UNITED STATES DEPARTMENT OF THE INTERIOR

GEOLOGICAL SURVEY

Supplemental geochemical data from the Roseau, Minnesota, CUSMAP Project

by

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Open-File Report 88-575

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1988

SUPPLEMENTAL GEOCHEMICAL DATA FROM THE ROSEAU, MINNESOTA, CUSMAP PROJECT

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Geochemical analyses of rock samples, collected during the Conterminous United States Mineral Appraisal Project (CUSMAP) in the USGS Roseau, Minnesota, $1^{o}x2^{o}$ topographic quadrangle, are given in this report. The analyses reported here are for rock samples analysed after the release of USGS Open-File report 87-366 (OF 87-366), Geochemical data from the International Falls and Roseau, Minnesota, CUSMAP projects, or additional analyses for some samples reported in OF 87-366. The samples were collected from areas of outcrop in the Roseau $1^{o}x2^{o}$ Quadrangle along the United States-Canada border, where glacial deposits are relatively thin and from diamond drill core obtained from the Minnesota Department of Natural Resources Core Library (MDNR), Hibbing, Minnesota. Drill core samples are numbered with the drill hole identification numbers that correspond to those used by the MDNR, followed by the depth of the sample. Further information on these drill cores can be obtained from the MDNR.

Sampling

Outcrop samples were collected principally by W. Day and K. Schulz (USGS) and drill core samples by W. Day and T. Klein (USGS) from 1985-1987. Weathering rinds from outcrop samples were removed before analysis. Drill core was usually sampled by halving or quartering short intervals (usually 6-15 cm) using a diamond saw. Geochemical analyses reported here are those for which analyses were completed by 7/87.

Sample Location

Sample locations were digitized using the Branch of Central Mineral Resources digitizer (GTCO-2436A) from sites plotted on the USGS Baudette, Roseau, Grygla, and Upper Red Lake 1:100,000 USGS intermediate-scale topographic maps.

Analytical Methods

Major elements were analysed by J. Taggart, J. Bartel and D. Siems using quantitative wavelength dispersive X-ray fluoresence (WDXRF) (Taggart et. al., 1987). H_2O^+ and H_2O^- were determined by M. Kavulak using a gravimetric method

(Jackson et. al., 1987). Total S was determined by N. Rait using coulometric analyses (Jackson et. al., 1987).

Instrumental neutron activation analyses (INAA) were made by C. Palmer and G. Wandless. using methods described by Baedecker and McKown (1987)

D.C. arc spectrographic analyses using an automated scanning microphotometer for semiquantitative analyses of 64 elements (see Golightly et. al., 1987) were provided by C. Skeen, and W.B. Crandell.

Quantitative energy dispersive X-ray fluoresence analyses (EDXRF) for 14 elements was provided by J. Jackson using the Branch of Eastern Mineral Resources EDXRF. Analyses were made from loose powder samples supported by a thin mylar sheet using methods similar to those of Johnson and King (1987).

Gold and platinum and palladium were determined by a combination of fire assay and graphite furnace atomic absorption spectrometry (see Wilson et. al.(1987), and Aruscavage et. al.,(1984), respectively) Sample size was usually 10-15 g. Analyses were provided by R. Moore.

Data Tables

The data tables are organized by analytical method or combination of analytical methods. Blanks represent elements not determined. Negative numbers represent concentrations less than the detection limit indicated. Laboratory numbers are USGS laboratory identification numbers.

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TABLES

Table 1a. Laboratory number, sample location and sample descriptions

Rock Field No.	Lab No.	Latitude degrees	Latitude deg.	Latitude min.	Latitude sec.	Longitude degrees	Longitude deg.	Longitude min.	Longitude sec	Sample Description
LW86-3	W-239513	48.5829	48	34	58.55	94.5793	94	34	45.71	porphyritic pink granite
LW86-4	W-239514	48.5371	48	32	13.91	94.5290	94	31	44.49	pyrite-rich amphibole schist
LW86-5	W-239515	48.6042	48	36	15.36	94.5617	94	33	42.16	porphyritic monzonite
LW86-7	W-239516	48.8615	48	51	41.65	94.8711	94	52	16.05	monzodiorite
LW86-8A	W-239517	48.8413	48	50	28.8	94.8643	94	51	51.8	hornblende diorite
LW86-8B	W-239518	48.8413	48	50	28.8	94.8643	94	51	51.8	hornblende syenite
LW86-10	W-239519	48.8693	48	52	9.654	94.8730	94	52	23.03	hornblende diorite
LW86-12	W-239520	48.9721	48	58	19.59	94.9610	94	57	39.92	granodiorite gneiss
LW86-14A	W-239521	48.9571	48	57	25.72	94.9567	94	57	24.41	granodiorite gneiss
LW86-14B	W-239522	48.9571	48	57	25.72	94.9567	94	57	24.41	granite
LW86-18	W-239523	48.9716	48	58	18	94.9859	94	59	9.54	granodiorite gneiss
LW86-21	W-239524	48.9596	48	57	34.89	95.0639	95	3	50.25	granite
LW86-32	W-239525	48.8055	48	48	19.97	94.9835	94	59	0.882	biotite granite
LW86-36	W-239526	48.8634	48	51	48.47	94.9726	94	58	21.52	hornblende syenodiorite
LW86-40	W-239527	48.8721	48	52	19.57	95.0873	95	5	14.47	granite
LW86-43	W-239528	48.6913	48	41	28.85	94.4269	94	25	36.94	metachert tuff
LW86-44	W-239529	48.6920	48	41	31.4	94.4209	94	25	15.5	metatuff
LW86-45A	W-239530	48.6938	48	41	37.78	94.4157	94	24	56.77	metabasalt
LW86-45B	W-239531	48.6938	48	41	37.78	94.4157	94	24	56.77	meta-andesite
LW86-47	W-239532	48.6925	48	41	33.13	94.4103	94	24	37.35	pyritic breccia
LW86-49	W-239533	48.6780	48	40	41.09	94.3977	94	23	51.9	porphyritic granite
LW86-51	W-239534	48.6928	48	41	34.24	94.3826	94	22	57.53	meta-andesite
LW86-55	W-239535	48.6679	48	40	4.454	94.3036	94	18	12.96	metadiorite
LW86-59	W-239536	48.5752	48	34	30.76	93.9337	93	56	1.635	metabasalt
LW86-62A	W-239537	48.5936	48	35	37	93.8333	93	50	0	felsic metatuff
LW86-62B	W-239538	48.5936	48	35	37	93.8333	93	50	0	iron-formation

