

GEOLOGICAL SURVEY OF CANADA

OPEN FILE 2747

**Geochemistry of surficial deposits
in northeastern Alberta**

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INTRODUCTION

This Open file contains geochemical and grain size data on various surficial materials collected in the summer of 1992 as part of a regional surficial mapping project covering the exposed Sheild of Alberta. Further sampling and analysis in 1993 and 1994 will provide a sample density of one per 30 km² for NTS 74M and the northern half of 74L.

The mapping and sampling program is being carried out under the Federal/Provincial Alberta Mineral Development Agreement (1992-1995) and is designed to create a data base for resource assessment and mineral exploration. Interpretation and statistical analysis of the data will be published at a later date.

SAMPLE COLLECTION

The majority of 1992 samples were collected from boat and foot traverses along Leyland, Charles and Andrew Lakes, with a sampling interval of approximately one per 5 km (Appendix D). Several genetic types of material were sampled to characterize the surficial cover. These included till, glaciolacustrine, glaciofluvial, and eolian sediments. The genesis of each sample was interpreted in the field and the interpretation is included with the data listing. Priority was given to collecting till samples to give the most direct information on provenance.

Samples weighing 1-2 kg were retrieved from pits dug below any pedogenic horizons and usually from a depth of 60 cm. Till cover is thin and discontinuous over the exposed bedrock in the region and consequently the samples were often collected from isolated deposits in hollows and depressions on the downflow side (generally SW) of bedrock protuberances. The location of each sample site was noted on 1:40 000 aerial photographs and subsequently transferred to 1:50 000 topographic maps and the UTM coordinates were determined.

ANALYTICAL PROCEDURES

The Terrain Sciences Sedimentology Laboratory at GSC in Ottawa completed the grain size and carbonate analyses. Grain size was sorted by sieving and sedimentation to percentage >2 mm, 2 mm to 63 μ m (sand), 2 μ m to <63 μ m (silt), and <2 μ m (clay). Figure 1 summarizes the grain size of all the samples. Carbonate was analyzed by the Leco method. For each sample total carbon, non-carbonate carbon, inorganic carbon and calcium carbonate equivalent values are given. Appendix A contains the grain size and carbonate data.

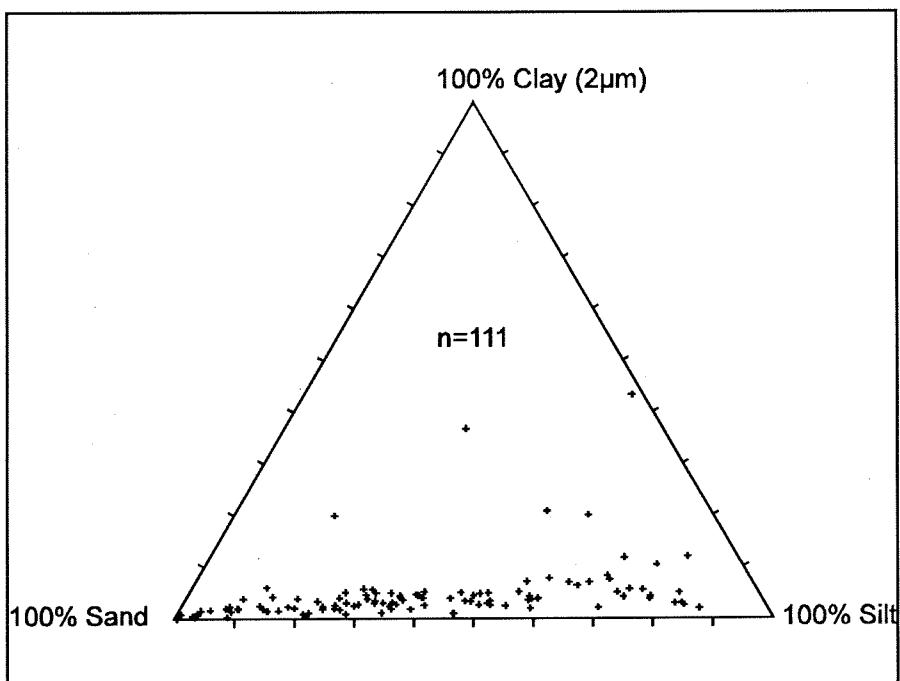


Figure 1. Ternary describing the grain size composition of all the samples.

Geochemical analysis of each sample was rendered for both the clay ($<2\mu\text{m}$) and silt-plus-clay ($<2\mu\text{m}$ to $63\mu\text{m}$) fractions. Geochemical analysis was performed by Chemex Labs Ltd., Mississauga, Ontario. The samples were analyzed for 32 elements listed in Table 1 (ICP-32, Inductively Coupled Plasma/Atomic Emission Spectroscopy). A 1.0 g aliquot was digested using a concentrated nitric-aqua regia solution two hours. The solution was then diluted to 25 ml with demineralized water and analyzed with a Jarrell Ash 1100 plasma spectrometer. The nitric-aqua regia digestion may only be partially complete for the following elements: Al, Ba, Be, Ca, Cr, Ga, K, L, Am Mg, Na, Sr, Ti, Tl, and W. Table 1 lists the measurement limits as determined by Chemex Labs Ltd. for the samples analyzed.

Appendix B and Appendix C record the geochemical data for the silt-plus-clay ($63\mu\text{m}$) and clay fractions ($2\mu\text{m}$) respectively. The accuracy of the geochemical technique was checked by submitting 10 duplicate samples for each of the clay and silt-plus-clay runs and an "in house" GSC standard (SBA) was inserted into the analytical batch to monitor the accuracy. These results are also reported in Appendix B. Table 2 shows the means and range of the SBA standards over the last several years.

TABLE 1. Measurement limits of the ICP-AES Technique

	Detection Limit	Upper Limit
Al* Aluminum	0.01%	15%
Sb Antimony	2 ppm	1%
As Arsenic	2 ppm	1%
Ba* Barium	10 ppm	1%
Be* Beryllium	0.5 ppm	0.01%
Bi Bismuth	2 ppm	1%
Cd Cadmium	0.5 ppm	0.05%
Ca* Calcium	0.01%	15%
Cr* Chromium	1 ppm	1%
Co Cobalt	1 ppm	1%
Cu Copper	1 ppm	1%
Ga* Gallium	10 ppm	1%
Fe Iron	0.01%	15%
La* Lanthanum	10 ppm	1%
Pb Lead	2 ppm	1%
Mg* Magnesium	0.01%	15%
Mn Manganese	5 ppm	1%
Hg Mercury	1 ppm	1%
Mo Molybdenum	1 ppm	1%
Ni Nickel	1 ppm	1%
P Phosphorus	10 ppm	1%
K* Potassium	0.01%	10%
Sc* Scandium	1 ppm	1%
Ag Silver	0.20 ppm	0.02%
Na* Sodium	0.01%	10%
Sr* Strontium	1 ppm	1%
Tl* Thallium	10 ppm	1%
Ti* Titanium	0.01%	10%
W* Tungsten	10 ppm	1%
U Uranium	10 ppm	1%
V Vanadium	1 ppm	1%
Zn Zinc	2 ppm	1%

* elements for which the nitric-aqua regia digestion may be incomplete

Table 2. GSC "in house" standard (SBA) statistics for previously analyzed batches
(N=20)

	Al	Ag	As	Ba	Bi	Ca	Cd	Co	Cr	Cu	Fe	K	La
	%	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	%	%	ppm
Min.	2.63	<0.2	5	80	<2	0.07	<0.5	12	29	61	3.07	0.28	30
Mean	3.03	0.2	19	92	<2	0.08	0.4	15	37	69	3.45	0.35	34
Max.	3.34	0.2	35	100	2	0.11	0.5	18	45	72	3.83	0.41	40
	Mg	Mn	Na	Ni	P	Pb	Sb	Sr	Ti	V	W	Zn	
	%	ppm	%	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	
Min.	0.69	745	<.01	28	490	10	<5	8	0.08	35	<5	86	
Mean	0.77	841	<.01	34	538	18	<5	9	0.10	42	<5	97	
Max.	0.86	924	0.01	41	630	30	<5	10	0.12	49	10	114	

