRF
SiO_2	percent	0.01	100.00	XRF
TiO_2	percent	0.01	100.00	XRF
LOI*	percent	0.01	100.00	XRF
Total	percent	0.01	105.00	Calculation
Ba	ppm	5	50,000	XRF
Rb	ppm	2	50,000	XRF
Sr	ppm	2	50,000	XRF
Nb	ppm	2	50,000	XRF
Zr	ppm	3	50,000	XRF
Y	ppm	2	50000.00	XRF