Drill Hole		deg	deg	min	sec	deg	deg	min	sec	Sample Description
B3-2-235	W-242998	48.6802	48	40	49	94.5222	94	31	20.2	quartz vein
B3-2-267	W-242999	48.6802	48	40	49	94.5222	94	31	20.2	pyritic chlorite schist
B3-2-324	W-243000	48.6802	48	40	49	94.5222	94	31	20.2	chlorite schist
B3-2-437	W-242997	48.6802	48	40	49	94.5222	94	31	20.2	pyritic quartz vein
B3-3-468	W-243001	48.6834	48	41	0.39	94.5103	94	30	37.37	chlorite-carbonate rock
B-57-1-239	W-243003	48.6901	48	41	24.61	94.5143	94	30	51.58	quartz vein
B-57-1-267	W-243002	48.6901	48	41	24.61	94.5143	94	30	51.58	pyritic graphite schist
BD-N-1-739	W-243004	48.4872	48	29	14.19	94.9968	94	59	48.56	quartz-eye rhyolite porphyry
BD-N-1-776	W-243005	48.4872	48	29	14.19	94.9968	94	59	48.56	pyritic graphitic metasediment
FT-2-257	W-243006	48.4822	48	28	56.19	95.2387	95	14	19.33	felsic volcaniclastic rock
FT-2-439	W-243007	48.4822	48	28	56.19	95.2387	95	14	19.33	metabasalt
FT-8-510	W-243010	48.2721	48	16	19.58	95.4675	95	28	3.34	hematite-cemented breccia
FT-8-580	W-243009	48.2721	48	16	19.58	95.4675	95	28	3.34	felsic breccia fragment
FT-8-617	W-243008	48.2721	48	16	19.58	95.4675	95	28	3.34	quartz-eye rhyolite
FT-17-399	W-243011	48.4068	48	24	24.81	95.2187	95	13	7.65	pyrite-muscovite rock

Table 1b. Major Constituents by WDXRF and gravimetric methods.

Rock Field No.	Lab No.	SIO2 %	AL2O3 %	FETO3 %	MGO %	CAO %	NA2O %	K2O %	TIO2 %	P2O5 %	MNO %	H2O+ %	H2O- %	TOTAL S%	LOI 900C
LW86-3	W-239513	63.5	16.3	5.38	1.31	3.07	4.64	3.9	0.57	0.17	0.12			-0.01	0.43
LW86-4	W-239514	64.1	15.3	7.62	1.35	4.39	3.9	1.32	0.43	0.15	0.11			1.9	1.51
LW86-5	W-239515	58.3	17.6	6.68	2.27	4.39	5.21	2.65	0.69	0.32	0.1			0.033	1.38
LW86-7	W-239516	58.9	14.7	6.29	6.31	5.79	4.41	2	0.81	0.26	0.12			-0.01	0.47
LW86-8A	W-239517	54.2	14.7	8.38	7.11	7.45	4.37	1.36	0.64	0.36	0.14			-0.01	0.86
LW86-8B	W-239518	61.2	15.8	4.96	3.94	4.83	4.82	2.35	0.45	0.24	0.08			-0.01	1.01
LW86-10	W-239519	52.5	13.6	9.71	8.3	9.21	3.42	1.39	0.58	0.31	0.17			-0.01	0.64
LW86-12	W-239520	59.5	17	7.14	3.38	7.06	4.32	0.43	0.58	0.17	0.09			-0.01	0.51
LW86-14A	W-239521	63.6	15.5	6.46	2.61	6.07	3.87	0.68	0.63	0.14	0.09			-0.01	0.49
LW86-14B	W-239522	68	14.3	5.67	1.49	4.54	3.93	0.63	0.52	0.14	0.14			-0.01	0.49
LW86-18	W-239523	68.7	15	4.28	1.42	4.28	4.39	0.92	0.45	0.11	0.05			-0.01	0.59
LW86-21	W-239524	71.4	15.6	1.83	0.85	2.38	5.54	0.81	0.22	0.08	-0.02			-0.01	0.9
LW86-32	W-239525	67.2	16.9	3.33	1.17	4.56	5.29	0.56	0.37	0.13	0.04			-0.01	0.4
LW86-36	W-239526	53.5	19	8.14	4.1	6.69	5.54	0.91	0.79	0.22	0.1			-0.01	1.07
LW86-40	W-239527	68.2	16.5	3.15	1.18	4.25	5.19	0.59	0.37	0.13	0.03			-0.01	0.31
LW86-43	W-239528	69.3	12.8	3.09	2.59	6.78	2.23	1.7	0.3	0.09	0.09			0.042	0.69
LW86-44	W-239529	57.4	16.7	7.47	3.85	8.29	3.02	1.68	0.62	0.21	0.11			-0.01	0.65
LW86-45A	W-239530	54.4	16.1	8.92	3.9	9.51	3.94	1.48	0.75	0.14	0.26			0.013	1.04
LW86-45B	W-239531	53.3	18.9	7.42	5.18	11.2	2.11	0.14	0.83	0.09	0.14			-0.01	0.99
LW86-47	W-239532	49.6	14.6	15	5.67	7.96	3.09	0.75	0.79	0.09	0.45			0.66	2.16
LW86-49	W-239533	67.4	16	2.99	1.38	2.8	4.64	3.32	0.33	0.15	0.05			-0.01	0.55
LW86-51	W-239534	54.3	15.4	8.01	3.04	12.7	2.52	2.74	0.66	0.23	0.18			-0.01	0.72
LW86-55	W-239535	55.2	16.8	8.64	4.78	6.98	3.35	2.15	0.66	0.41	0.13			-0.01	0.67
LW86-59	W-239536	49.9	14.7	12.3	6.63	12.8	1.57	0.32	0.66	0.06	0.24			0.09	1.06
LW86-62A	W-239537	66.4	15	6.04	0.88	1.51	7.31	0.51	0.71	0.17	0.04			0.22	1.19
LW86-62B	W-239538	58.2	9.2	23.8	1.24	1.04	2.95	1.17	0.44	0.2	0.03			0.21	2.28

Drill Hole	Lab No.	SIO2 %	AL2O3 %	FETO3 %	MGO %	CAO %	NA2O %	K2O %	TIO2 %	P2O5 %	MNO %	H2O+ %	H2O- %	TOTAL S%	LOI 900C
B3-2-235	W-242998														
B3-2-267	W-242999														
B3-2-324	W-243000														
B3-2-437	W-242997														
B3-3-468	W-243001														
B-57-239	W-243003														
B-57-267	W-243002														
BD-N-1-739	W-243004	63.6	14.3	4.59	3.79	5.26	4.2	1.2	0.4	0.13	0.06	1.5	0.34		1.28
BD-N-1-776	W-243005	45.3	9.99	22.2	1.08	2.57	2.25	1.17	0.31	0.08	0.09				14.5
FT-2-257	W-243006	68.8	17.2	1.69	1.1	3.14	3.77	2.03	0.51	0.2	0.02	2	0.52		1.33
FT-2-439	W-243007	53	13.8	12.7	3.88	12.6	1.02	0.26	0.87	0.08	0.47	1.6	0.4		1.13
FT-8-510	W-243010														
FT-8-580	W-243009	82.1	0.35	15.8	-0.1	0.03	-0.15	0.07	-0.02	-0.07	-0.02				1.66
FT-8-617	W-243008	82.5	7.83	4.08	0.41	0.07	-0.15	1.92	0.11	0.06	-0.02	3	0.82		2.31
FT-17-399	W-243011														