Appendix A

1992 SAMPLE ANALYSIS

Sample Number	UTM Location		Material			Grain Size			Carbon (%)			CaCO ₃ equivalent	
	UTM zone 12		<2mm fraction (sum = 100%)			>2mm			Non-carbonate				
	Easting	Nothing	Sand (%)	Silt (%)	Clay (%)	(%)	Total	0.2	0.0	0.0	0.0		
92-BJB-1D	451880	6647990 sand	81.53	12.42	6.05	0.00	0.2	0.2	0.0	0.0	0.0	0.0	
92-BJB-2D	449580	6636410 sand	86.55	9.54	3.90	0.00	0.4	0.4	0.0	0.0	0.0	0.0	
92-BJB-3D	445940	6631450 till	27.24	51.95	20.81	28.31	5.1	0.1	5.0	41.7	41.7	41.7	
92-BJB-4D	445520	6631160 sandy till	32.80	30.44	36.77	12.00	3.6	0.8	2.8	23.3	23.3	23.3	
92-BJB-7D	499600	6648150 sandy diamicton	77.47	18.63	3.90	21.09	4.0	4.0	0.0	0.0	0.0	0.0	
92-BJB-8D	501660	6651100 sand	78.91	19.03	2.07	5.61	0.2	0.2	0.0	0.0	0.0	0.0	
92-BJB-9D	501660	6650890 stoney sand	96.31	3.31	0.38	15.06	4.3	4.2	0.1	0.8	0.8	0.8	
92-BJB-10D	501270	6650000 sandy diamicton	65.47	28.75	5.78	22.77	1.8	1.8	0.0	0.0	0.0	0.0	
92-BJB-11D	501450	6650200 sandy till	88.41	9.58	2.01	32.86	1.9	1.8	0.1	0.8	0.8	0.8	
92-BJB-12D	500990	6648530 sand	89.84	8.83	1.33	7.12	1.7	1.6	0.1	0.8	0.8	0.8	
92-BJB-13D	500320	6648300 stoney sand	64.09	30.22	5.69	22.37	0.6	0.6	0.0	0.0	0.0	0.0	
92-BJB-14D	500330	6648350 sand	61.56	35.69	2.75	2.46	0.1	0.1	0.0	0.0	0.0	0.0	
92-BJB-15D	498290	6645700 sandy diamicton	71.50	26.78	1.72	36.75	0.7	0.6	0.1	0.8	0.8	0.8	
92-BJB-16D	495890	6641400 littoral sand	93.15	5.21	1.64	1.52	0.8	0.7	0.1	0.8	0.8	0.8	
92-BJB-17D	496620	6642620 loess	14.82	82.22	2.96	0.78	0.8	0.8	0.0	0.0	0.0	0.0	
92-BJB-18D	496940	6642450 gravelly sand	79.88	17.83	2.29	67.59	3.1	3.1	0.0	0.0	0.0	0.0	
92-BJB-19D	500300	6642280 sandy diamicton	84.48	12.99	2.52	27.63	1.5	1.5	0.0	0.0	0.0	0.0	
92-BJB-20D	500830	6645200 lacustrine sand	63.84	31.22	4.93	6.98	0.2	0.2	0.0	0.0	0.0	0.0	
92-BJB-21D	495470	6622460 sandy diamicton	68.92	26.03	5.05	36.16	0.7	0.7	0.0	0.0	0.0	0.0	
92-BJB-22D	495660	6625750 sand	62.04	34.79	3.17	14.03	1.2	1.1	0.1	0.8	0.8	0.8	
92-BJB-23D	497340	6627430 littoral sand	94.77	3.66	1.58	19.81	n/a	n/a	n/a	n/a	n/a	n/a	
92-BJB-24D	499060	662930 sandy diamicton	89.53	8.08	2.40	37.70	1.0	0.9	0.1	0.8	0.8	0.8	
92-BJB-25D	499380	6633250 stoney silt	69.74	27.18	3.08	27.70	0.4	0.4	0.0	0.0	0.0	0.0	
92-BJB-26D	498940	6636030 sandy diamicton	65.73	29.79	4.48	25.17	0.2	0.2	0.0	0.0	0.0	0.0	
92-BJB-27D	499970	6639770 sandy diamicton	56.97	40.49	2.54	31.24	0.1	0.1	0.0	0.0	0.0	0.0	
92-BJB-28D	501550	6634550 lacustrine silt	8.14	79.87	11.99	0.00	5.9	5.6	0.3	2.5	2.5	2.5	
92-BJB-29D	501700	6634930 sandy diamicton	63.64	33.28	3.08	28.65	0.6	0.6	0.0	0.0	0.0	0.0	
92-BJB-30D	501350	6635400 lacustrine (?) silt clay	20.67	59.27	20.07	7.43	0.3	0.3	0.0	0.0	0.0	0.0	
92-BJB-31D	501350	6635320 sand w/occasional pebbles	77.79	21.64	0.57	22.92	0.2	0.2	0.1	0.8	0.8	0.8	
92-BJB-32D	497940	6649370 diamicton	23.35	68.40	8.26	14.31	0.5	0.5	0.1	0.8	0.8	0.8	
92-BJB-33D	497880	6649300 till	37.46	55.33	7.20	24.64	0.5	0.5	0.1	0.8	0.8	0.8	
92-BJB-34D	497920	6641550 lacustrine silt	1.78	54.94	43.28	0.00	0.8	0.8	0.0	0.0	0.0	0.0	
92-BJB-35D	498030	6641530 littoral peb. gravel	98.41	0.71	0.88	67.21	n/a	n/a	n/a	n/a	n/a	n/a	
92-BJB-36D	498860	6642360 sandy diamicton	71.85	25.50	2.65	22.35	0.5	0.4	0.1	0.8	0.8	0.8	
92-BJB-37D	529430	6644710 silt	29.39	64.23	6.38	0.35	1.2	1.2	0.0	0.0	0.0	0.0	
92-BJB-38D	529510	6644760 pebbly sand	55.64	39.14	5.22	9.84	0.3	0.3	0.0	0.0	0.0	0.0	
92-BJB-39D	529120	66438320 gleayed silt	14.10	75.50	10.41	0.18	0.2	0.2	0.0	0.0	0.0	0.0	
92-BJB-40D	529140	6643730 sandy silt	60.09	36.35	3.56	8.78	0.8	0.8	0.0	0.0	0.0	0.0	
92-BJB-41D	528790	6642340 till	49.70	46.88	3.42	11.19	0.6	0.5	0.1	0.8	0.8	0.8	
92-BJB-42D	528480	6638650 stoney sand	64.68	31.79	3.52	22.87	0.5	0.4	0.1	0.8	0.8	0.8	
92-BJB-43D	528560	6638600 silty diamicton	37.13	58.83	4.03	26.54	1.3	1.3	0.0	0.0	0.0	0.0	
92-BJB-44D	522300	6651150 diamicton	30.51	62.48	7.01	16.76	1.1	1.1	0.0	0.0	0.0	0.0	

Appendix A

Sample Number	Location	Material	Grain Size <2mm fraction (sum = 100%)			>2mm			Carbon (%)			CaCO ₃ equivalent
			Sand (%)	Silt (%)	Clay (%)	(%)	Total	Non-carbonate	Inorganic			
			73.99	23.60	2.41	27.08	0.4	0.4	0.0	0.0	0.0	
92-B-JB-45D	523650	6649120 gravel	88.38	9.80	1.82	1.57	0.4	0.4	0.0	0.0	0.0	
92-B-JB-46D	523650	6649120 sand										
92-B-JB-47D	523660	6649290 sandy diamictic	74.43	22.26	3.31	30.95	0.5	0.4	0.1	0.8		
92-B-JB-48D	523240	6645850 sandy diamictic	65.85	30.35	3.80	28.56	1.0	0.9	0.1	0.8		
92-B-JB-49D	523940	6644100 sandy till	67.94	29.32	2.74	42.18	0.7	0.6	0.1	0.8		
92-B-JB-50D	523260	6642790 sandy gravel	95.53	3.36	1.11	9.23	0.4	0.4	0.0	0.0	0.0	
92-B-JB-51D	520530	6640930 sand w/few pebbles	33.35	58.78	7.87	5.17	0.4	0.4	0.0	0.0	0.0	
92-B-JB-52D	527500	6638250 sand-silt w/few pebbles	18.82	69.38	11.80	1.74	0.4	0.4	0.0	0.0	0.0	
92-B-JB-53D	527500	6638460 sand	18.19	77.49	4.32	1.10	0.7	0.6	0.1	0.8		
92-B-JB-54D	523230	6626700 till	65.65	30.54	3.81	17.22	0.4	0.4	0.0	0.0	0.0	
92-B-JB-55D	523050	6626800 littoral sand	95.67	3.54	0.79	9.22	0.4	0.4	0.0	0.0	0.0	
92-B-JB-56D	522880	6624850 stoney silt-sand	13.05	81.95	5.00	2.12	0.2	0.2	0.0	0.0	0.0	
92-B-JB-57D	521870	6623810 silty diamictic	21.02	73.23	5.75	14.04	0.8	0.7	0.1	0.8		
92-B-JB-58D	523070	6622550 sandy diamictic	38.49	57.21	4.30	28.63	1.0	1.0	0.0	0.0	0.0	
92-B-JB-59D	522590	6619370 glaciofluvial gravel	60.07	35.51	4.41	65.97	0.8	0.7	0.1	0.8		
92-B-JB-60D	523270	6617480 fine sand	13.59	83.39	3.02	0.21	1.0	0.1	0.0	0.0	0.0	
92-B-JB-61D	523980	6614310 silty sand	11.18	86.77	2.05	0.00	0.0	0.0	0.0	0.0	0.0	
92-B-JB-62D	523810	6620690 glaciofluvial gravel	90.38	7.68	1.93	34.32	1.7	1.6	0.1	0.8		
92-B-JB-64D	524400	6623000 loess	13.43	83.96	2.61	1.44	0.7	0.6	0.1	0.8		
92-B-JB-65D	524110	6626590 sand	18.59	77.53	3.87	0.83	1.1	0.9	0.2	1.7		
92-B-JB-66D	525100	6630350 stoney, fine sand, e-horizon	38.38	57.87	3.75	21.86	0.3	0.2	0.1	0.8		
92-B-JB-66b-D	525100	6630350 stoney sand	57.24	38.12	4.64	31.70	0.8	0.7	0.1	0.8		
92-B-JB-67D	522770	6643060 till	49.57	45.41	5.01	41.75	0.8	0.7	0.1	0.8		
92-B-JB-68D	521390	6640410 till	65.17	31.91	2.93	38.55	0.5	0.4	0.1	0.8		
92-B-JB-69D	523600	6635690 stoney sand	45.04	50.05	4.92	34.59	1.7	0.4	0.3	2.5		
92-B-JB-70D	524450	6631880 till	56.15	39.81	4.04	35.47	0.3	0.2	0.1	0.8		
92-B-JB-71D	524530	6640050 till	27.95	69.88	2.16	23.84	1.4	1.1	0.3	2.5		
92-B-JB-72D	527150	6644070 diamictic	23.36	71.53	5.10	1.28	0.1	0.1	0.0	0.0	0.0	
92-B-JB-73D	526460	6644060 sandy till	83.77	14.74	1.49	31.36	0.2	0.2	0.0	0.0	0.0	
92-B-JB-74D	522470	6642700 sandy till	62.44	33.24	4.31	30.94	0.3	0.2	0.1	0.8		
92-B-JB-75D	524080	6638030 till	62.96	34.65	2.39	17.50	1.3	1.0	0.3	2.5		
92-B-JB-76D	527490	6635500 till	63.16	31.79	5.05	24.37	0.6	0.5	0.1	0.8		
92-B-JB-77D	522360	6630050 till	46.49	48.65	4.86	30.41	0.2	0.2	0.1	0.8		
92-B-JB-78D	525840	6625740 till	18.86	75.49	5.65	61.89	0.3	0.2	0.1	0.8		
92-B-JB-79D	525750	6628150 sand and gravel	84.24	13.96	1.80	30.78	0.3	0.2	0.1	0.8		
92-B-JB-80D	525810	6628600 silty till	27.04	65.93	7.03	15.04	0.1	0.0	0.1	0.8		
92-B-JB-81D	545060	6628500 stoney sand	90.98	8.71	0.31	16.58	0.3	0.2	0.1	0.8		
92-B-JB-82D	544470	6629650 sandy till	51.90	44.16	3.94	11.26	0.7	0.5	0.2	1.7		
92-B-JB-83D	538870	6635050 sandy diamictic	72.33	25.72	1.95	26.84	0.6	0.4	0.2	1.7		
92-B-JB-84D	539840	6632300 silty-sand diamictic	39.06	57.39	3.55	9.98	0.1	0.0	0.1	0.8		
92-B-JB-85D	540910	6630100 silty-sand diamictic	45.55	51.03	3.42	11.66	0.1	0.1	0.0	0.0	0.0	
92-B-JB-86D	543510	6630320 sandy till	58.27	39.20	2.54	23.79	0.2	0.2	0.0	0.0	0.0	
92-B-JB-87D	546300	6631220 stoney silt	36.96	56.43	4.62	6.85	0.2	0.2	0.0	0.0	0.0	

