

APPENDIX E.6
QUARRY GEOCHEMISTRY ANALYTICAL SAMPLING RESULTS

Table E.6-1: Quarry Q1 - Global ABA Statistics for Blasthole Sampling - 2013

Blast ID	Assay Sample ID	Hole Number	Hole Depth	Analysis																	Total Depth	Global Statistics per Blast																			
				Paste pH	Fizz Rate	Sample weight	HCl added	HCl	NaOH	Vol NaOH to pH=8.3	Final pH	NP	AP	Net NP	NP/AP	S	Acid Leachable SO4-S	Sulphide	C	CO3		Paste pH	Fizz Rate	Sample weight	HCl added	HCl	NaOH	Vol NaOH to pH=8.3	Final pH	NP	AP	Net NP	NP/AP	S	Acid Leachable SO4-S	Sulphide	C	CO3			
				Units																																					
				---	---	g	mL	Normality	Normality	mL	---	t CaCO3/ 1000 t	t CaCO3/ 1000 t	t CaCO3/ 1000 t	ratio	%	%	%	%	%																					
Q01 1054 001	Q1-540001-M17D-001	M-17	6.9	9.42	1	2.04	20	0.1	0.1	15.66	1.12	11	0.31	10.3	34.2	<0.005	<0.01	<0.01	0.098	0.31	20.5	9.386	1.327	2.014	20.000	0.100	0.100	15.385	1.176	11.605	0.310	11.167	37.030	0.002	0.000	0.000	0.163	0.543			
Q01 1054 001	Q1-540001-M17-002	M-17	6.9	9.59	1	2.01	20	0.1	0.1	17.6	1.13	6	0.31	5.69	19.4	<0.005	<0.01	<0.01	0.052	0.195																					
Q01 1054 001	Q1-540001-M3-003	M-3	6.7	9.14	2	1.99	20	0.1	0.1	12.82	1.28	18	0.31	17.7	58.1	0.007	<0.01	<0.01	0.343	1.14																					
Q01 1054 001B	Q1-540001B-R4-004	R-4	6.4	9.14	2	2.03	20	0.1	0.1	11.18	1.35	22	0.31	21.4	70	0.006	<0.01	<0.01	0.309	1.14	28.1	9.410641	1.227758	2.009359	20	0.1	0.1	15.907758	1.164662	10.219217	0.31	9.8431673	32.729181	0.007601	0.005196	0	0.106089	0.380534			
Q01 1054 001B	Q1-540001B-R13-005	R-13	7.1	9.44	1	2.01	20	0.1	0.1	17.8	1.11	5.5	0.31	5.19	17.7	<0.005	<0.01	<0.01	0.056	0.17																					
Q01 1054 001B	Q1-540001B-V3-006	V-3	7.3	9.23	1	2	20	0.1	0.1	16.95	1.1	7.6	0.31	7.29	24.5	0.019	0.02	<0.01	0.036	0.15																					
Q01 1054 001B	Q1-540001B-V8-007	V-8	7.3	9.8	1	2	20	0.1	0.1	17.17	1.12	7.1	0.31	6.79	22.9	0.005	<0.01	<0.01	0.047	0.15	26.9	9.560037	1.539033	1.995279	23.292193	0.1	0.1	12.897807	1.393346	26.047584	0.31	25.764164	84.207435	0.007651	0.003048	0	0.335929	1.242082			
Q01 1068 001	Q1-68001-20-008	20	3.2	8.84	1	1.99	20	0.1	0.1	17.51	1.13	6.3	0.31	5.99	20.3	0.01	0.01	<0.01	0.196	0.07																					
Q01 1068 001	Q1-68001-50-009	50	3.7	9.43	2	1.99	20	0.1	0.1	6.33	1.71	34	0.31	34	111	0.008	<0.01	<0.01	0.445	1.74																					
Q01 1068 001	Q1-68001-100-010	100	5	9.93	1	2.01	20	0.1	0.1	17.67	1.13	5.8	0.31	5.49	18.7	0.01	0.01	<0.01	0.031	0.1	155.038	9.678101	1	2.010735	20	0.1	0.1	17.0844	1.06543	7.2979037	0.31	6.9643802	23.458234	0.002373	0	0	0.087543	0.189775			