Table 1c. Trace and major elements by INAA

Rock Field No.	Lab No.	FE %	NA %	BA PPM	CO PPM	CR PPM	CS PPM	HF PPM	RB PPM	SB PPM	TA PPM	TH PPM	U PPM	ZN PPM	ZR PPM	SC PPM	LA PPM	CE PPM	ND PPM	SM PPM	EU PPM	GD PPM
LW86-3	W-239513	3.94	3.63	1540	9	10.6	1.36	8.9	90	-0.3	0.27	4.13	0.93	112	347	13.5	47.4	96	36	8.88	1.48	
LW86-4	W-239514																					
LW86-5	W-239515	4.92	4.02	1498	15.8	26.1	1.12	7.66	69.4	-0.3	0.304	4.05	0.9	92.2	366	12.37	42.2	79.5	30.5	6.32	1.58	
LW86-7	W-239516	4.61	3.4	1100	24.8	374	0.9	1.56	56	-0.3	0.135	0.47	-0.5	97	210	13.67	10.2	26.1	18	4.63	1.22	
LW86-8A	W-239517	6.12	3.38	732	31.5	323	0.48	2.42	28.8	-0.3	0.182	1.94	0.39	102	153	20.2	24.9	65.8	28.9	6.34	1.52	
LW86-8B	W-239518	3.58	3.78	1350	17.4	185	0.24	2.62	40	-0.3	0.178	1.96	-0.5	65.3	130	10.3	31	60.8	27.4	5.04	1.16	
LW86-10	W-239519	7.13	2.66	1180	38	458	0.34	1.6	16.5	-0.4	0.133	1.64	0.52	101	150	26.8	13.3	37.3	21	4.95	1.26	
LW86-12	W-239520	5.18	3.43	157	21.7	60.7	0.32	2.19	-12	-0.3	0.145	1.14	-0.5	94	150	16.3	11.3	24.4	13.2	2.99	D.89	
LW86-14A	W-239521	4.73	3.02	218	18.2	30.9	0.25	3.43	13.6	-0.3	0.264	2.18	-0.5	71	153	14.59	13.4	28.5	15.3	3.18	0.866	
LW86-14B	W-239522	4.11	3.08	266	12.3	12.8	0.31	4.49	15.3	-0.3	0.19	2.16	-0.5	61.5	191	11	15.7	38.9	13.9	2.91	0.74	
LW86-18	W-239523	3.11	3.43	297	10.3	18.5	0.39	4.13	20.2	-0.3	0.378	2.51	0.4	69.1	193	10.22	17	45.9	19.6	4.24	0.91	
LW86-21	W-239524	1.36	4.31	278	3.91	3.5	0.2	2.66	19	-0.1	0.116	1.8	-0.3	39.8	102	1.156	8.09	19.4	7	1.52	0.411	
LW86-32	W-239525	2.42	4.15	512	7.2	9.3	0.23	2.65	12.4	-0.2	0.083	1.23	-0.4	53.3	113	5.76	15.1	31.3	12.9	2.51	0.67	
LW86-36	W-239526																					
LW86-40	W-239527																					
LW86-43	W-239528																					
LW86-44	W-239529	5.45	2.45	304	25.2	140	1.47	2.5	48	-0.4	0.229	3.66	0.58	85	140	18.3	28.4	56.2	26.5	4.67	1.17	
LW86-45A	W-239530	6.52	3.1	308	57.9	680	0.58	1.79	45.1	-0.5	0.177	1.62	0.42	75	250	34	12.9	27.4	17.1	3.33	0.913	
LW86-45B	W-239531	5.48	1.71	-130	40.1	531	0.42	1.88	7.7	-0.5	0.241	-1	-0.6	93	-300	35.2	4.82	11.9	8.6	2.41	0.794	
LW86-47	W-239532																	68				
LW86-49	W-239533	2.22	3.72	1410	8.1	42.9	4.35	3.62	121	-0.2	0.472	7.44	1.5	47.8	151	5.69	35.4	54.8	21.5	3.9	0.91	
LW86-51	W-239534	5.82	2.05	404	25.7	221	1.34	2.46	73	-0.4	0.204	3.64	-1	75	110	23.1	27.1		25.4	4.98	1.24	
LW86-55	W-239535																					
LW86-59	W-239536	8.99	1.27	-140	50.4	163	1.52	1.2	10.9	0.41	0.127	0.6	-0.6	106	-400	40.6	3.61	7.7	6	1.67	0.568	
LW86-62A	W-239537	4.37	5.76	280	7.39	103	1.34	3.69	30.4	-0.3	0.52	2.56	0.58	28.3	151	11.6	17.6	36.2	15.5	3.39	0.966	
LW86-62B	W-239538	17	2.4	451	5.43	62	2.62	2.2	51.6	0.19	0.342	0.342	-0.7	63.1	170	8.9	12	22.3	10.5	2.02	0.593	

Drill Hole	Lab No.	FE %	NA %	BA PPM	CO PPM	CR PPM	CS PPM	HF PPM	RB PPM	SB PPM	TA PPM	TH PPM	U PPM	ZN PPM	ZR PPM	SC PPM	LA PPM	CE PPM	ND PPM	SM PPM	EU PPM	GD PPM
B3-2-235	W-242998																					
B3-2-267	W-242999																					
B3-2-324	W-243000																					
B3-2-437	W-242997																					
B3-3-468	W-243001																					
B-57-239	W-243003																					
B-57-267	W-243002																					
BD-N-1-739	W-243004																					
BD-N-1-776	W-243005																					
FT-2-257	W-243006																					
FT-2-439	W-243007																					
FT-8-510	W-243010																					
FT-8-580	W-243009																					
FT-8-617	W-243008																					
FT-17-399	W-243011																					

Table 1c. (continued)

Rock Field No.	Lab No.	TB PPM	TM PPM	YB PPM	LU PPM	CA %	K %	AS PPM	AU PPB	NI PPM	SR PPM
LW86-3	W-239513	1.01		3.02	0.437	1.9	3.25	-1	-8	-60	420
LW86-4	W-239514										
LW86-5	W-239515	0.644		1.7	0.243	3.49	2.55	-2	-8	-60	940
LW86-7	W-239516	0.422		1.69	0.157	4	1.8	-1	-6	154	1210
LW86-8A	W-239517	0.56		1.72	0.211	5.8	1.04	-1	-6	173	1280
LW86-8B	W-239518	0.41		0.96	0.15	3.9	1.88	-1	-6	98	1370
LW86-10	W-239519	0.51		1.37	0.223	7.3	1.2	-1	-7	119	1240
LW86-12	W-239520	0.36		1.01	0.154	5.3	-0.9	-1	-7	54	560
LW86-14A	W-239521	0.494		1.38	0.272	4.79	0.65	-2	-6	34	389
LW86-14B	W-239522	0.562		2.97	0.437	3.3	0.7	-1	-7	-60	410
LW86-18	W-239523	0.571		2.07	0.275	3.2	0.82	-1	-7	-50	372
LW86-21	W-239524	0.138		0.202	0.032	1.78	0.75	-1	-6	-26	613
LW86-32	W-239525	0.22		0.49	0.067	3.3	0.55	-1	-8	-40	810
LW86-36	W-239526										
LW86-40	W-239527										
LW86-43	W-239528										
LW86-44	W-239529	0.43		1.28	1.89	6.1	1.38	0.83	5.6	64	1160
LW86-45A	W-239530	0.46		1.61	0.229	7.4	1.25	2.77	9.2	259	420
LW86-45B	W-239531	0.5		2.06	0.298	8.7	-0.8	2.58	-7	91	150
LW86-47	W-239532										
LW86-49	W-239533	0.276		0.89	0.143	2.4	2.94	-1	-6	37	1040
LW86-51	W-239534	0.47		1.37	0.225	9.7	2.58	1.42	23.2	81	590
LW86-55	W-239535										
LW86-59	W-239536	0.423		1.95	0.281	9.7	-0.9	1.35	7.6	102	180
LW86-62A	W-239537	0.41		1.46	0.211	-2	-2	-1	-7	25	240
LW86-62B	W-239538	0.278		0.88	0.141	-2	0.83	-1	54.6	-80	240