Appendix A

Sample Number	Location	UTM	Material	<2mm fraction (sum = 100%)			>2mm (%)	Total (%)	Carbon (%)	Non-carbonate (%)	Inorganic Caco3 equivalent
				Sand (%)	Silt (%)	Clay (%)					
92-BJB-88D	552550	6640300	sand w/few pebbles	48.77	47.90	3.33	9.01	0.1	0.1	0.0	0.0
92-BJB-89D	552970	6643690	diamictic	22.77	73.03	4.20	31.80	0.3	0.2	0.1	0.8
92-BJB-90D	553030	6643730	sandy diamictic	47.67	49.62	2.70	13.38	0.1	0.1	0.0	0.0
92-BJB-91D	551620	6645550	sandy diamictic	68.78	28.76	2.46	44.43	0.4	0.3	0.1	0.8
92-BJB-92D	552690	6647930	fine sand w/few stones	39.44	58.54	2.02	8.00	0.4	0.4	0.0	0.0
92-BJB-93D	549100	6650190	glaciofluvial gravel	78.06	21.03	0.91	26.66	0.2	0.2	0.0	0.0
92-BJB-94D	549240	6649350	sandy till	77.04	21.81	1.15	19.55	0.1	0.1	0.0	0.0
92-BJB-95D	549100	6646920	stoney sand	23.42	69.00	7.58	18.67	0.5	0.4	0.1	0.8
92-BJB-96D	549620	6642430	till	52.88	46.11	1.00	14.53	0.8	0.8	0.0	0.0
92-BJB-97D	548990	6638030	sandy till	60.14	35.80	4.06	20.95	0.2	0.2	0.0	0.0
92-BJB-98D	552400	6638100	stoney sand	63.28	16.84	19.89	29.79	0.5	0.4	0.1	0.8
92-BJB-99D	551660	6637600	littoral sand	99.49	0.49	0.02	0.09	n/a	n/a	n/a	n/a
92-BJB-100D	550230	6634580	stoney sand	46.16	50.84	3.00	10.76	0.6	0.4	0.2	1.7
92-BJB-101D	549310	6633290	pebbly sand	64.86	34.02	1.12	31.33	0.7	0.5	0.2	1.7
92-BJB-102D	547500	66333810	stoney sand	59.66	38.54	1.80	11.30	0.5	0.3	0.2	1.7
92-BJB-103D	548300	6632420	pebbly sand	81.84	16.59	1.57	10.52	1.7	1.4	0.3	2.5
92-BJB-104D	549460	6631900	stoney sand	70.44	25.57	3.99	20.71	0.2	0.1	0.1	0.8
92-BJB-105D	547750	6630390	fine sand	39.80	55.01	5.19	19.25	0.5	0.4	0.1	0.8
92-BJB-106D	511280	6568600	silty sand w/few clasts	37.28	58.94	3.78	7.43	0.2	0.2	0.1	0.8
92-BJB-107D	504360	6555850	stoney sand	74.37	23.85	1.79	6.66	0.4	0.2	0.2	1.7
92-BJB-108D	522360	6533080	clast supported gravel	96.65	2.97	0.39	25.37	1.5	0.8	0.7	5.8
92-BJB-109D	548100	6569990	littoral sand	99.03	0.48	0.49	1.61	n/a	n/a	n/a	n/a
92-BJB-1K	494280	6623270	sandy gravel	96.64	2.82	0.53	79.26	n/a	n/a	n/a	n/a
92-BJB-2K	522300	6651150	sandy diamictic	62.83	35.33	1.84	30.67	0.1	0.0	0.1	0.8
92-BJB-3K	524600	6617140	sandy till	47.73	47.83	4.44	18.46	0.1	0.0	0.1	0.8
92-BJB-4K	548380	6639430	sandy diamictic	70.97	28.13	0.90	23.85	0.2	0.0	0.2	1.7

Appendix B

1992 SAMPLE ANALYSIS											
GEOCHEMISTRY <63 µm fraction											
Sample	Ag (ppm)	Al (%)	As (ppm)	Ba (ppm)	Be (ppm)	Ca (%)	Cd (ppm)	Co (ppm)	Cr (ppm)	Cu (ppm)	Fe (%)
92-BJ-B-1D	<0.2	1.17	6	170	<0.5	2	0.34	<0.5	10	38	11
92-BJ-B-2D	<0.2	0.98	12	110	<0.5	4	0.38	<0.5	11	27	15
92-BJ-B-3D	<0.2	1.05	<2	140	<0.5	2	10.40	<0.5	6	22	10
92-BJ-B-4D	<0.2	1.52	4	1260	<0.5	4	7.18	<0.5	8	31	24
92-BJ-B-7D	<0.2	0.93	<2	60	<0.5	2	0.16	<0.5	2	23	7
92-BJ-B-8D	<0.2	0.58	<2	30	<0.5	<2	0.32	<0.5	3	10	3
92-BJ-B-9D	<0.2	3.05	<2	100	<0.5	<2	0.24	<0.5	7	20	8
92-BJ-B-10D	<0.2	1.20	4	40	<0.5	2	0.15	<0.5	3	11	1
92-BJ-B-11D	<0.2	2.11	4	140	<0.5	2	0.23	<0.5	8	21	3
92-BJ-B-12D	<0.2	1.73	6	130	<0.5	<2	0.23	<0.5	8	17	3
92-BJ-B-13D	<0.2	0.96	<2	20	<0.5	<2	0.31	<0.5	3	12	4
92-BJ-B-14D	<0.2	0.47	14	10	<0.5	<2	0.41	<0.5	2	10	1
92-BJ-B-15D	<0.2	1.52	10	30	<0.5	<2	0.30	<0.5	5	25	6
92-BJ-B-16D	<0.2	2.12	10	70	<0.5	<2	0.24	<0.5	7	34	1
92-BJ-B-17D	<0.2	1.89	6	30	<0.5	<2	0.11	<0.5	2	14	2
92-BJ-B-18D	0.2	2.78	14	130	<0.5	2	0.37	<0.5	7	59	8
92-BJ-B-19D	<0.2	1.81	8	40	<0.5	2	0.22	<0.5	8	25	2
92-BJ-B-20D	<0.2	0.62	2	20	<0.5	<2	0.20	<0.5	3	11	1
92-BJ-B-21D	<0.2	1.15	4	30	<0.5	2	0.11	<0.5	4	16	4
92-BJ-B-22D	<0.2	1.45	4	20	<0.5	2	0.11	<0.5	3	13	2
92-BJ-B-24D	<0.2	1.37	<2	90	<0.5	2	0.35	<0.5	8	27	3
92-BJ-B-25D	<0.2	1.34	2	20	<0.5	2	0.24	<0.5	4	15	6
92-BJ-B-26D	<0.2	1.15	2	20	<0.5	<2	0.32	<0.5	5	17	8
92-BJ-B-27D	<0.2	0.69	<2	20	<0.5	<2	0.21	<0.5	3	8	2
92-BJ-B-28D	<0.2	0.84	<2	70	<0.5	<2	0.39	<0.5	4	16	8
92-BJ-B-29D	<0.2	1.89	6	30	<0.5	<2	0.17	<0.5	5	18	3
92-BJ-B-30D	0.2	1.33	8	70	<0.5	2	0.47	<0.5	6	24	7
92-BJ-B-31D	<0.2	0.67	4	20	<0.5	2	0.28	<0.5	3	9	3
92-BJ-B-32D	<0.2	1.02	4	30	<0.5	<2	0.09	<0.5	1	11	3
92-BJ-B-33D	<0.2	1.56	10	70	<0.5	<2	0.12	<0.5	3	14	2
92-BJ-B-34D	<0.2	1.90	6	130	<0.5	2	0.63	<0.5	8	33	10
92-BJ-B-36D	<0.2	1.41	4	40	<0.5	2	0.36	<0.5	7	35	11
92-BJ-B-37D	<0.2	1.67	2	70	<0.5	2	0.15	<0.5	4	16	4
92-BJ-B-38D	<0.2	1.21	4	30	<0.5	<2	0.18	<0.5	4	15	2
92-BJ-B-39D	<0.2	0.88	<2	50	<0.5	2	0.54	<0.5	4	20	3
92-BJ-B-40D	<0.2	1.92	8	30	<0.5	2	0.18	<0.5	5	23	8
92-BJ-B-41D	<0.2	1.83	4	30	<0.5	<2	0.18	<0.5	7	22	7
92-BJ-B-42D	<0.2	1.16	6	30	<0.5	<2	0.14	<0.5	4	15	5
92-BJ-B-43D	<0.2	2.08	2	30	<0.5	<2	0.16	<0.5	3	21	6
92-BJ-B-44D	<0.2	1.66	8	60	<0.5	<2	0.17	<0.5	3	19	2
92-BJ-B-45D	<0.2	0.89	<2	60	<0.5	<2	0.40	<0.5	4	17	13
92-BJ-B-46D	<0.2	1.04	<2	40	<0.5	2	0.38	<0.5	5	16	7
92-BJ-B-47D	<0.2	1.58	2	70	<0.5	2	0.23	<0.5	6	20	9
92-BJ-B-48D	<0.2	1.75	6	100	<0.5	2	0.27	<0.5	6	18	3
92-BJ-B-49D	<0.2	1.70	6	50	<0.5	2	0.13	<0.5	5	16	7