Q01 1068 001	Q1-68001-200-011	200	5.4	9.65	2	2.01	29.9	0.1	0.1	9.19	1.64	52	0.31	51.2	166	0.006	<0.01	<0.01	0.624	2.71																					
Q01 1068 001	Q1-68001-209-012	209	4.2	9.77	1	2	20	0.1	0.1	17.75	1.11	5.6	0.31	5.29	18.1	0.007	<0.01	<0.01	0.105	0.13																					
Q01 1068 001	Q1-68001-280-013	280	5.4	9.48	2	1.97	26.5	0.1	0.1	10.18	1.55	41	0.31	41.1	134	0.006	<0.01	<0.01	0.518	2.05	155.038	9.678101	1	2.010735	20	0.1	0.1	17.0844	1.06543	7.2979037	0.31	6.9643802	23.458234	0.002373	0	0	0.087543	0.189775			
Q01 1061 001	Q161001-014	138	7.505	9.59	1	2.01	20	0.1	0.1	17.73	0.9	5.7	0.31	5.39	18.4	0.007	<0.01	<0.01	0.039	0.04																					
Q01 1061 001	Q161001-015	161	8.47	9.51	1	2	20	0.1	0.1	15.65	1.08	11	0.31	10.6	35.2	0.006	<0.01	<0.01	0.127	0.385																					
Q01 1061 001	Q161001-016	199	7.792	9.74	1	1.99	20	0.1	0.1	17.07	1.06	7.4	0.31	7.09	23.9	0.006	<0.01	<0.01	0.063	0.235																					
Q01 1061 001	Q01610001-259	259	7.936	9.49	1	2	20	0.1	0.1	15.78	1.09	11	0.31	10.3	34.2	0.007	<0.01	<0.01	0.163	0.375																					
Q01 1061 001	Q01610001-200	200	8.193	9.42	1	2.03	20	0.1	0.1	16.44	1.06	8.8	0.31	8.49	28.4	0.008	<0.01	<0.01	0.122	0.29																					
Q01 1061 001	Q01610001-284	284	8.165	9.83	1	2.04	20	0.1	0.1	17.93	1	5.1	0.31	4.79	16.5	0.006	<0.01	<0.01	0.054	0.13																					
Q01 1061 001	Q01610001-292	292	7.951	9.62	1	1.99	20	0.1	0.1	18.01	0.97	5	0.31	4.69	16.1	0.006	<0.01	<0.01	0.068	0.11																					
Q01 1061 001	Q01-021	423	8.77	9.68	1	2.01	20	0.1	0.1	17.73	0.95	5.6	0.31	5.29	18.1	<0.005	<0.01	<0.01	0.06	0.14																					
Q01 1061 001	Q01-022	423	8.77	9.86	1	2	20	0.1	0.1	17.02	1.11	7.5	0.31	7.19	24.2	<0.005	<0.01	<0.01	0.068	0.13																					
Q01 1061 001	Q01-023	384	8.47	9.32	1	1.97	20	0.1	0.1	16	1.12	10	0.31	9.89	32.9	<0.005	<0.01	<0.01	0.214	0.4																					
Q01 1061 001	Q01-024	358	8.541	9.51	1	2.05	20	0.1	0.1	17.94	1.05	5	0.31	4.69	16.1	<0.005	<0.01	<0.01	0.058	0.095																					
Q01 1061 001	Q01-025	319	8.36	9.59	1	2.03	20	0.1	0.1	18.42	1.02	3.9	0.31	3.59	12.6	<0.005	<0.01	<0.01	0.066	0.05																					
Q01 1061 001	Q01-026	484	8.137	9.9	1	2	20	0.1	0.1	17.81	1.04	5.5	0.31	5.19	17.7	<0.005	<0.01	<0.01	0.05	0.115																					
Q01 1061 001	Q01-027	456	7.977	9.7	1	2.02	20	0.1	0.1	17.61	0.99	5.9	0.31	5.59	19	<0.005	<0.01	<0.01	0.088	0.115																					