Drill Hole	Lab No.	TB PPM	TM PPM	YB PPM	LU PPM	CA %	K %	AS PPM	AU PPB	NI PPM	SR PPM
B3-2-235	W-242998										
B3-2-267	W-242999										
B3-2-324	W-243000										
B3-2-437	W-242997										
B3-3-468	W-243001										
B-57-239	W-243003										
B-57-267	W-243002										
BD-N-1-739	W-243004										
BD-N-1-776	W-243005										
FT-2-257	W-243006										
FT-2-439	W-243007										
FT-8-510	W-243010										
FT-8-580	W-243009										
FT-8-617	W-243008										
FT-17-399	W-243011										

Table 1d. Major and trace by D.C. arc emission spectrography (semi-quantitative automated plate reader)

Rock Field No.	Lab No.	SI %-S	AL %-S	FE %-S	MG %-S	CA %-S	NA %-S	K %-S	TI %-S	P %-S	AG PPM	AS PPM	AU PPM	B PPM	BA PPM	BE PPM	BI PPM	CD PPM	CE PPM	CO PPM	CR PPM
LW86-3	W-239513	34	12	3.6	1.2	3.2	3	3.3	0.49	0.11	-0.1	-220	-6.8	-6.8	2100	2.9	-22	-22	-63	10	16
LW86-4	W-239514	34	11	5.8	1.1	3.7	2.4	1.1	0.31	-0.068	-0.1	-220	-6.8	-15	270	3	-22	-22	60	26	72
LW86-5	W-239515	32	13	5	2.1	3.5	2.6	1.9	0.68	0.17	-0.1	-220	-6.8	-6.8	1800	3.1	-22	-22	110	15	23
LW86-7	W-239516	30	10	4.4	5.5	4.4	2.7	1.9	0.37	0.14	-0.1	-220	-6.8	-6.8	1400	1.8	-22	-22	-63	24	420
LW86-8A	W-239517	28	10	5.9	5.7	4.5	2	0.94	0.52	0.2	-0.1	-220	-6.8	-15	830	2.2	-22	-22	66	28	330
LW86-8B	W-239518	30	8.3	3	2.9	4.3	8	3.3	0.33	0.12	0.22	-220	-6.8	-6.8	1900	1.9	-22	-22	-63	17	210
LW86-10	W-239519	24	7.7	5.9	5.9	4.9	1.6	0.98	0.33	0.18	-0.1	-220	-6.8	-15	1100	1.5	-22	-22	-63	28	410
LW86-12	W-239520	34	12	5.5	3	4.5	1.8	0.27	0.42	-0.068	0.19	-220	-6.8	-15	130	-1.5	-22	-22	-63	21	59
LW86-14A	W-239521	34	11	5.4	2.1	3.4	1.8	0.44	0.53	-0.068	0.23	-220	-6.8	-15	240	-1.5	-22	-22	-63	17	29
LW86-14B	W-239522	34	11	4.5	1.2	2.9	1.8	0.38	0.4	-0.068	-0.1	-220	-6.8	-6.8	280	-1.5	-22	-22	71	12	14
LW86-18	W-239523	34	12	3	1.2	3.7	2.7	0.77	0.41	0.081	0.24	-220	-6.8	-6.8	280	-1.5	-22	-22	81	11	22
LW86-21	W-239524	34	11	1.5	0.64	2.2	3.1	0.71	0.25	-0.068	-0.1	-220	-6.8	15	300	-1.5	-22	-22	-63	4	5.5
LW86-32	W-239525	34	13	2.4	1	3.6	2.5	0.42	0.32	0.13	0.16	-220	-6.8	-6.8	310	-1.5	-22	-22	-63	7.4	15
LW86-36	W-239526	28	13	5.4	3.8	5.1	8	0.9	0.49	0.15	0.25	-220	-6.8	40	210	-1.5	-22	-22	-63	24	100
LW86-40	W-239527	34	11	2.6	0.81	2.6	1.9	0.37	0.22	0.07	-0.1	-220	-6.8	-6.8	290	-1.5	-22	-22	-63	6.1	9.4
LW86-43	W-239528	34	8.3	2.3	1.9	3.9	1.3	1.1	0.24	0.073	0.19	-220	-6.8	17	380	-1.5	-22	-22	-63	18	41
LW86-44	W-239529	28	11	4.8	3.4	5.9	1.8	1.3	0.48	-0.068	-0.1	-220	-6.8	-6.8	500	-1.5	-22	-22	-63	25	170
LW86-45A	W-239530	25	11	6	3.2	5.1	2	1	0.5	-0.068	-0.1	-220	-6.8	-15	230	-1.5	-22	-22	-63	46	650
LW86-45B	W-239531	28	13	5.7	4.6	5.7	1.2	0.068	0.63	-0.068	-0.1	-220	-6.8	-15	36	-1.5	-22	-22	-63	31	530
LW86-47	W-239532	24	9.4	9.3	4.7	4.3	1.6	0.48	0.48	-0.068	-0.1	-220	-6.8	-15	150	-1.5	-22	-22	76	35	480
LW86-49	W-239533	34	8.1	2.1	1.2	2.7	2.8	2.9	0.21	0.11	-0.1	-220	-6.8	8	1800	1.9	-22	-22	-63	8	46
LW86-51	W-239534	26	8.1	5.5	2.1	7.8	1.5	1.9	0.4	-0.068	-0.1	-220	-6.8	-15	340	-1.5	-22	-22	-63	19	210
LW86-55	W-239535	25	9.3	5.6	3.4	3.5	1.5	1.6	0.39	-0.068	-0.1	-220	-6.8	-15	710	1.9	-22	-22	-63	24	120
LW86-59	W-239536	22	7.3	7.6	4.5	4.9	0.57	0.11	0.35	-0.068	-0.1	-220	-6.8	-15	-32	-1.5	-22	-22	-63	37	100
LW86-62A	W-239537	34	10	4.8	0.62	1	2.3	0.28	0.46	-0.068	0.11	-220	-6.8	-6.8	220	-1.5	-22	-22	-63	6	97
LW86-62B	W-239538	28	5.2	13	0.82	0.84	1.5	0.85	0.31	-0.068	0.28	-220	-6.8	-15	340	-1.5	-22	-22	-63	4.8	47