Appendix B

GEOCHEMISTRY		<63μ fraction										>63μ fraction									
Sample Number	Ag (ppm)	Al (%)	As (ppm)	Ba (ppm)	Be (ppm)	Ca (%)	Cd (ppm)	Co (ppm)	Cr (ppm)	Cu (ppm)	Fe (%)	Ga (ppm)	Hg (ppm)	K (%)	La (ppm)	Mn (ppm)	Ni (ppm)	Pb (ppm)	Ti (ppm)	Zn (ppm)	
92-BJB-50D	<0.2	1.37	12	20	<0.5	<2	0.26	<0.5	7	17	8	1.81	<10	<1	0.06	40					
92-BJB-51D	<0.2	1.22	<2	30	<0.5	<2	0.14	<0.5	4	13	4	1.31	<10	<1	0.02	20					
92-BJB-52D	<0.2	0.95	2	30	<0.5	<2	0.17	<0.5	3	13	2	0.99	<10	<1	0.02	10					
92-BJB-53D	<0.2	1.63	4	40	<0.5	<2	0.12	<0.5	3	12	14	1.14	<10	<1	0.03	20					
92-BJB-54D	<0.2	0.84	4	30	<0.5	<2	0.14	<0.5	3	12	2	1.09	<10	<1	0.03	10					
92-BJB-55D	<0.2	1.59	4	40	<0.5	<2	0.24	<0.5	6	22	7	1.75	10	<1	0.07	40					
92-BJB-56D	<0.2	0.47	2	10	<0.5	<2	0.12	<0.5	1	6		0.62	<10	<1	0.01	10					
92-BJB-57D	<0.2	1.16	4	20	<0.5	<2	0.09	<0.5	2	11	2	0.96	<10	<1	0.02	10					
92-BJB-58D	<0.2	1.67	6	40	<0.5	<2	0.18	<0.5	4	15	2	1.49	<10	<1	0.05	20					
92-BJB-59D	<0.2	1.42	<2	50	<0.5	2	0.29	<0.5	4	15	3	1.43	<10	<1	0.06	20					
92-BJB-60D	<0.2	0.65	4	10	<0.5	<2	0.15	<0.5	2	9	<1	0.80	<10	<1	0.02	10					
92-BJB-61D	<0.2	0.62	<2	10	<0.5	<2	0.20	<0.5	2	10	<1	0.81	<10	<1	0.03	20					
92-BJB-62D	<0.2	1.49	8	70	<0.5	2	0.35	<0.5	6	21	6	1.78	<10	<1	0.10	30					
92-BJB-64D	<0.2	1.29	6	20	<0.5	<2	0.09	<0.5	2	12	3	1.00	<10	<1	0.03	10					
92-BJB-65D	<0.2	1.18	4	20	<0.5	<2	0.07	<0.5	2	20	3	1.10	<10	<1	0.02	10					
92-BJB-66D	<0.2	0.34	2	10	<0.5	<2	0.08	<0.5	1	9	<1	0.45	<10	<1	0.02	10					
92-BJB-66b-D	<0.2	0.98	8	40	<0.5	2	0.16	<0.5	2	14	1	1.38	<10	<1	0.04	10					
92-BJB-67D	<0.2	1.39	6	70	<0.5	<2	0.24	<0.5	4	15	3	1.41	<10	<1	0.04	20					
92-BJB-68D	<0.2	1.66	6	70	<0.5	4	0.32	<0.5	7	22	14	1.77	10	<1	0.05	60					
92-BJB-69D	<0.2	1.50	4	60	<0.5	2	0.14	<0.5	4	14	3	1.29	<10	<1	0.03	10					
92-BJB-70D	<0.2	1.37	2	40	<0.5	2	0.18	<0.5	5	18	7	1.41	<10	<1	0.03	30					
92-BJB-71D	<0.2	1.90	6	30	<0.5	2	0.09	<0.5	2	13	3	1.38	<10	<1	0.03	20					
92-BJB-72D	<0.2	0.74	6	20	<0.5	<2	0.14	<0.5	1	9	1	0.81	<10	<1	0.02	10					
92-BJB-73D	<0.2	1.17	2	60	<0.5	2	0.28	<0.5	6	14	8	1.39	<10	<1	0.07	50					
92-BJB-74D	<0.2	1.31	8	40	<0.5	2	0.31	<0.5	5	18	4	1.36	<10	<1	0.04	20					
92-BJB-75D	<0.2	1.57	4	20	<0.5	2	0.25	<0.5	4	17	6	1.45	<10	<1	0.04	30					
92-BJB-76D	<0.2	1.83	2	40	<0.5	2	0.20	<0.5	7	25	8	1.76	<10	<1	0.04	20					
92-BJB-77D	<0.2	0.96	4	40	<0.5	<2	0.09	<0.5	2	14	3	1.04	<10	<1	0.01	20					
92-BJB-78D	<0.2	0.66	<2	20	<0.5	<2	0.08	<0.5	1	9	1	0.77	<10	<1	0.01	10					
92-BJB-79D	<0.2	0.71	4	40	<0.5	<2	0.25	<0.5	3	10	5	1.04	<10	<1	0.06	20					
92-BJB-80D	<0.2	0.94	4	30	<0.5	<2	0.15	<0.5	2	13	1	1.00	<10	<1	0.02	20					
92-BJB-81D	<0.2	1.39	12	20	<0.5	2	0.16	<0.5	5	21	13	1.49	10	<1	0.04	60					
92-BJB-82D	<0.2	1.64	6	50	<0.5	2	0.21	<0.5	4	18	3	1.88	10	<1	0.03	30					
92-BJB-83D	<0.2	1.20	4	30	<0.5	2	0.16	<0.5	4	19	10	1.41	<10	<1	0.02	20					
92-BJB-84D	<0.2	0.79	4	10	<0.5	<2	0.11	<0.5	2	13	4	0.95	<10	<1	0.01	30					
92-BJB-85D	<0.2	0.75	<2	20	<0.5	2	0.11	<0.5	1	10	2	0.73	10	<1	0.02	20					
92-BJB-86D	<0.2	1.04	2	30	<0.5	2	0.15	<0.5	3	15	3	1.14	10	<1	0.02	20					
92-BJB-87D	<0.2	0.85	<2	20	<0.5	2	0.11	<0.5	2	11	2	0.77	10	<1	0.02	20					
92-BJB-88D	<0.2	0.94	<2	20	<0.5	2	0.11	<0.5	2	13	3	1.02	10	<1	0.03	20					
92-BJB-89D	0.2	1.18	<2	30	<0.5	2	0.15	<0.5	2	14	3	0.89	10	<1	0.03	20					
92-BJB-90D	<0.2	0.67	<2	20	<0.5	2	0.16	<0.5	2	8	2	0.75	10	<1	0.02	20					
92-BJB-91D	<0.2	1.56	<2	30	<0.5	2	0.16	<0.5	5	27	8	1.92	20	<1	0.06	30					
92-BJB-92D	<0.2	1.13	<2	20	<0.5	2	0.15	<0.5	3	17	2	1.00	10	<1	0.02	20					
92-BJB-93D	<0.2	0.88	<2	30	<0.5	<2	0.25	<0.5	3	13	2	1.15	10	<1	0.06	20					
92-BJB-94D	<0.2	0.61	<2	20	<0.5	<2	0.17	<0.5	2	8	2	0.75	10	<1	0.04	10					
92-BJB-95D	<0.2	1.17	<2	30	<0.5	2	0.09	<0.5	2	15	3	0.89	10	<1	0.03	20					

Appendix B

GEOCHEMISTRY		<63 µm fraction													
Sample Number	Ag (ppm)	Al (%)	As (ppm)	Ba (ppm)	Be (ppm)	Ca (%)	Cd (ppm)	Co (ppm)	Cr (ppm)	Cu (ppm)	Fe (%)	Ga (ppm)	Hg (ppm)	K (%)	La (ppm)
92-BJB-96D	< 0.2	0.87	< 2	< 10	< 0.5	2	0.18	< 0.5	1	8	0.74	10	< 1	0.02	10
92-BJB-97D	< 0.2	1.38	< 2	30	< 0.5	2	0.14	< 0.5	4	21	10	1.55	10	< 1	0.11
92-BJB-98D	< 0.2	1.87	6	80	< 0.5	4	0.19	< 0.5	4	14	8	1.47	10	< 1	0.04
92-BJB-100D	< 0.2	1.25	< 2	30	< 0.5	2	0.07	< 0.5	3	18	3	1.15	10	< 1	0.02
92-BJB-101D	< 0.2	1.35	4	20	< 0.5	2	0.16	< 0.5	4	20	8	1.30	10	< 1	0.03
92-BJB-102D	< 0.2	1.30	2	20	< 0.5	2	0.18	< 0.5	3	14	7	1.18	10	< 1	0.04
92-BJB-103D	< 0.2	1.35	2	70	< 0.5	2	0.25	< 0.5	2	14	4	1.35	10	< 1	0.05
92-BJB-104D	< 0.2	1.01	4	30	< 0.5	2	0.17	< 0.5	2	14	4	0.87	10	< 1	0.04
92-BJB-105D	< 0.2	1.76	< 2	50	< 0.5	2	0.13	< 0.5	3	13	4	1.31	10	< 1	0.03
92-BJB-106D	< 0.2	0.89	2	20	< 0.5	< 2	0.01	< 0.5	2	13	1	0.79	< 10	< 1	0.02
92-BJB-107D	< 0.2	0.73	< 2	20	< 0.5	< 2	0.04	< 0.5	2	13	1	0.79	< 10	< 1	0.02
92-BJB-108D	< 0.2	0.15	< 2	10	< 0.5	< 2	0.03	< 0.5	< 1	7	1	0.27	< 10	< 1	0.01
92-BJB-2K	< 0.2	0.76	< 2	30	< 0.5	< 2	0.30	< 0.5	2	11	4	0.92	10	< 1	0.03
92-BJB-3K	< 0.2	0.76	< 2	20	< 0.5	< 2	0.24	< 0.5	2	16	3	1.00	10	< 1	0.04
92-BJB-4K	< 0.2	0.87	4	10	< 0.5	< 2	0.15	< 0.5	2	12	4	1.04	10	< 1	0.03
Duplicate Samples															
*92-BJB-8D	< 0.2	0.67	< 2	30	< 0.5	< 2	0.35	< 0.5	3	14	3	0.93	10	< 1	0.08
*92-BJB-19D	< 0.2	2.05	6	50	< 0.5	< 2	0.33	< 0.5	7	29	3	2.71	20	< 1	0.07
*92-BJB-32D	< 0.2	1.16	2	40	< 0.5	< 2	0.10	< 0.5	1	11	3	0.65	10	< 1	0.03
*92-BJB-43D	0.2	2.27	< 2	40	0.5	2	0.16	< 0.5	3	20	7	1.51	10	< 1	0.04
*92-BJB-56D	< 0.2	0.61	< 2	10	< 0.5	< 2	0.16	< 0.5	1	9	1	0.72	10	< 1	0.02
*92-BJB-70D	< 0.2	1.40	2	40	< 0.5	2	0.17	< 0.5	4	19	7	1.43	10	< 1	0.03
*92-BJB-84D	0.2	0.65	2	10	< 0.5	< 2	0.08	< 0.5	2	9	4	0.78	10	< 1	0.01
*92-BJB-97D	< 0.2	1.27	< 2	30	< 0.5	2	0.10	< 0.5	4	20	10	1.49	10	< 1	0.10
*92-BJB-107D	< 0.2	0.61	< 2	20	< 0.5	< 2	0.03	< 0.5	2	14	20	0.72	< 10	< 1	0.02
SBA Std.	0.2	3.43	28	100	< 0.5	< 2	0.08	< 0.5	16	44	76	3.86	20	< 1	0.35
															40