Q01 1061 001	Q01-028	417	7.928	9.96	1	2.01	20	0.1	0.1	17.67	1.13	5.8	0.31	5.49	18.7	<0.005	<0.01	<0.01	0.034	0.055																					
Q01 1061 001	Q01-029	390	7.909	9.79	1	2.03	20	0.1	0.1	17.66	1.16	5.8	0.31	5.49	18.7	<0.005	<0.01	<0.01	0.073	0.09																					
Q01 1061 001	Q01-030	351	7.809	9.86	1	2.03	20	0.1	0.1	13.99	1.3	15	0.31	14.5	47.7	<0.005	<0.01	<0.01	0.175	0.545																					
Q01 1061 001	Q01-031	327	7.796	9.88	1	1.95	20	0.1	0.1	16.82	1.16	8.1	0.31	7.79	26.1	<0.005	<0.01	<0.01	0.073	0.145																					
Q01 1061 001	Q01-032	265	8.559	9.67	1	2.04	20	0.1	0.1	17.24	1.06	6.8	0.31	6.49	21.9	<0.005	<0.01	<0.01	0.066	0.16																					

Table E.6-2: Quarry QMR2 - Global ABA Statistics for Blasthole Sampling - 2013

Blast ID	Assay Sample ID	Hole Number	Hole Depth	Analysis																	Total Depth	Global Statistics per Blast																
				Paste pH	Fizz Rate	Sample weight	HCl added	HCl	NaOH	Vol NaOH to pH=8.3	Final pH	NP	AP	Net NP	NP/AP	S	Acid Leachable SO4-S	Sulphide	C	CO3		Paste pH	Fizz Rate	Sample weight	HCl added	HCl	NaOH	Vol NaOH to pH=8.3	Final pH	NP	AP	Net NP	NP/AP	S	Acid Leachable SO4-S	Sulphide	C	CO3
				Units																																		
				---	---	g	mL	Normality	Normality	mL	---	CaCO3/10 00 t	CaCO3/10 00 t	CaCO3/10 00 t	ratio	%	%	%	%	%																		
QMR2 1210 001	QMR2 1210 001- 130	130	3.501	9.98	1	1.99	20.00	0.10	0.10	14.45	1.23	14	0.31	13.7	45.2	0.010	0.01	< 0.01	0.141	0.470	70.253	9.680534	1	2.009698	20	0.1	0.1	15.29501	1.172679	11.68686	0.338289	11.36821	35.91312	0.015728	0.014729	0.001825	0.127257	0.287827
QMR2 1210 001	QMR2 1210 001- 253	253	7.192	9.77	1	2.01	20.00	0.10	0.10	17.28	1.13	6.8	0.31	6.49	21.9	0.012	0.01	< 0.01	0.026	0.020																		
QMR2 1210 001	QMR2 1210 001- 265	265	7.789	9.97	1	1.99	20.00	0.10	0.10	17.66	1.08	5.9	0.31	5.59	19.0	0.014	0.01	< 0.01	0.028	0.020																		
QMR2 1210 001	QMR2 1210 001- 273	273	7.578	9.21	1	2.04	20.00	0.10	0.10	13.49	1.26	16	0.31	15.7	51.6	0.016	0.02	< 0.01	0.269	0.530																		
QMR2 1210 001	QMR2 1210 001- 203	203	6.411	9.97	1	1.98	20.00	0.10	0.10	15.12	1.10	12	0.62	11.7	19.7	0.047	0.05	0.02	0.115	0.330																		
QMR2 1210 001	QMR2 1210 001- 296	296	6.826	9.38	1	2.01	20.00	0.10	0.10	13.86	1.21	15	0.31	15.0	49.4	0.013	0.01	< 0.01	0.152	0.440																		
QMR2 1210 001	QMR2 1210 001- 299	299	7.351	9.66	1	2.00	20.00	0.10	0.10	12.53	1.39	19	0.31	18.4	60.3	0.014	0.01	< 0.01	0.257	0.550																		