Drill Hole	Lab No.	SI %-S	AL %-S	FE %-S	MG %-S	CA %-S	NA %-S	K %-S	TI %-S	P %-S	AG PPM	AS PPM	AU PPM	B PPM	BA PPM	BE PPM	BI PPM	CD PPM	CE PPM	CO PPM	CR PPM
B3-2-235	W-242998	28	3.1	4.8	2.8	4	2.5	0.23	0.39	-0.068	-0.1	-220	-6.8	-6.8	74	-1.5	-22	-22	-63	27	18
B3-2-267	W-242999	21	4.5	6.4	5.4	5.2	8	1.5	0.25	-0.068	-0.1	-220	-6.8	-15	130	-1.5	-22	-22	-63	29	110
B3-2-324	W-243000	18	3	5.3	12	3.1	-0.003	-0.046	0.11	-0.068	-0.1	-220	-6.8	-6.8	1.7	-1.5	-22	-22	-63	42	1100
B3-2-437	W-242997	34	0.73	6.1	0.16	0.1	0.22	-0.046	0.055	-0.068	0.33	-220	-6.8	-15	12	-1.5	-22	-22	-63	7	22
B3-3-468	W-243001	17	3	5	4.4	4.2	0.38	-0.046	0.12	-0.068	-0.1	-220	-6.8	-6.8	14	-1.5	-22	-22	-63	25	430
B-57-239	W-243003	34	1.1	3.9	0.33	1.6	0.1	0.15	0.0062	-0.068	-0.1	-220	-6.8	-6.8	85	-1.5	-22	-22	-63	4.7	17
B-57-267	W-243002	22	1.4	12	1.1	0.34	0.1	0.51	0.082	-0.068	0.93	-220	-6.8	-15	110	-1.5	-22	-22	-63	45	65
BD-N-1-739	W-243004	30	5.9	2.7	2.6	2.7	1.7	0.69	0.0062	-0.068	-0.1	-220	-6.8	-6.8	460	-1.5	-22	-22	-63	12	190
BD-N-1-776	W-243005	21	3.4	9.9	0.63	1.2	1.5	0.66	0.18	-0.068	-0.1	-220	-6.8	-15	210	-1.5	-22	-22	-63	81	38
FT-2-257	W-243006	34	8	1.1	0.87	3	2.5	1.8	0.28	0.08	-0.1	-220	-6.8	25	300	-1.5	-22	-22	-63	5.4	48
FT-2-439	W-243007	27	5.3	7.4	3.6	6.3	0.6	0.09	0.69	-0.068	-0.1	-220	-6.8	-15	34	-1.5	-22	-22	-63	38	97
FT-8-510	W-243010	29	1.3	15	0.67	0.11	-0.003	-0.046	0.045	-0.068	0.46	320	-6.8	49	-32	2.2	-22	-22	-63	8.1	12
FT-8-580	W-243009	34	0.14	8.7	0.017	0.027	-0.003	-0.046	0.013	-0.068	0.14	-220	-6.8	-15	14	-1.5	-22	-22	-63	3.1	14
FT-8-617	W-243008	34	2.9	2.3	0.24	0.08	0.0068	1.1	0.065	-0.068	-0.1	-220	-6.8	46	140	6.5	-22	-22	-63	2.6	3.9
FT-17-399	W-243011	23	3.2	11	0.63	0.21	0.2	1.1	0.15	-0.068	1.3	-220	-6.8	240	140	-1.5	-22	-22	-63	3.7	29

Table 1d. (continued)

Rock Field No.	Lab No.	CU PPM	DY PPM	ER PPM	EU PPM	GA PPM	GD PPM	GE PPM	HF PPM	HO PPM	IN PPM	IR PPM	LA PPM	LI PPM	LU PPM	MN PPM	MO PPM	NB PPM	ND PPM	NI PPM	OS PPM
LW86-3	W-239513	4.8	-10	-4.6	-6.8	37	-22	-4.6	-10	-1.5	-6.8	-10	58		-6.8	1400	5.3	8.6	83	15	-10
LW86-4	W-239514	80	-10	-4.6	1.6	23	-22	-4.6	-10	-1.5	-6.8	-10	20		-6.8	1200	5.7	4.7	-32	100	-10
LW86-5	W-239515	7.5	-10	-4.6	2.2	35	-22	-4.6	-10	-1.5	-6.8	-10	54		-6.8	1100	7.3	12	70	37	-10
LW86-7	W-239516	9.9	-10	-4.6	1.2	29	-22	-4.6	-10	-1.5	-6.8	-10	19		-6.8	1300	5.5	4	38	220	-10
LW86-8A	W-239517	35	-10	-4.6	2	17	-22	-4.6	-10	-1.5	-6.8	-10	42		-6.8	1400	6.9	6.3	66	190	-10
LW86-8B	W-239518	8.1	-10	-4.6	-0.68	33	-22	-4.6	-10	-1.5	-6.8	-10	26		-6.8	830	4.4	4.5	57	120	-10
LW86-10	W-239519	11	-10	-4.6	-0.68	16	-22	-4.6	-10	-1.5	-6.8	-10	17	-32	-6.8	1600	5.6	4.6	-32	140	-10
LW86-12	W-239520	23	-10	-4.6	0.91	23	-22	-4.6	-10	-1.5	-6.8	-10	15		-6.8	980	6.7	3.4	39	70	-10
LW86-14A	W-239521	5	-10	-4.6	-0.68	18	-22	-4.6	-10	-1.5	-6.8	-10	20		-6.8	890	5.2	4.8	-32	46	-10
LW86-14B	W-239522	19	-10	-4.6	0.69	23	-22	-4.6	-10	-1.5	-6.8	-10	21		-6.8	1400	6.6	8.1	50	19	-10
LW86-18	W-239523	41	-10	-4.6	1.4	30	-22	-4.6	-10	-1.5	-6.8	-10	24		-6.8	650	5.8	8.2	47	29	-10
LW86-21	W-239524	1.7	-10	-4.6	-0.68	26	-22	-4.6	-10	-1.5	-6.8	-10	17		-6.8	170	7	3.7	32	9.5	-10
LW86-32	W-239525	6.6	-10	-4.6	-0.68	27	-22	-4.6	-10	-1.5	-6.8	-10	19		-6.8	450	5.9	4.6	-32	16	-10
LW86-36	W-239526	28	-10	-4.6	1.1	32	-22	-4.6	-10	-1.5	-6.8	-10	28		-6.8	1000	5	3.8	33	72	-10
LW86-40	W-239527	4.9	-10	-4.6	0.83	25	-22	-4.6	-10	-1.5	-6.8	-10	17		-6.8	410	4.5	1.5	-32	12	-10
LW86-43	W-239528	46	-10	-4.6	-0.68	14	-22	-4.6	-10	-1.5	-6.8	-10	20		-6.8	810	15	3.7	38	53	-10
LW86-44	W-239529	75	-10	-4.6	-0.68	30	-22	-4.6	-10	-1.5	-6.8	-10	39		-6.8	1100	6.5	4.2	-32	78	-10
LW86-45A	W-239530	75	-10	-4.6	-0.68	15	-22	-4.6	-10	-1.5	-6.8	-10	25	-32	-6.8	2500	6.7	5.2	43	290	-10
LW86-45B	W-239531	56	-10	-4.6	-0.68	15	-22	-4.6	-10	-1.5	-6.8	-10	22		-6.8	1400	5.7	7.8	-32	110	-10
LW86-47	W-239532	150	-10	-4.6	-0.68	11	-22	-4.6	-10	-1.5	-6.8	-10	-10	-32	-6.8	4300	7.3	4.9	-32	190	-10
LW86-49	W-239533	9.5	-10	-4.6	-0.68	28	-22	-4.6	-10	-1.5	-6.8	-10	32		-6.8	550	3.6	3.9	36	31	-10
LW86-51	W-239534	7.8	-10	-4.6	-0.68	18	-22	-4.6	-10	-1.5	-6.8	-10	30		-6.8	1700	5.3	3.4	-32	87	-10
LW86-55	W-239535	54	-10	-4.6	-0.68	17	-22	-4.6	-10	-1.5	-6.8	-10	37		-6.8	1100	4.3	6.6	-32	74	-10
LW86-59	W-239536	51	-10	-4.6	-0.68	8.2	-22	-4.6	-10	-1.5	-6.8	-10	-10	-32	-6.8	2100	6.1	2.9	-32	130	-10
LW86-62A	W-239537	52	-10	-4.6	-0.68	21	-22	-4.6	-10	-1.5	-6.8	-10	15		-6.8	460	4.7	5.8	50	44	-10
LW86-62B	W-239538	56	-10	-4.6	-0.68	9.7	-22	-4.6	-10	-1.5	-6.8	-10	21		-6.8	370	13	5.4	47	48	-10