GEOCHEMISTRY		<63 µm fraction										>63 µm fraction									
Sample Number	Mg (%)	Mn (ppm)	Mo (ppm)	Na (%)	Ni (ppm)	P (ppm)	Pb (ppm)	Sb (ppm)	Sr (ppm)	Ti (ppm)	Ti (%)	U (ppm)	V (ppm)	W (ppm)	Zn (ppm)						
92-BB-1D	0.35	225	<1	<0.01	29	960	10	<2	4	25	0.02	10	<10	58	<10	52	64				
92-BB-2D	0.32	295	<1	<0.01	33	840	12	<2	5	30	0.02	20	<10	44	<10	52					
92-BB-3D	3.42	240	<1	0.03	12	430	14	2	3	67	0.05	<10	<10	24	<10	30					
92-BB-4D	1.70	210	<1	0.01	22	650	14	<2	5	79	0.01	<10	<10	42	10	52					
92-BB-5D	0.20	65	<1	0.01	6	680	8	<2	2	12	0.03	<10	<10	25	<10	34					
92-BB-8D	0.25	90	<1	0.01	4	450	<2	<2	2	26	0.05	<10	<10	16	<10	14					
92-BB-9D	0.50	470	<1	<0.01	12	1790	8	<2	2	22	0.07	<10	<10	38	<10	66					
92-BB-10D	0.25	90	<1	<0.01	6	330	4	<2	1	17	0.06	<10	<10	37	<10	24					
92-BB-11D	0.56	385	<1	<0.01	12	1520	10	<2	3	25	0.09	<10	<10	40	10	110					
92-BB-12D	0.36	170	<1	<0.01	9	2470	8	<2	2	25	0.07	<10	<10	35	<10	124					
92-BB-13D	0.27	95	<1	0.01	6	600	4	<2	2	33	0.06	<10	<10	23	<10	14					
92-BB-14D	0.18	105	<1	0.01	3	720	2	<2	2	38	0.04	20	<10	18	<10	8					
92-BB-15D	0.39	135	<1	0.01	12	990	10	<2	3	33	0.08	10	<10	38	<10	32					
92-BB-16D	0.47	125	<1	0.01	10	340	6	<2	3	28	0.13	10	<10	58	<10	30					
92-BB-17D	0.18	70	<1	<0.01	4	730	6	<2	2	17	0.05	<10	<10	23	<10	28					
92-BB-18D	0.64	540	<1	0.01	20	2740	12	<2	4	36	0.10	<10	<10	55	<10	118					
92-BB-19D	0.76	215	<1	<0.01	14	370	6	<2	3	18	0.13	<10	<10	46	<10	44					
92-BB-20D	0.23	70	<1	<0.01	6	450	4	<2	1	15	0.03	<10	<10	14	<10	12					
92-BB-21D	0.47	105	<1	<0.01	8	280	2	<2	1	10	0.03	<10	<10	29	<10	18					
92-BB-22D	0.30	100	<1	<0.01	6	1600	8	<2	1	10	0.03	<10	<10	22	<10	48					
92-BB-24D	0.56	365	<1	0.01	17	530	8	<2	3	29	0.11	10	<10	30	<10	42					
92-BB-25D	0.36	120	<1	0.01	8	510	6	<2	2	22	0.08	<10	<10	29	<10	26					
92-BB-26D	0.44	125	<1	0.01	10	700	6	<2	2	23	0.07	10	<10	28	<10	22					
92-BB-27D	0.23	70	<1	<0.01	5	340	6	<2	1	14	0.05	<10	<10	17	<10	14					
92-BB-28D	0.26	155	<1	0.01	10	720	8	<2	2	33	0.04	10	<10	17	<10	38					
92-BB-29D	0.43	115	<1	0.01	9	630	8	<2	3	19	0.08	10	<10	31	<10	38					
92-BB-30D	0.48	180	<1	0.03	14	510	6	<2	4	82	0.09	10	<10	33	<10	32					
92-BB-31D	0.19	85	<1	0.01	4	630	6	<2	2	21	0.05	10	<10	23	<10	12					
92-BB-32D	0.12	40	<1	<0.01	3	140	4	<2	1	13	0.03	10	<10	12	<10	12					
92-BB-33D	0.24	70	<1	<0.01	7	220	4	<2	2	23	0.06	<10	<10	21	<10	16					
92-BB-34D	0.74	270	<1	0.03	16	510	8	<2	7	74	0.12	20	<10	43	10	50					
92-BB-36D	0.52	150	<1	0.02	16	600	6	<2	3	35	0.09	10	<10	34	<10	26					
92-BB-37D	0.24	140	<1	0.01	8	550	6	<2	2	17	0.07	10	<10	23	<10	72					
92-BB-38D	0.25	85	<1	<0.01	7	150	10	<2	2	18	0.09	10	<10	22	<10	20					
92-BB-39D	0.32	135	<1	0.02	7	580	2	<2	4	46	0.10	10	<10	26	<10	20					
92-BB-40D	0.39	120	1	0.01	10	970	12	<2	3	20	0.09	10	<10	31	<10	50					
92-BB-41D	0.25	95	1	0.01	13	170	10	<2	4	21	0.09	10	<10	27	<10	22					
92-BB-42D	0.24	75	<1	<0.01	7	180	4	<2	2	18	0.06	10	<10	18	<10	12					
92-BB-43D	0.22	80	<1	<0.01	7	760	18	<2	3	17	0.07	10	<10	29	<10	40					
92-BB-44D	0.23	95	<1	<0.01	7	2020	8	<2	2	21	0.04	10	<10	23	<10	44					
92-BB-45D	0.33	125	<1	0.01	8	430	6	<2	3	32	0.09	<10	<10	24	<10	18					
92-BB-46D	0.39	135	<1	0.01	7	520	8	<2	3	31	0.09	<10	<10	25	<10	20					
92-BB-47D	0.42	135	<1	<0.01	12	210	8	<2	3	23	0.11	<10	<10	31	<10	44					
92-BB-48D	0.35	130	<1	0.01	12	570	6	<2	3	28	0.09	<10	<10	31	<10	28					
92-BB-49D	0.33	110	<1	<0.01	10	620	8	<2	2	17	0.08	<10	<10	29	<10	34					

Appendix B

GEOCHEMISTRY		<63 µm fraction										>63 µm fraction									
Sample Number	Mg (%)	Mn (ppm)	Mo (ppm)	Na (%)	Ni (ppm)	P (ppm)	Pb (ppm)	Sb (ppm)	Sc (ppm)	Sr (ppm)	Ti (ppm)	Tl (ppm)	U (ppm)	V (ppm)	W (ppm)	Zn (ppm)					
92-BJ-B-50D	0.32	125	<1	0.01	10	680	10	<2	2	18	0.07	<10	<10	32	<10	24					
92-BJ-B-51D	0.27	100	<1	<0.01	6	240	6	<2	2	15	0.07	<10	<10	23	<10	38					
92-BJ-B-52D	0.17	100	<1	<0.01	4	430	4	<2	1	15	0.04	<10	<10	17	<10	16					
92-BJ-B-53D	0.20	80	<1	<0.01	5	990	4	<2	2	14	0.04	<10	<10	20	<10	40					
92-BJ-B-54D	0.17	65	<1	<0.01	6	180	4	<2	1	15	0.06	<10	<10	20	<10	8					
92-BJ-B-55D	0.36	130	<1	0.01	12	1070	8	<2	3	18	0.08	<10	<10	32	<10	26					
92-BJ-B-56D	0.09	45	<1	<0.01	2	90	2	<2	1	12	0.04	<10	<10	12	<10	6					
92-BJ-B-57D	0.13	55	1	<0.01	3	610	6	<2	1	11	0.03	<10	<10	15	<10	24					
92-BJ-B-58D	0.20	75	<1	<0.01	7	1120	8	<2	2	23	0.06	<10	<10	25	<10	20					
92-BJ-B-59D	0.35	150	<1	0.01	8	330	8	<2	3	31	0.09	<10	<10	28	<10	26					
92-BJ-B-60D	0.14	65	<1	<0.01	4	190	2	<2	1	16	0.04	<10	<10	15	<10	6					
92-BJ-B-61D	0.16	85	<1	<0.01	3	230	2	<2	2	20	0.05	<10	<10	15	<10	8					
92-BJ-B-62D	0.36	195	<1	0.01	9	1500	10	<2	3	30	0.07	<10	<10	31	<10	44					
92-BJ-B-64D	0.16	65	<1	<0.01	2	740	4	<2	2	13	0.04	<10	<10	17	<10	14					
92-BJ-B-65D	0.14	50	<1	<0.01	7	210	2	<2	1	10	0.03	<10	<10	19	<10	14					
92-BJ-B-66D	0.09	40	<1	<0.01	2	100	4	<2	1	11	0.03	<10	<10	8	<10	6					
92-BJ-B-66b-D	0.18	80	<1	<0.01	3	1790	6	<2	1	17	0.04	<10	<10	22	<10	14					
92-BJ-B-67D	0.30	140	<1	0.01	8	1040	4	<2	2	25	0.07	<10	<10	25	<10	24					
92-BJ-B-68D	0.45	195	<1	0.01	12	710	6	<2	3	32	0.10	<10	<10	32	<10	30					
92-BJ-B-69D	0.22	100	<1	<0.01	5	370	6	<2	2	19	0.06	<10	<10	23	<10	40					
92-BJ-B-70D	0.34	115	<1	<0.01	8	240	4	<2	3	21	0.09	<10	<10	26	<10	24					
92-BJ-B-71D	0.20	65	<1	<0.01	4	980	6	<2	2	15	0.04	<10	<10	24	<10	26					
92-BJ-B-72D	0.14	60	<1	<0.01	3	60	<2	<2	1	21	0.06	<10	<10	16	<10	6					
92-BJ-B-73D	0.28	125	<1	0.01	8	450	8	<2	4	26	0.08	<10	<10	26	<10	16					
92-BJ-B-74D	0.40	130	<1	0.01	8	230	4	<2	3	30	0.10	<10	<10	28	<10	26					
92-BJ-B-75D	0.30	125	3	0.01	8	1000	8	<2	3	24	0.08	<10	<10	26	<10	20					
92-BJ-B-76D	0.38	120	<1	0.01	13	180	6	<2	3	24	0.11	<10	<10	32	<10	20					
92-BJ-B-77D	0.20	60	<1	<0.01	7	130	4	<2	1	11	0.04	<10	<10	19	<10	12					
92-BJ-B-78D	0.11	45	<1	<0.01	2	130	4	<2	1	9	0.03	<10	<10	15	<10	6					
92-BJ-B-79D	0.22	100	<1	0.01	6	460	6	<2	2	23	0.05	<10	<10	19	<10	16					
92-BJ-B-80D	0.18	70	<1	<0.01	4	110	6	<2	2	20	0.06	<10	<10	18	<10	12					
92-BJ-B-81D	0.29	100	<1	<0.01	10	440	6	<2	4	15	0.07	<10	<10	30	<10	20					
92-BJ-B-82D	0.37	120	<1	<0.01	7	480	14	<2	3	23	0.11	<10	<10	37	<10	24					
92-BJ-B-83D	0.23	85	<1	<0.01	9	240	6	<2	2	16	0.07	<10	<10	24	<10	16					
92-BJ-B-84D	0.18	60	<1	<0.01	4	120	4	<2	2	12	0.05	<10	<10	16	<10	10					
92-BJ-B-85D	0.13	45	<1	<0.01	2	80	4	<2	1	18	0.04	<10	<10	13	<10	6					
92-BJ-B-86D	0.21	75	<1	<0.01	6	140	4	<2	2	15	0.06	<10	<10	21	<10	18					
92-BJ-B-87D	0.18	60	<1	<0.01	3	130	2	<2	1	16	0.04	<10	<10	14	<10	14					
92-BJ-B-88D	0.16	60	<1	<0.01	3	90	6	<2	2	16	0.06	<10	<10	19	<10	12					
92-BJ-B-89D	0.17	60	<1	0.01	3	510	4	<2	3	15	0.04	<10	<10	16	<10	10					
92-BJ-B-90D	0.12	55	<1	<0.01	2	200	4	<2	2	18	0.04	<10	<10	14	<10	6					
92-BJ-B-91D	0.42	160	<1	0.01	11	400	12	<2	4	18	0.08	<10	<10	25	<10	28					
92-BJ-B-92D	0.20	80	<1	<0.01	4	220	4	<2	3	17	0.07	<10	<10	19	<10	14					
92-BJ-B-93D	0.21	95	<1	0.01	5	550	8	<2	2	19	0.05	<10	<10	19	<10	14					
92-BJ-B-94D	0.12	60	<1	0.01	3	300	6	<2	2	14	0.04	<10	<10	14	<10	8					
92-BJ-B-95D	0.14	50	<1	<0.01	4	210	4	<2	1	12	0.04	<10	<10	15	<10	8					