QMR2 1210 001	QMR2 1210 001- 306	306	8.52	9.56	1	2.03	20.00	0.10	0.10	14.74	1.21	13	0.31	12.6	41.6	0.012	0.01	< 0.01	0.130	0.310																		
QMR2 1210 001	QMR2 1210 001- 314	314	7.818	9.65	1	2.01	20.00	0.10	0.10	17.01	1.09	7.4	0.31	7.09	23.9	0.010	0.01	< 0.01	0.085	0.105																		
QMR2 1210 001	QMR2 1210 001- 278A	278A	7.267	9.85	1	2.02	20.00	0.10	0.10	16.19	1.05	9.4	0.31	9.09	30.3	0.011	0.01	< 0.01	0.078	0.225																		
QMR2 1210 002	QMR2-011	516	9.578	9.10	3	2.00	55.70	0.10	0.10	32.52	1.59	58	0.31	57.6	187	0.007	< 0.01	< 0.01	0.818	2.39	202.663	9.656797	1.650227	2.001823	27.30692	0.1	0.1	18.29927	1.362387	22.56507	1.234953	21.33645	61.25204	0.048417	0.009199	0.035132	0.230892	0.705082
QMR2 1210 002	QMR2-012	171	10.051	9.36	3	1.95	46.90	0.10	0.10	19.75	1.60	70	0.31	69.3	225	0.005	< 0.01	< 0.01	0.893	3.46																		
QMR2 1210 002	QMR2-013	237	10.708	9.09	2	1.99	20.00	0.10	0.10	12.73	1.52	18	0.31	18.0	59.0	0.015	< 0.01	0.01	0.166	0.280																		
QMR2 1210 002	QMR2-014	254	11.259	9.63	2	2.04	32.30	0.10	0.10	19.98	1.57	30	0.31	29.9	97.4	0.026	< 0.01	0.02	0.414	1.22																		
QMR2 1210 002	QMR2-015	321	11.635	9.55	2	2.03	20.00	0.10	0.10	13.74	1.35	15	0.31	15.1	49.7	0.010	< 0.01	0.01	0.129	0.380																		
QMR2 1210 002	QMR2-016	177	10.889	9.90	2	1.98	20.00	0.10	0.10	14.51	1.18	14	0.31	13.6	44.8	0.007	< 0.01	< 0.01	0.138	0.400																		
QMR2 1210 002	QMR2-017	307	12.079	9.64	3	1.97	34.00	0.10	0.10	14.58	1.59	49	0.31	49.0	159	0.007	< 0.01	< 0.01	0.609	2.28																		
QMR2 1210 002	QMR2-018	268	12.211	9.85	2	2.01	20.00	0.10	0.10	12.01	1.45	20	0.31	19.6	64.2	0.018	< 0.01	0.01	0.222	0.644																		
QMR2 1210 002	QMR2-019	223	11.537	9.80	1	2.04	20.00	0.10	0.10	16.74	1.22	8.0	0.31	7.69	25.8	0.012	0.01	< 0.01	0.049	0.075																		
QMR2 1210 002	QMR2-020	223	11.537	9.86	1	1.99	20.00	0.10	0.10	16.88	1.17	7.8	0.31	7.49	25.2	0.018	< 0.01	0.01	0.045	0.085																		
QMR2 1210 002	QMR2-021	184	11.186	9.97	1	2.00	20.00	0.10	0.10	17.66	1.06	5.9	0.31	5.59	19.0	< 0.005	< 0.01	< 0.01	0.031	< 0.005																		
QMR2 1210 002	QMR2-022	31	11	9.91	1	2.01	20.00	0.10	0.10	17.41	1.13	6.4	0.31	6.09	20.6	< 0.005	< 0.01	< 0.01	0.035	0.020																		
QMR2 1210 002	QMR2-023	36	9.535	9.47	1	2.04	20.00	0.10	0.10	12.80	1.64	18	0.31	17.3	56.8	0.010	< 0.01	0.01	0.143	0.395																		
QMR2 1210 002	QMR2-024	424	12.408	9.98	1	2.04	20.00	0.10	0.10	17.68	1.12	5.7	0.31	5.39	18.4	0.006	< 0.01	< 0.01	0.029	0.025																		