Drill Hole	Lab No.	CU PPM	DY PPM	ER PPM	EU PPM	GA PPM	GD PPM	GE PPM	HF PPM	HO PPM	IN PPM	IR PPM	LA PPM	LI PPM	LU PPM	MN PPM	MO PPM	NB PPM	ND PPM	NI PPM	OS PPM
B3-2-235	W-242998	140	-10	-4.6	-0.68	13	-22	-4.6	-10	-1.5	-6.8	-10	-10	-32	-6.8	1200	3.4	-1	-32	28	-10
B3-2-267	W-242999	110	-10	-4.6	-0.68	22	-22	-4.6	-10	-1.5	-6.8	-10	-10		-6.8	1600	2.2	1	-32	53	-10
B3-2-324	W-243000	83	-10	-4.6	-0.68	10	-22	-4.6	-10	-1.5	-6.8	-10	-10	-32	-6.8	1800	2.5	1.1	-32	470	-10
B3-2-437	W-242997	95	-10	-4.6	-0.68	-1	-22	5	-10	-1.5	-6.8	-10	-10		-6.8	520	86	2.4	-32	25	-10
B3-3-468	W-243001	65	-10	-4.6	-0.68	8.8	-22	-4.6	-10	-1.5	-6.8	-10	-10	-32	-6.8	1800	2	-1	-32	170	-10
B-57-239	W-243003	36	-10	-4.6	-0.68	2.8	-22	-4.6	-10	-1.5	-6.8	-10	10		-6.8	610	1.2	-1	32	20	-10
B-57-267	W-243002	150	-10	-4.6	-0.68	1.8	-22	-4.6	1	-1.5	-6.8	-10	-10		-6.8	340	8.4	1.4	-32	100	-10
BD-N-1-739	W-243004	48	-10	-4.6	-0.68	22	-22	-4.6	-10	-1.5	-6.8	-10	13	-32	-6.8	610	4.7	-1	-32	77	-10
BD-N-1-776	W-243005	210	-10	-4.6	-0.68	9.9	-22	10	-10	-1.5	-6.8	-10	20		-6.8	790	7.6	1.4	-32	110	-10
FT-2-257	W-243006	31	-10	-4.6	-0.68	31	-22	-4.6	-10	-1.5	-6.8	-10	15		-6.8	310	5.4	2.4	-32	22	-10
FT-2-439	W-243007	8.3	-10	-4.6	-0.68	15	-22	-4.6	-10	-1.5	-6.8	-10	-10		-6.8	5300	6.1	5.5	-32	84	-10
FT-8-510	W-243010	33	-10	-4.6	-0.68	1.2	-22	-4.6	-10	-1.5	-6.8	-10	-10		-6.8	250	14	3.6	-32	31	-10
FT-8-580	W-243009	6.7	-10	-4.6	-0.68	-1	-22	-4.6	-10	-1.5	-6.8	-10	30		-6.8	67	7.7	2	-32	22	-10
FT-8-617	W-243008	27	-10	-4.6	-0.68	-17	-22	-4.6	-10	-1.5	-6.8	-10	33	-32	-6.8	74	1.6	16	37	5	-10
FT-17-399	W-243011	210	-10	-4.6	-0.68	5.8	-22	-4.6	-10	-1.5	-6.8	-10	14		-6.8	360	4.6	1.9	-32	150	-10

Table 1d. (continued)

Rock Field No.	Lab No.	PB PPM	PD PPM	PR PPM	PT PPM	RE PPM	RH PPM	RU PPM	SB PPM	SC PPM	SM PPM	SN PPM	SR PPM	TA PPM	TB PPM	TH PPM	TL PPM	TM PPM	U PPM	V PPM	W PPM
LW86-3	W-239513	27	-0.68	-6.8	-1.5	-10	-1.5	-1	-32	21	6.4	-4.6	490	-320	-32	-46	-10	-3.2	-150	51	-10
LW86-4	W-239514	-6.8	-0.68	-6.8	-1.5	-10	-1.5	-1	-32	7.4	-3.2	-4.6	540	-320	-32	-46	-10	-3.2	-150	66	-10
LW86-5	W-239515	20	-0.68	-6.8	-1.5	-10	-1.5	-1	-32	16	6.6	-4.6	990	-320	-32	-46	-10	-3.2	-150	90	-10
LW86-7	W-239516	7	-0.68	-6.8	-1.5	-10	-1.5	-1	-32	16	-3.2	-4.6	1700	-320	-32	-46	-10	-3.2	-150	120	-10
LW86-8A	W-239517	-6.8	-0.68	-6.8	-1.5	-10	-1.5	-1	-32	24	5.3	-4.6	1900	-320	-32	-46	-10	-3.2	-150	170	-10
LW86-8B	W-239518	16	-0.68	-6.8	-1.5	-10	-1.5	-1	-32	14	3.4	-4.6	1900	-320	-32	-46	-10	-3.2	-150	100	-10
LW86-10	W-239519	-6.8	-0.68	-6.8	-1.5	-10	-1.5	-1	-32	24	3.3	-4.6	930	-320	-32	-46	-10	-3.2	-150	160	-10
LW86-12	W-239520	-6.8	-0.68	-6.8	-1.5	-10	-1.5	-1	-32	19	-3.2	-4.6	720	-320	-32	-46	-10	-3.2	-150	140	-10
LW86-14A	W-239521	-6.8	-0.68	-6.8	-1.5	-10	-1.5	-1	-32	15	-3.2	-4.6	480	-320	-32	-46	-10	-3.2	-150	120	-10
LW86-14B	W-239522	-6.8	-0.68	-6.8	-1.5	-10	-1.5	-1	-32	13	3.9	-4.6	450	-320	-32	-46	-10	-3.2	-150	76	-10
LW86-18	W-239523	-6.8	-0.68	-6.8	-1.5	-10	-1.5	-1	-32	14	-3.2	-4.6	410	-320	-32	-46	-10	-3.2	-150	78	-10
LW86-21	W-239524	-6.8	-0.68	-6.8	-1.5	-10	-1.5	-1	-32	2.2	-3.2	-4.6	780	-320	-32	-46	-10	-3.2	-150	34	-10
LW86-32	W-239525	-6.8	-0.68	-6.8	-1.5	-10	-1.5	-1	-32	8.1	-3.2	-4.6	820	-320	-32	-46	-10	-3.2	-150	59	-10
LW86-36	W-239526	-6.8	-0.68	-6.8	-1.5	-10	-1.5	-1	-32	22	4.5	-4.6	700	-320	-32	-46	-10	-3.2	-150	140	-10
LW86-40	W-239527	-6.8	-0.68	-6.8	-1.5	-10	-1.5	-1	-32	5	3.7	-4.6	740	-320	-32	-46	-10	-3.2	-150	54	-10
LW86-43	W-239528	7.9	-0.68	-6.8	-1.5	-10	-1.5	-1	-32	5.6	-3.2	-4.6	630	-320	-32	-46	-10	-3.2	-150	54	-10
LW86-44	W-239529	-6.8	-0.68	-6.8	-1.5	-10	-1.5	-1	-32	24	5.3	-4.6	950	-320	-32	-46	-10	-3.2	-150	170	-10
LW86-45A	W-239530	-6.8	-0.68	-6.8	-1.5	-10	-1.5	-1	-32	37	-3.2	-4.6	560	-320	-32	-46	-10	-3.2	-150	210	-10
LW86-45B	W-239531	-6.8	-0.68	-6.8	-1.5	-10	-1.5	-1	-32	36	-3.2	-4.6	210	-320	-32	-46	-10	-3.2	-150	190	-10
LW86-47	W-239532	-6.8	-0.68	-6.8	-1.5	-10	-1.5	-1	-32	34	-3.2	-4.6	390	-320	-32	-46	-10	-3.2	-150	190	-10
LW86-49	W-239533	31	-0.68	-6.8	-1.5	-10	-1.5	-1	-32	6.9	3.2	-4.6	740	-320	-32	-46	-10	-3.2	-150	50	-10
LW86-51	W-239534	-6.8	-0.68	-6.8	-1.5	-10	-1.5	-1	-32	21	5.2	-4.6	510	-320	-100	-46	-10	-3.2	-150	160	-10
LW86-55	W-239535	11	-0.68	-6.8	-1.5	-10	-1.5	-1	-32	17	-3.2	-4.6	790	-320	-32	-46	-10	-3.2	-150	130	-10
LW86-59	W-239536	-6.8	-0.68	-6.8	-1.5	-10	-1.5	-1	-32	32	-3.2	-4.6	150	-320	-32	-46	-10	-3.2	-150	180	-10
LW86-62A	W-239537	-6.8	-0.68	-6.8	-1.5	-10	-1.5	-1	-32	9.9	-3.2	-4.6	340	-320	-32	-46	-10	-3.2	-150	97	-10
LW86-62B	W-239538	-6.8	-0.68	-6.8	-1.5	-10	-1.5	-1	-32	7.8	-3.2	-4.6	200	-320	-32	-46	-10	-3.2	-150	72	-10