Appendix B

GEOCHEMISTRY		<63 µm fraction																			
Sample Number	Mg (%)	Mn (ppm)	Mo (ppm)	Na (%)	Ni (ppm)	P (ppm)	Pb (ppm)	Sb (ppm)	Sc (ppm)	Sr (ppm)	Ti (%)	Tl (ppm)	U (ppm)	V (ppm)	W (ppm)	Zn (ppm)					
92-BJB-96D	0.11	55	<1	<0.01	4	730	6	<2	1	14	0.03	<10	<10	14	<10	6					
92-BJB-97D	0.32	100	<1	0.01	1.1	140	14	<2	3	18	0.08	<10	<10	26	<10	18					
92-BJB-98D	0.26	90	3	0.01	8	630	8	2	3	21	0.06	<10	<10	25	<10	24					
92-BJB-100D	0.18	55	<1	<0.01	5	140	6	<2	1	10	0.05	<10	<10	22	<10	20					
92-BJB-101D	0.29	100	<1	<0.01	7	830	8	2	3	16	0.07	<10	<10	24	<10	24					
92-BJB-102D	0.21	85	<1	0.01	5	640	6	<2	3	20	0.06	<10	<10	21	<10	18					
92-BJB-103D	0.20	85	<1	0.01	5	4610	8	<2	3	20	0.03	<10	<10	19	<10	14					
92-BJB-104D	0.18	70	<1	0.01	5	220	4	<2	2	18	0.05	<10	<10	14	<10	8					
92-BJB-105D	0.26	120	<1	<0.01	6	190	4	2	2	14	0.04	<10	<10	24	<10	50					
92-BJB-106D	0.12	30	<1	<0.01	3	60	2	<2	1	15	0.02	<10	<10	13	<10	6					
92-BJB-107D	0.22	45	<1	<0.01	5	70	<2	<2	1	10	0.02	<10	<10	16	<10	8					
92-BJB-108D	0.03	35	<1	<0.01	1	100	<2	<2	<1	6	0.01	<10	<10	6	<10	4					
92-BJB-2K	0.19	90	<1	0.01	6	490	2	<2	2	29	0.06	<10	<10	17	<10	10					
92-BJB-3K	0.25	100	<1	0.01	4	280	2	<2	2	25	0.06	<10	<10	19	<10	14					
92-BJB-4K	0.15	70	<1	<0.01	3	210	6	<2	3	17	0.06	<10	<10	17	<10	8					
Duplicate Samples																					
*92-BJB-8D	0.26	105	<1	0.01	4	440	2	<2	2	33	0.06	<10	<10	17	<10	16					
*92-BJB-19D	0.80	245	<1	0.01	13	360	6	2	4	32	0.17	<10	<10	51	<10	48					
*92-BJB-32D	0.13	45	<1	<0.01	3	140	2	<2	1	17	0.04	<10	<10	13	<10	14					
*92-BJB-43D	0.24	85	1	0.01	7	790	18	2	3	18	0.07	<10	<10	30	<10	44					
*92-BJB-56D	0.11	60	<1	<0.01	2	90	2	<2	1	19	0.06	<10	<10	14	<10	8					
*92-BJB-70D	0.36	120	<1	<0.01	8	240	4	<2	3	20	0.09	<10	<10	26	<10	26					
*92-BJB-84D	0.16	40	<1	<0.01	3	100	2	<2	1	7	0.03	<10	<10	12	<10	8					
*92-BJB-97D	0.30	85	1	<0.01	11	130	14	<2	3	12	0.07	<10	<10	23	<10	18					
*92-BJB-107D	0.20	40	<1	<0.01	4	70	2	<2	1	7	0.02	<10	<10	13	<10	8					
SEA Std.	0.87	865	<1	0.01	38	590	22	2	9	10	0.10	<10	<10	50	<10	114					

1992 SAMPLE ANALYSIS											
GEOCHEMISTRY <2 µm fraction											
Sample Number	Ag (ppm)	Al (%)	As (ppm)	Ba (ppm)	Ba (ppm)	Bi (ppm)	Ca (%)	Cd (ppm)	Co (ppm)	Cu (ppm)	Cr (ppm)
92-BJB-1D	<0.2	5.84	24	490	<0.5	4	0.23	<0.5	22	100	48
92-BJB-2D	<0.2	4.05	38	320	<0.5	2	0.37	0.5	29	83	55
92-BJB-3D	<0.2	3.13	4	150	<0.5	6	6.42	<0.5	12	56	31
92-BJB-4D	<0.2	3.12	8	770	<0.5	6	1.36	<0.5	13	47	48
92-BJB-7D	0.2	2.82	2	110	<0.5	<2	0.10	<0.5	2	54	21
92-BJB-8D	<0.2	4.12	<2	150	<0.5	<2	0.38	<0.5	16	64	28
92-BJB-9D	<0.4	>15.00	<2	260	<1.0	4	0.34	<1	20	122	50
92-BJB-10D	<0.2	5.32	6	110	<0.5	6	0.18	<0.5	5	43	13
92-BJB-11D	<0.2	6.27	<2	240	<0.5	<2	0.26	<0.5	13	63	15
92-BJB-12D	0.2	6.27	<2	400	<0.5	2	0.27	<0.5	16	54	17
92-BJB-13D	<0.2	5.07	8	130	<0.5	4	0.26	<0.5	11	54	29
92-BJB-14D	<0.2	3.48	78	120	<0.5	2	0.33	<0.5	12	51	37
92-BJB-15D	<0.2	6.37	44	140	0.5	2	0.36	<0.5	14	65	35
92-BJB-16D	<0.2	8.22	22	120	<0.5	12	0.13	<0.5	16	70	16
92-BJB-17D	<0.2	7.62	2	140	<0.5	<2	0.11	<0.5	5	36	19
92-BJB-18D	<0.2	6.18	24	210	<0.5	<2	0.30	<0.5	9	70	25
92-BJB-19D	<0.2	5.23	<2	110	<0.5	6	0.27	<0.5	11	58	15
92-BJB-20D	<0.2	3.97	<2	110	<0.5	4	0.29	<0.5	10	43	11
92-BJB-21D	<0.2	5.48	<2	90	<0.5	6	0.15	<0.5	12	48	29
92-BJB-22D	<0.2	5.54	<2	90	<0.5	<2	0.18	<0.5	8	37	17
92-BJB-24D	<0.2	4.61	<2	180	<0.5	2	0.29	<0.5	26	93	16
92-BJB-25D	<0.2	5.65	<2	70	<0.5	2	0.26	<0.5	13	45	30
92-BJB-26D	<0.2	5.71	<2	80	<0.5	<2	0.50	<0.5	20	64	42
92-BJB-27D	<0.2	5.95	<2	120	<0.5	2	0.24	<0.5	15	59	25
92-BJB-28D	<0.2	2.15	<2	240	<0.5	<2	0.53	<0.5	8	35	22
92-BJB-29D	<0.2	7.57	<2	120	<0.5	8	0.15	<0.5	12	46	19
92-BJB-30D	<0.2	3.33	<2	160	<0.5	4	0.43	<0.5	12	52	19
92-BJB-31D	<0.2	5.11	4	120	<0.5	2	0.40	<0.5	18	82	33
92-BJB-32D	<0.2	6.18	10	140	<0.5	2	0.10	<0.5	5	33	20
92-BJB-33D	<0.2	7.06	20	150	<0.5	<2	0.08	<0.5	8	41	16
92-BJB-34D	<0.2	3.05	<2	200	<0.5	6	0.50	<0.5	9	45	20
92-BJB-36D	<0.2	6.49	20	180	<0.5	2	0.45	<0.5	21	101	64
92-BJB-37D	<0.2	5.20	<2	160	<0.5	2	0.17	<0.5	12	29	15
92-BJB-38D	<0.2	6.30	<2	110	<0.5	10	0.23	<0.5	16	43	18
92-BJB-39D	<0.2	3.04	<2	160	<0.5	<2	0.69	<0.5	13	57	17
92-BJB-40D	<0.2	6.47	4	100	<0.5	2	0.21	<0.5	13	47	34
92-BJB-41D	<0.2	6.70	6	80	<0.5	6	0.19	<0.5	22	58	34
92-BJB-42D	<0.2	6.27	4	110	<0.5	2	0.22	<0.5	16	63	41
92-BJB-43D	<0.2	5.69	<2	150	<0.5	2	0.16	<0.5	7	43	20
92-BJB-44D	<0.2	5.60	<2	180	<0.5	<2	0.26	<0.5	8	44	14
92-BJB-45D	0.2	5.29	<2	260	<0.5	4	0.45	<0.5	19	81	93
92-BJB-46D	<0.4	8.82	<2	2	<1.0	<4	0.60	4	34	370	62
92-BJB-47D	<0.2	6.76	<2	160	<0.5	2	0.31	<0.5	18	75	64
92-BJB-48D	<0.2	6.61	4	200	<0.5	<2	0.35	<0.5	18	47	21
92-BJB-49D	<0.2	6.61	4	130	<0.5	4	0.18	<0.5	13	41	34