QMR2 1210 002	QMR2-025	344	11.659	9.31	2	2.04	55.00	0.10	0.10	37.02	1.52	44	14.4	29.7	3.07	0.612	0.15	0.46	0.295	0.874																		
QMR2 1210 002	QMR2-026	358	11.824	9.84	1	1.99	20.00	0.10	0.10	14.18	1.26	15	0.31	14.3	47.1	0.006	< 0.01	< 0.01	0.153	0.435																		
QMR2 1210 002	QMR2-027	314	12.329	9.42	1	1.97	32.40	0.10	0.10	24.10	1.55	21	2.19	18.9	9.65	0.072	< 0.01	0.07	0.072	0.075																		
QMR2 1210 002	QMR2-028	327	11.238	9.96	1	1.94	20.00	0.10	0.10	16.19	1.09	9.8	0.31	9.49	31.4	0.012	< 0.01	0.01	0.071	0.170																		
QMR2 1210 002B	QMR2-029	401	12.743	9.62	1	2.01	32.00	0.10	0.10	16.19	1.63	39	4.38	34.9	8.98	0.182	0.04	0.14	0.158	0.395	192.322	9.493444	2.348322	2.006903	44.7172	0.1	0.1	25.34514	1.541103	48.24561	1.01514	47.18985	87.13727	0.041037				



Quarry 1: Grab Samples from Crusher Piles ABA Results

Location	Prefix	Sample ID	Analysis																
			Paste pH	Fizz Rate	Sample weight	HCl added	HCl	NaOH	Vol NaOH to pH=8.3	Final pH	NP	AP	Net NP	NP/AP	S	Acid Leachable SO4-S	Sulphide	C	CO3
Quarry 1: Grab Samples from crusher piles	MP-Q1	Q1-110-1	7.69	2	2.05	20.00	0.10	0.10	17.66	1.09	5.7	0.31	5.39	18.4	0.006	0.01	0.01	0.104	0.170
Quarry 1: Grab Samples from crusher piles	MP-Q1	Q1-110-2	9.33	2	1.99	20.00	0.10	0.10	10.08	1.37	25	0.31	24.6	80.3	0.006	0.01	0.01	0.316	1.22
Quarry 1: Grab Samples from crusher piles	MP-Q1	Q1-110-3	9.35	2	2.01	20.00	0.10	0.10	16.64	1.12	8.4	0.31	8.09	27.1	0.006	0.01	0.01	0.097	0.290
Quarry 1: Grab Samples from crusher piles	MP-Q1	Q1-110-4	9.52	2	2.02	20.00	0.10	0.10	17.91	1.14	5.2	0.31	4.89	16.8	0.005	0.01	0.01	0.039	0.095
Quarry 1: Grab Samples from crusher piles	MP-Q1	Q1-110-5	9.46	2	2.03	20.00	0.10	0.10	17.68	1.11	5.7	0.31	5.39	18.4	0.006	0.01	0.01	0.056	0.150
Quarry 1: Grab Samples from crusher piles	MP-Q1	Q1-110-6	9.37	2	1.96	20.00	0.10	0.10	27.12	1.23	-18	0.31	-18.5	-58.7	0.009	0.01	0.01	0.187	0.679
Quarry 1: Grab Samples from crusher piles	MP-Q1	Q1-110-7	9.39	2	2.01	20.00	0.10	0.10	15.94	1.17	10	0.31	9.79	32.6	0.009	0.01	0.01	0.115	0.365
Quarry 1: Grab Samples from crusher piles	MP-Q1	Q1-110-8	9.53	2	1.99	20.00	0.10	0.10	17.85	1.09	5.4	0.31	5.09	17.4	0.005	0.01	0.01	0.042	0.135
Quarry 1: Grab Samples from crusher piles	MP-Q1	Q1-100-1	9.54	2	1.99	20.00	0.10	0.10	16.62	1.11	8.5	0.31	8.19	27.4	0.005	0.01	0.01	0.062	0.160
Quarry 1: Grab Samples from crusher piles	MP-Q1	Q1-100-2	9.42	2	2.01	20.00	0.10	0.10	16.88	1.15	7.7	0.31	7.39	24.8	0.009	0.01	0.01	0.055	0.145