Drill Hole	Lab No.	PB PPM	PD PPM	PR PPM	PT PPM	RE PPM	RH PPM	RU PPM	SB PPM	SC PPM	SM PPM	SN PPM	SR PPM	TA PPM	TB PPM	TH PPM	TL PPM	TM PPM	U PPM	V PPM	W PPM
B3-2-235	W-242998	20	-0.68	-6.8	-1.5	-10	-1.5	-1	-32	28	-3.2	-4.6	200	-320	-32	-46	-10	-3.2	-150	160	-10
B3-2-267	W-242999	19	-0.68	-6.8	-1.5	-10	-1.5	-1	-32	19	-3.2	-4.6	200	-320	-32	-46	-10	-3.2	-150	170	-10
B3-2-324	W-243000	10	-0.68	-6.8	-1.5	-10	-1.5	-1	-32	19	-3.2	-4.6	36	-320	-32	-46	-10	-3.2	-150	99	-10
B3-2-437	W-242997	17	-0.68	-6.8	-1.5	-10	-1.5	-1	-32	1.7	-3.2	-4.6	4.5	-320	-32	-46	-10	-3.2	-150	7.8	-10
B3-3-468	W-243001	-6.8	-0.68	-6.8	-1.5	-10	-1.5	-1	-32	17	-3.2	-4.6	33	-320	-32	-46	-10	-3.2	-150	110	-10
B-57-239	W-243003	14	-0.68	-6.8	-1.5	-10	-1.5	-1	-32	-6.5	-3.2	-4.6	30	-320	-32	-46	-10	-3.2	-150	130	-10
B-57-267	W-243002	70	-0.68	-6.8	-1.5	-10	-1.5	-1	-32	5.3	-3.2	5.8	6.3	-320	-32	-46	-10	-3.2	-150	190	-10
BD-N-1-739	W-243004	21	-0.68	-6.8	-1.5	-10	-1.5	-1	-32	8.8	-3.2	-4.6	850	-320	-32	-46	-10	-3.2	-150	97	-10
BD-N-1-776	W-243005	630	-0.68	-6.8	-1.5	-10	-1.5	-1	-32	7.8	-3.2	8.1	200	-320	-32	-46	-10	-3.2	-150	48	-10
FT-2-257	W-243006	25	-0.68	-6.8	-1.5	-10	-1.5	-1	-32	9.3	3.6	-4.6	440	-320	-32	-46	-10	-3.2	-150	100	-10
FT-2-439	W-243007	34	-0.68	-6.8	-1.5	-10	-1.5	-1	-32	44	-3.2	-4.6	170	-320	-32	-46	-10	-3.2	-150	240	-10
FT-8-510	W-243010	40	-0.68	-6.8	-1.5	-10	-1.5	-1	-32	6.6	-3.2	13	9	-320	-32	-46	-10	-3.2	-150	38	-10
FT-8-580	W-243009	8.8	-0.68	-6.8	1.5	-10	-1.5	-1	-32	-1	-3.2	-4.6	3.8	-320	-32	-46	-10	-3.2	-150	5.1	-10
FT-8-617	W-243008	16	-0.68	-6.8	-1.5	-10	-1.5	-1	-32	-1	4.2	-4.6	8	-320	-32	-46	-10	-3.2	-150	5.9	-10
FT-17-399	W-243011	17	-0.68	-6.8	-1.5	-10	-1.5	-1	-32	3.5	-3.2	-4.6	62	-320	-32	-46	-10	-3.2	-150	82	-10

Table 1d. (continued)

Rock Field No.	Lab No.	Y PPM	YB PPM	ZN PPM	ZR PPM
LW86-3	W-239513	35	4.7	130	320
LW86-4	W-239514	4.9	0.68	37	110
LW86-5	W-239515	21	2.6	100	230
LW86-7	W-239516	11	1.3	110	33
LW86-8A	W-239517	17	2.3	120	98
LW86-8B	W-239518	9.6	1.5	110	16
LW86-10	W-239519	11	1.8	110	49
LW86-12	W-239520	12	1.9	130	94
LW86-14A	W-239521	20	2.5	76	130
LW86-14B	W-239522	31	4.9	45	130
LW86-18	W-239523	23	3.3	45	79
LW86-21	W-239524	3.2	0.19	94	96
LW86-32	W-239525	6.4	0.55	58	140
LW86-36	W-239526	9.9	1.3	68	160
LW86-40	W-239527	4.2	0.47	130	66
LW86-43	W-239528	6.5	0.77	86	120
LW86-44	W-239529	12	1.9	63	96
LW86-45A	W-239530	16	2.6	58	92
LW86-45B	W-239531	18	3	48	120
LW86-47	W-239532	18	3.4	130	58
LW86-49	W-239533	6.3	0.84	92	47
LW86-51	W-239534	11	1.8	-15	100
LW86-55	W-239535	13	1.6	62	44
LW86-59	W-239536	12	2.3	95	48
LW86-62A	W-239537	12	1.6	-15	130
LW86-62B	W-239538	8.4	1.7	64	110