Appendix C

GEOCHEMISTRY		<2 µm fraction															
Sample Number	Ag (ppm)	Al (%)	As (ppm)	Ba (ppm)	Be (ppm)	Bi (ppm)	Ca (%)	Cd (ppm)	Co (ppm)	Cr (ppm)	Cu (ppm)	Fe (%)	Ga (ppm)	Hg (ppm)	K (%)	La (ppm)	
92-BJB-50D	0.4	11.40	2	<1.0	4	0.40	<1.0	34	260	68	8.22	40	2	0.32	80		
92-BJB-51D	<0.2	5.47	<2	110	<0.5	<2	0.17	<0.5	12	44	25	5.55	20	<1	0.08	30	
92-BJB-52D	<0.2	4.51	4	110	<0.5	<2	0.25	<0.5	12	38	16	3.65	10	1	0.09	20	
92-BJB-53D	<0.2	5.85	6	150	<0.5	<2	0.17	<0.5	7	37	52	3.73	20	<1	0.15	60	
92-BJB-54D	<0.2	5.70	18	100	<0.5	<2	0.23	<0.5	14	49	20	5.34	10	1	0.19	20	
92-BJB-55D	<0.2	6.94	16	110	<0.5	<2	0.31	<0.5	18	136	38	4.98	20	<1	0.25	50	
92-BJB-56D	<0.2	4.13	2	80	<0.5	<2	0.18	<0.5	7	37	13	3.47	10	<1	0.12	20	
92-BJB-57D	<0.2	5.53	6	110	<0.5	<2	0.14	<0.5	5	32	14	3.41	20	<1	0.11	30	
92-BJB-58D	<0.2	5.25	2	110	<0.5	<2	0.19	<0.5	9	30	11	3.82	20	1	0.13	20	
92-BJB-59D	<0.2	5.39	4	130	<0.5	<2	0.41	<0.5	13	49	23	4.33	20	<1	0.23	30	
92-BJB-60D	<0.2	6.85	6	80	<0.5	2	0.14	<0.5	15	47	14	4.79	10	<1	0.16	20	
92-BJB-61D	<0.2	6.87	6	120	<0.5	<2	0.17	<0.5	12	63	13	5.82	20	<1	0.14	30	
92-BJB-62D	0.2	5.34	14	160	<0.5	4	0.39	<0.5	15	79	30	5.06	20	<1	0.37	40	
92-BJB-64D	<0.2	5.83	8	100	<0.5	<2	0.14	<0.5	4	30	18	3.34	10	<1	0.10	40	
92-BJB-65D	0.2	6.18	4	80	<0.5	4	0.09	<0.5	7	87	22	4.88	10	1	0.08	30	
92-BJB-66D	<0.2	2.90	2	100	<0.5	<2	0.18	<0.5	6	27	7	2.08	20	<1	0.12	20	
92-BJB-66b-D	<0.2	4.80	6	160	<0.5	6	0.17	<0.5	9	43	13	5.24	20	<1	0.18	20	
92-BJB-67D	<0.2	5.57	4	190	<0.5	<2	0.32	<0.5	11	41	17	4.05	20	<1	0.20	40	
92-BJB-68D	<0.2	7.10	8	180	<0.5	4	0.32	<0.5	17	59	73	4.86	30	<1	0.22	140	
92-BJB-69D	<0.2	5.61	2	170	<0.5	2	0.16	<0.5	9	33	14	4.23	20	<1	0.12	20	
92-BJB-70D	<0.2	6.93	10	110	<0.5	6	0.26	<0.5	14	55	42	4.83	20	<1	0.12	70	
92-BJB-71D	<0.2	6.53	4	110	<0.5	2	0.11	<0.5	7	32	16	4.23	20	<1	0.10	60	
92-BJB-72D	<0.2	4.30	4	50	<0.5	4	0.15	<0.5	4	29	10	3.35	10	<1	0.07	20	
92-BJB-73D	0.2	7.37	10	210	<0.5	<2	0.45	<0.5	27	61	68	4.74	30	<1	0.51	100	
92-BJB-74D	0.2	6.02	12	130	<0.5	6	0.29	<0.5	14	58	27	4.85	20	<1	0.16	30	
92-BJB-75D	<0.2	5.75	4	90	<0.5	<2	0.25	<0.5	9	41	28	3.43	20	<1	0.15	80	
92-BJB-76D	<0.2	6.86	8	90	<0.5	<2	0.25	<0.5	17	66	35	4.81	10	<1	0.19	30	
92-BJB-77D	<0.2	6.25	6	90	<0.5	6	0.13	<0.5	10	57	23	4.67	20	<1	0.08	30	
92-BJB-78D	<0.2	5.27	6	70	<0.5	<2	0.15	<0.5	9	39	11	3.81	10	1	0.09	10	
92-BJB-79D	<0.2	4.44	10	160	<0.5	<2	0.51	<0.5	21	76	47	4.07	20	1	0.47	40	
92-BJB-80D	<0.2	4.58	<2	110	<0.5	4	0.18	<0.5	7	41	12	3.70	10	<1	0.08	30	
92-BJB-81D	<0.2	7.56	86	80	<0.5	6	0.18	<0.5	17	167	60	5.13	30	<1	0.18	90	
92-BJB-82D	<0.2	5.99	14	120	<0.5	6	0.14	<0.5	9	49	19	6.03	30	<1	0.10	30	
92-BJB-83D	<0.2	6.45	28	100	<0.5	6	0.21	<0.5	17	103	56	5.83	20	<1	0.14	30	
92-BJB-84D	<0.2	5.49	2	40	<0.5	4	0.17	<0.5	7	52	35	4.87	20	<1	0.08	40	
92-BJB-85D	<0.2	6.55	6	80	<0.5	4	0.13	<0.5	9	47	17	4.61	20	<1	0.16	30	
92-BJB-86D	<0.2	6.37	14	120	<0.5	2	0.18	<0.5	12	62	26	5.40	20	<1	0.15	40	
92-BJB-87D	<0.2	5.55	4	80	<0.5	<2	0.13	<0.5	7	47	15	3.48	20	1	0.10	40	
92-BJB-88D	<0.2	6.38	16	80	<0.5	<2	0.13	<0.5	10	48	27	4.62	20	<1	0.12	30	
92-BJB-89D	0.2	5.56	6	100	<0.5	4	0.17	<0.5	7	52	17	2.84	20	<1	0.13	60	
92-BJB-90D	<0.2	5.60	6	70	<0.5	4	0.20	<0.5	11	56	21	5.09	20	<1	0.10	30	
92-BJB-91D	0.2	6.57	8	100	<0.5	2	0.25	<0.5	17	91	42	5.71	30	<1	0.28	60	
92-BJB-92D	<0.2	5.92	8	80	<0.5	2	0.35	<0.5	10	49	17	3.69	20	<1	0.12	70	
92-BJB-93D	<0.2	6.19	4	140	<0.5	6	0.51	<0.5	22	66	26	5.27	20	<1	0.40	30	
92-BJB-94D	<0.2	5.35	6	170	<0.5	2	0.5	<0.5	19	42	29	3.60	20	<1	0.54	30	
92-BJB-95D	<0.2	6.66	<2	110	<0.5	4	0.08	<0.5	7	44	23	3.96	20	1	0.09	30	

Appendix C

GEOCHEMISTRY		<2 µm fraction														
Sample Number	Ag (ppm)	Al (%)	As (ppm)	Ba (ppm)	Be (ppm)	Bi (ppm)	Ca (%)	Cd (ppm)	Co (ppm)	Cr (ppm)	Cu (ppm)	Fe (%)	Ga (ppm)	Hg (ppm)	K (%)	La (ppm)
92-BJB-96D	0.6	5.85	10	40	<0.5	<2	0.21	<0.5	4	34	23	3.13	10	<1	0.09	60
92-BJB-97D	<0.2	6.31	12	120	<0.5	6	0.20	<0.5	18	70	56	5.29	10	<1	0.52	20
92-BJB-98D	<0.2	7.13	18	150	<0.5	6	0.19	<0.5	12	53	33	4.48	20	<1	0.17	40
92-BJB-100D	<0.2	7.47	6	110	<0.5	10	0.09	<0.5	11	81	22	5.31	30	<1	0.12	40
92-BJB-101D	<0.2	6.61	20	100	<0.5	6	0.19	<0.5	12	67	45	3.98	30	<1	0.16	140
92-BJB-102D	<0.2	6.96	16	100	<0.5	<2	0.21	<0.5	9	63	42	4.76	30	<1	0.17	90
92-BJB-103D	<0.2	4.20	2	210	<0.5	4	0.23	<0.5	3	73	15	3.10	10	1	0.08	30
92-BJB-104D	<0.2	6.79	20	110	<0.5	6	0.18	<0.5	11	57	37	4.01	20	<1	0.14	50
92-BJB-105D	<0.2	6.64	4	170	<0.5	2	0.14	<0.5	9	35	21	3.87	20	<1	0.08	20
92-BJB-106D	<0.2	6.15	6	90	<0.5	<2	0.03	<0.5	8	46	8	4.26	10	<1	0.12	20
92-BJB-107D	<0.2	4.95	<2	80	<0.5	<2	0.07	<0.5	8	90	14	3.70	20	<1	0.13	20
92-BJB-2K	<0.2	5.25	<2	80	<0.5	2	0.30	<0.5	17	51	34	3.91	20	<1	0.16	60
92-BJB-3K	<0.2	2.80	<2	30	<0.5	4	0.27	<0.5	6	42	17	2.78	10	<1	0.11	30
92-BJB-4K	<0.2	3.99	10	30	<0.5	4	0.13	<0.5	7	43	24	3.16	10	<1	0.10	40

Appendix C

GEOCHEMISTRY		<2 µm fraction																			
Sample Number	Mg (%)	Mn (ppm)	Mo (ppm)	Na (%)	Ni (ppm)	P (ppm)	Pb (ppm)	Sb (ppm)	Sc (ppm)	Sr (ppm)	Ti (%)	Tl (ppm)	U (ppm)	V (ppm)	W (ppm)	Zn (ppm)					
92-BJB-1D	0.88	485	2	1.00	93	6160	26	<2	21	50	0.01	<10	<10	147	<10	210					
92-BJB-2D	0.80	775	1	0.86	102	5630	42	2	22	53	0.01	<10	<10	126	<10	164					
92-BJB-3D	2.53	400	1	0.45	33	1800	28	<2	8	68	0.10	<10	<10	58	<10	92					
92-BJB-4D	1.17	360	<1	0.35	42	1990	12	2	10	65	0.02	<10	<10	71	<10	108					
92-BJB-7D	0.38	130	3	0.97	19	8080	18	<2	4	18	0.06	<10	<10	67	<10	104					
92-BJB-8D	1.22	320	<1	0.99	27	5210	14	<2	11	62	0.13	<10	<10	81	<10	78					
92-BJB-9D	0.84	2000	6	3.26	66	>10000	20	<4	8	42	0.26	<20	<20	148	<10	212					
92-BJB-10D	0.60	145	3	0.59	17	5020	14	4	4	37	0.18	<10	<10	147	<10	74					
92-BJB-11D	0.93	795	1	0.93	33	>10000	22	2	6	41	0.07	<10	<10	90	<10	256					
92-BJB-12D	0.65	715	<1	1.01	24	>10000	23	<2	5	40	0.12	<10	<10	82	<10	414					
92-BJB-13D	0.90	165	<1	0.80	26	4630	26	<2	8	57	0.07	<10	<10	88	<10	52					
92-BJB-14D	0.97	370	2	1.20	27	7580	27	2	12	89	0.07	<10	<10	65	<10	52					
92-BJB-15D	0.68	305	3	0.85	41	>10000	41	<2	6	46	0.06	<10	<10	124	<10	98					
92-BJB-16D	0.54	105	5	0.75	28	7450	28	<2	4	24	0.18	<10	<10	203	<10	52					
92-BJB-17D	0.46	140	3	0.70	14	10900	14	<2	6	34	0.14	<10	<10	60	<10	102					
92-BJB-18D	0.71	1425	2	1.09	28	>10000	28	<2	5	34	0.13	<10	<10	94	<10	222					
92-BJB-19D	1.18	420	3	0.91	29	7280	29	<2	7	38	0.14	<10	<10	115	<10	84					
92-BJB-20D	0.89	210	1	0.56	24	3500	24	<2	6	54	0.10	<10	<10	60	<10	52					
92-BJB-21D	1.19	230	6	0.70	24	5110	24	<2	6	28	0.09	<10	<10	129	<10	58					
92-BJB-22D	0.66	265	1	0.55	20	>10000	20	<2	5	30	0.09	<10	<10	64	<10	158					
92-BJB-24D	1.29	1460	2	0.93	39	6070	18	<2	7	41	0.11	<10	<10	76	<10	116					
92-BJB-25D	0.83	245	1	0.51	28	4300	16	<2	6	37	0.14	<10	<10	88	<10	68					
92-BJB-26D	1.54	345	1	0.51	39	4320	14	<2	9	48	0.15	<10	<10	109	<10	76					
92-BJB-27D	1.03	225	2	0.78	31	4890	14	<2	7	30	0.10	<10	<10	104	<10	78					
92-BJB-28D	0.52	305	1	1.27	21	>10000	8	<2	6	70	0.07	<10	<10	46	<10	80					
92-BJB-29D	0.93	190	4	0.54	21	7260	16	<2	8	39	0.15	<10	<10	92	<10	98					
92-BJB-30D	1.14	310	<1	0.48	31	1820	12	<2	9	119	0.12	<10	<10	70	<10	74					
92-BJB-31D	0.80	345	3	0.75	39	8480	24	<2	7	41	0.11	<10	<10	87	<10	72					
92-BJB-32D	0.48	85	3	0.56	15	3900	18	<2	4	34	0.03	<10	<10	51	<10	60					
92-BJB-33D	0.63	110	1	0.43	22	3550	16	<2	6	39	0.07	<10	<10	61	<10	46					
92-BJB-34D	1.17	330	<1	0.35	25	1800	8	<2	9	85	0.13	<10	<10	63	<10	72					
92-BJB-35D	1.43	345	2	0.67	53	5610	20	<2	9	62	0.21	<10	<10	100	<10	62					
92-BJB-36D	0.50	430	3	0.74	19	8340	16	<2	4	29	0.11	<10	<10	61	<10	166					
92-BJB-37D	0.74	175	3	0.67	38	5540	32	<2	8	40	0.17	<10	<10	93	<10	46					
92-BJB-38D	0.74	190	4	0.53	26	3440	36	<2	6	33	0.15	<10	<10	97	<10	74					
92-BJB-39D	1.08	285	3	0.58	25	2770	10	<2	11	68	0.18	<10	<10	76	<10	74					
92-BJB-40D	0.72	255	6	0.57	26	9610	28	<2	9	31	0.16	<10	<10	90	<10	134					
92-BJB-41D	0.61	160	4	0.52	38	5340	18	<2	10	27	0.18	<10	<10	90	<10	60					
92-BJB-42D	0.74	460	16	3.20	70	>10000	14	<2	4	29	0.11	<10	<10	61	<10	116					
92-BJB-43D	0.45	140	3	0.85	19	8740	86	<2	6	27	0.11	<10	<10	68	<10	188					
92-BJB-44D	0.63	240	3	0.54	18	9310	12	<2	6	40	0.10	<10	<10	58	<10	132					
92-BJB-45D	1.11	270	1	0.96	44	4730	16	<2	12	56	0.12	<10	<10	91	10	70					
92-BJB-46D	2.10	460	4	0.89	43	7360	20	<2	8	41	0.19	<10	<10	108	20	128					
92-BJB-47D	1.11	295	4	0.60	37	5740	20	<2	7	48	0.16	<10	<10	82	20	76					
92-BJB-48D	0.80	235	2	0.69	27	9080	18	<2	6	39	0.15	<10	<10	96	10	86					
92-BJB-49D	0.63	205	4	0.69	27																

Appendix C

GEOCHEMISTRY		<2 µm fraction															
Sample Number	Mg (%)	Mn (ppm)	Mo (ppm)	Na (%)	Ni (ppm)	P (ppm)	Pb (ppm)	Sb (ppm)	Sc (ppm)	Sr (ppm)	Ti (%)	Tl (ppm)	U (ppm)	V (ppm)	W (ppm)	Zn (ppm)	
92-BJB-50D	1.20	540	16	2.60	80	>10000	20	<4	10	44	0.26	<20	<20	120	20	128	
92-BJB-51D	0.79	265	4	0.56	24	4450	18	<2	5	25	0.11	<10	<10	96	10	130	
92-BJB-52D	0.66	300	2	0.44	16	3120	12	<2	69	30	0.06	<10	<10	59	10	66	
92-BJB-53D	0.54	215	4	0.73	19	>10000	12	<2	7	29	0.10	<10	<10	68	10	130	
92-BJB-54D	0.65	160	5	0.68	30	4180	18	2	5	42	0.15	<10	<10	91	10	30	
92-BJB-55D	0.73	255	5	1.20	52	>10000	20	<2	9	38	0.07	<10	<10	81	20	60	
92-BJB-56D	0.49	110	<1	0.71	14	3110	10	2	4	33	0.07	<10	<10	69	10	46	
92-BJB-57D	0.34	115	4	0.80	16	>10000	6	<2	3	25	0.10	<10	<10	53	10	84	
92-BJB-58D	0.39	90	2	0.57	14	6840	16	<2	4	42	0.07	<10	<10	57	10	58	
92-BJB-59D	0.85	290	4	0.86	30	7140	20	<2	6	50	0.13	<10	<10	90	10	62	
92-BJB-60D	0.69	175	2	0.67	33	4930	12	<2	6	36	0.12	<10	<10	84	10	30	
92-BJB-61D	0.61	255	3	0.88	21	7520	14	2	9	40	0.17	<10	<10	109	<10	32	
92-BJB-62D	0.88	530	2	1.05	37	>10000	26	<2	7	51	0.13	<10	<10	85	<10	108	
92-BJB-64D	0.39	180	4	0.59	10	9390	12	<2	6	27	0.10	<10	<10	58	<10	56	
92-BJB-65D	0.36	110	7	0.68	26	6310	16	2	4	21	0.08	<10	<10	81	<10	46	
92-BJB-66D	0.49	140	1	0.89	10	4120	10	<2	3	33	0.03	<10	<10	35	<10	48	
92-BJB-66b-D	0.59	200	4	0.74	15	>10000	24	<2	4	38	0.08	<10	<10	78	<10	50	
92-BJB-67D	0.71	360	2	0.62	24	9050	14	<2	6	46	0.12	<10	<10	68	<10	72	
92-BJB-68D	0.95	450	3	0.58	39	6260	28	2	8	48	0.15	<10	<10	91	10	68	
92-BJB-69D	0.50	210	3	0.58	19	5100	18	<2	4	31	0.09	<10	<10	70	<10	124	
92-BJB-70D	0.86	2450	3	0.47	29	4210	20	<2	9	42	0.20	<10	<10	90	<10	64	
92-BJB-71D	0.41	135	4	0.62	11	9190	22	<2	6	25	0.10	<10	<10	70	<10	78	
92-BJB-72D	0.52	95	2	0.54	10	2030	10	<2	4	45	0.10	<10	<10	66	<10	20	
92-BJB-73D	1.18	385	2	0.64	45	5700	38	2	15	62	0.22	<10	<10	89	10	66	
92-BJB-74D	0.94	225	1	0.53	26	3010	14	<2	6	41	0.14	<10	<10	97	<10	84	
92-BJB-75D	0.57	215	17	0.92	22	>10000	26	<2	5	36	0.13	<10	<10	57	<10	46	
92-BJB-76D	0.62	155	3	0.45	33	3670	18	2	7	41	0.23	<10	<10	84	<10	34	
92-BJB-77D	0.60	125	3	0.53	28	3630	16	<2	7	29	0.14	<10	<10	83	<10	46	
92-BJB-78D	0.58	140	2	0.54	20	3340	10	<2	3	31	0.06	<10	<10	72	<10	36	
92-BJB-79D	1.11	510	1	0.73	36	4780	34	<2	8	69	0.14	<10	<10	70	10	82	
92-BJB-80D	0.61	150	2	0.44	16	2870	16	<2	6	32	0.13	<10	<10	67	<10	42	
92-BJB-81D	0.62	185	8	0.99	45	>10000	36	<2	14	25	0.15	<10	<10	95	10	44	
92-BJB-82D	0.62	135	6	0.53	16	4640	32	<2	6	26	0.16	<10	<10	119	<10	52	
92-BJB-83D	0.67	155	4	0.58	44	4520	22	<2	7	28	0.14	<10	<10	93	<10	48	
92-BJB-84D	0.57	105	3	0.56	18	2860	16	<2	11	31	0.12	<10	<10	75	<10	38	
92-BJB-85D	0.52	100	7	0.66	19	4680	16	<2	8	51	0.08	<10	<10	77	<10	18	
92-BJB-86D	0.61	145	4	0.49	25	3330	20	<2	8	31	0.15	<10	<10	98	10	66	
92-BJB-87D	0.61	125	2	0.51	17	3280	10	<2	6	29	0.07	<10	<10	60	<10	68	
92-BJB-88D	0.54	115	2	0.56	18	4370	20	<2	8	29	0.17	<10	<10	83	<10	46	
92-BJB-89D	0.45	80	2	0.36	16	4870	14	<2	11	32	0.07	<10	<10	100	50	<10	
92-BJB-90D	0.48	105	4	0.55	21	4170	18	<2	7	31	0.11	<10	<10	40	98	<10	
92-BJB-91D	1.08	300	4	0.62	39	7450	44	<2	12	35	0.17	<10	<10	76	10	68	
92-BJB-92D	0.54	150	2	0.55	19	6840	18	<2	9	31	0.18	<10	<10	74	<10	46	
92-BJB-93D	0.86	335	4	0.64	42	6440	44	<2	8	42	0.19	<10	<10	79	10	64	
92-BJB-94D	0.89	300	3	0.55	31	5390	30	<2	10	61	0.18	<10	<10	61	10	72	
92-BJB-95D	0.42	60	3	0.42	18	3460	18	<2	5	27	0.09	<10	<10	63	<10	34	

Appendix C

GEOCHEMISTRY		<2 µm fraction															
Sample Number	Mg (%)	Mn (ppm)	Mo (ppm)	Na (%)	Ni (ppm)	P (ppm)	Pb (ppm)	Sb (ppm)	Sc (ppm)	Sr (ppm)	Ti (%)	Tl (ppm)	U (ppm)	V (ppm)	W (ppm)	Zn (ppm)	
92-BJB-96D	0.31	95	7	1.04	19	>10000	22	<2	6	23	0.07	<10	120	55	<10	28	
92-BJB-97D	0.98	220	6	0.41	45	3280	42	<2	11	31	0.18	<10	81	10	56		
92-BJB-98D	0.64	145	18	0.51	25	5130	18	2	7	38	0.11	<10	79	<10	62		
92-BJB-100D	0.52	100	2	0.48	25	4080	24	<2	6	27	0.17	<10	106	10	82		
92-BJB-101D	0.63	200	4	0.60	28	>10000	32	<2	9	30	0.16	<10	75	10	64		
92-BJB-102D	0.62	190	3	0.56	22	8580	24	<2	12	32	0.11	<10	81	10	62		
92-BJB-103D	0.29	140	4	0.89	14	>10000	18	<2	5	25	0.05	<10	37	<10	28		
92-BJB-104D	0.58	130	2	0.61	29	4570	22	<2	9	31	0.08	<10	61	10	28		
92-BJB-105D	0.58	270	3	0.42	20	3520	12	<2	4	17	0.01	<10	73	10	144		
92-BJB-106D	0.47	85	1	0.48	17	4420	12	<2	5	45	0.06	<10	20	71	<10	28	
92-BJB-107D	0.82	105	2	1.06	25	5660	6	<2	6	19	0.03	<10	82	10	32		
92-BJB-2K	0.85	230	<1	0.66	30	5460	12	<2	7	41	0.14	<10	69	10	40		
92-BJB-3K	0.74	205	<1	0.55	16	3110	8	<2	4	38	0.09	<10	51	<10	36		
92-BJB-4K	0.37	90	2	0.43	14	4780	14	<2	10	20	0.11	<10	20	46	10	22	