Drill Hole	Lab No.	Y PPM	YB PPM	ZN PPM	ZR PPM
B3-2-235	W-242998	11	2.8	15	48
B3-2-267	W-242999	6.1	2.2	110	27
B3-2-324	W-243000	4.2	0.82		19
B3-2-437	W-242997	3.9	0.4	1100	12
B3-3-468	W-243001	4.6	0.78	190	19
B-57-239	W-243003	9.8	1.2	780	3.1
B-57-267	W-243002	5.3	1.7	690	30
BD-N-1-739	W-243004	3.4	0.74	180	51
BD-N-1-776	W-243005	4.9	1.2	4900	61
FT-2-257	W-243006	4.5	0.89	51	89
FT-2-439	W-243007	17	3.8	190	43
FT-8-510	W-243010	7.3	3	74	40
FT-8-580	W-243009	13	0.95	33	6.3
FT-8-617	W-243008	70	7.4	36	550
FT-17-399	W-243011	2.8	0.66	91	27

Table 1e. Trace elements by EDXRF and fire assay (Au, Pt, and Pd).

Rock Field No.	Lab No.	AU PPM	PD PPM	PT PPM	SN PPM	BA PPM	LA PPM	CE PPM	RB PPM	SR PPM	Y PPM	ZR PPM	NB PPM	MO PPM	NI PPM	CU PPM	ZN PPM	CR PPM
LW86-3	W-239513		-0.000	-0.001	4	1452	37	87	83	401	31	287	6	-10	15	6	121	-20
LW86-4	W-239514	0.08	-0.000	-0.001	-2	295	-10	27	48	486	-10	137	-5	-10	48	60	59	70
LW86-5	W-239515		-0.000	-0.001	2	1421	32	71	60	796	17	275	7	-10	30	-5	102	-20
LW86-7	W-239516		-0.000	-0.001	-2	1051	-10	42	49	1026	12	102	-5	-10	160	5	105	435
LW86-8A	W-239517	-0.01	-0.000	-0.001	-2	701	19	68	29	1118	14	114	-5	-10	129	26	92	333
LW86-8B	W-239518	0.04	0.0009	-0.001	-2	1279	27	70	38	1133	11	111	-5	-10	72	7	78	214
LW86-10	W-239519	0.06	0.001	0.0017	2	1121	-10	38	15	1089	11	72	-5	-10	108	-5	92	475
LW86-12	W-239520		-0.000	-0.001	2	123	10	30	4	476	10	74	-5	-10	49	20	97	65
LW86-14A	W-239521		-0.000	-0.001	-2	213	13	41	10	334	16	119	-5	-10	28	-5	75	26
LW86-14B	W-239522		-0.000	-0.001	-2	243	18	48	13	327	19	145	-5	-10	11	20	73	-20
LW86-18	W-239523		-0.000	-0.001	2	282	13	46	19	325	19	122	5	-10	9	55	66	-20
LW86-21	W-239524		-0.000	-0.001	-2	284	-10	29	17	513	-10	110	-5	-10	6	-5	59	-20
LW86-32	W-239525		-0.000	-0.001	2	263	15	46	9	694	-10	115	-5	-10	6	6	76	-20
LW86-36	W-239526		-0.000	-0.001	-2	235	22	50	19	630	11	143	-5	-10	55	20	103	92
LW86-40	W-239527		-0.000	-0.001	2	285	22	49	9	703	-10	116	-5	-10	6	-5	78	-20
LW86-43	W-239528	0.02	0.0016	-0.001	-2	365	14	39	37	542	-10	110	-5	15	38	59	51	42
LW86-44	W-239529	0.02	0.0015	0.0013	3	485	21	65	36	933	14	115	-5	-10	55	55	91	154
LW86-45A	W-239530	-0.01	0.0041	0.0037	-2	283	16	45	38	350	16	76	-5	-10	235	67	59	642
LW86-45B	W-239531	0.01	0.0019	0.0034	3	67	-10	25	3	136	16	70	-5	-10	76	50	75	566
LW86-47	W-239532	-0.01	0.0053	0.004	-2	202	-10	30	33	235	19	72	-5	-10	195	78	89	521
LW86-49	W-239533		-0.000	0.0019	-2	1375	38	71	109	835	12	128	5	-10	16	-5	66	47
LW86-51	W-239534		0.0012	0.0011	2	386	20	63	63	523	16	107	-5	-10	76	11	68	226
LW86-55	W-239535		-0.000	-0.001	2	847	20	74	75	943	16	133	9	-10	68	37	94	153
LW86-59	W-239536	0.09	0.011	0.0069	-2	65	12	24	10	113	16	50	-5	-10	101	20	82	172
LW86-62A	W-239537	-0.01	0.0005	-0.001	-2	259	21	48	27	222	15	141	7	-10	39	26	36	108
LW86-62B	W-239538	0.02	-0.000	-0.001	-2	404	-10	35	54	143	10	91	5	-10	0	6	17	59

Drill Hole	Lab No.	AU PPM	PD PPM	PT PPM	SN PPM	BA PPM	LA PPM	CE PPM	RB PPM	SR PPM	Y PPM	ZR PPM	NB PPM	MO PPM	NI PPM	CU PPM	ZN PPM	CR PPM
B3-2-235	W-242998	0.08			-2	82	16	32	10	140	16	54	-5	-10	26	136	38	-20
B3-2-267	W-242999	-0.02			-2	206	-10	24	65	167	18	57	-5	-10	81	115	63	169
B3-2-324	W-243000	-0.02			-2	-10	-10	-20	7	69	11	28	-5	-10	431	23	76	2400
B3-2-437	W-242997	-0.02			5	10	10	29	7	7	6	15	-5	102	46	65	875	-20
B3-3-468	W-243001	-0.02			3	35	-10	-20	7	71	15	36	-5	-10	164	37	118	914
B-57-239	W-243003	-0.02			-2	154	15	29	4	29	13	-10	-5	-10	25	38	641	25
B-57-267	W-243002	-0.02			6	220	-10	28	41	19	15	46	-5	-10	156	165	388	181
BD-N-1-739	W-243004				5	637	15	34	37	781	9	110	-5	-10	47	69	117	310
BD-N-1-776	W-243005	0.03			8	358	26	50	46	181	17	112	6	-10	131	241	2800	95
FT-2-257	W-243006				-2	364	26	64	66	386	9	119	5	-10	8	22	76	55
FT-2-439	W-243007				2	74	-10	22	14	107	20	47	-5	-10	83	-5	129	82
FT-8-510	W-243010	-0.02			-2	69	-10	20	18	12	9	39	-5	-10				25
FT-8-580	W-243009				-2	15	20	21	-2	-5	9	-10	-5	-10	53	-5	-17	-20
FT-8-617	W-243008				3	203	56	93	56	7	78	517	39	-10	6	20	33	-20
FT-17-399	W-243011	-0.02			5	261	-10	-20	57	133	9	69	-5	-10	112	190	53	75