Quarry 1: Grab Samples from crusher piles	MP-Q1	Q1-100-3	9.52	2	2.04	20.00	0.10	0.10	16.91	1.16	7.6	0.31	7.29	24.5	0.005	0.01	0.01	0.056	0.150
Quarry 1: Grab Samples from crusher piles	MP-Q1	Q1-100-4	9.41	2	2.06	20.00	0.10	0.10	16.05	1.18	9.6	0.31	9.29	31.0	0.006	0.01	0.01	0.087	0.225
Quarry 1: Grab Samples from crusher piles	MP-Q1	Q1-100-5	9.28	2	1.96	20.00	0.10	0.10	15.09	1.16	12	0.31	12.2	40.3	0.008	0.01	0.01	0.127	0.380
Quarry 1: Grab Samples from crusher piles	MP-Q1	Q1-100-6	9.36	2	1.99	20.00	0.10	0.10	15.61	1.17	11	0.31	10.7	35.5	0.008	0.01	0.01	0.107	0.295
Quarry 1: Grab Samples from crusher piles	MP-Q1	Q1-100-7	9.48	2	1.96	20.00	0.10	0.10	14.65	1.22	14	0.31	13.4	44.2	0.007	0.01	0.01	0.142	0.400
Quarry 1: Grab Samples from crusher piles	MP-Q1	Q1-100-8	9.29	2	1.99	20.00	0.10	0.10	13.63	1.25	16	0.31	15.7	51.6	0.008	0.01	0.01	0.186	0.580
Quarry 1: Grab Samples from crusher piles	MP-Q1	Q1-120-01	9.66	2	1.98	20.00	0.10	0.10	16.19	1.18	9.6	0.31	9.29	31.0	0.012	0.01	0.01	0.073	0.120
Quarry 1: Grab Samples from crusher piles	MP-Q1	Q1-120-02	9.74	2	1.97	20.00	0.10	0.10	13.86	1.19	16	0.31	15.3	50.3	0.007	0.01	0.01	0.149	0.565
Quarry 1: Grab Samples from crusher piles	MP-Q1	Q1-120-03	9.75	2	1.96	20.00	0.10	0.10	17.21	1.09	7.1	0.31	6.79	22.9	0.005	0.01	0.01	0.043	0.090
Quarry 1: Grab Samples from crusher piles	MP-Q1	Q1-120-04	9.75	2	2.04	20.00	0.10	0.10	17.59	1.10	5.9	0.31	5.59	19.0	0.005	0.01	0.01	0.028	0.040
Quarry 1: Grab Samples from crusher piles	MP-Q1	Q1-120-05	9.73	2	2.00	20.00	0.10	0.10	17.90	1.11	5.2	0.31	4.89	16.8	0.005	0.01	0.01	0.026	0.065
Quarry 1: Grab Samples from crusher piles	MP-Q1	Q1-120-06	9.71	2	2.01	20.00	0.10	0.10	17.48	1.11	6.3	0.31	5.99	20.3	0.005	0.01	0.01	0.031	0.070
Quarry 1: Grab Samples from crusher piles	MP-Q1	Q1-120-07	9.32	2	2.00	20.00	0.10	0.10	17.33	1.10	6.7	0.31	6.39	21.6	0.005	0.01	0.01	0.039	0.100
Quarry 1: Grab Samples from crusher piles	MP-Q1	Q1-120-08	9.67	2	1.99	20.00	0.10	0.10	17.50	1.12	6.3	0.31	5.99	20.3	0.005	0.01	0.01	0.032	0.080
Quarry 1: Grab Samples from crusher piles	MP-Q1	Q1-130-01	9.43	1	1.98	20.00	0.10	0.10	17.52	1.18	6.3	0.31	5.99	20.3	0.007	0.01	0.01	0.049	0.185
Quarry 1: Grab Samples from crusher piles	MP-Q1	Q1-130-02	9.44	1	1.99	20.00	0.10	0.10	17.24	1.17	6.9	0.31	6.59	22.3	0.005	0.01	0.01	0.068	0.220
Quarry 1: Grab Samples from crusher piles	MP-Q1	Q1-130-03	9.46	2	2.01	20.00	0.10	0.10	14.24	1.28	14	0.31	14.0	46.1	0.012	0.01	0.01	0.159	0.620
Quarry 1: Grab Samples from crusher piles	MP-Q1	Q1-130-04	9.52	1	2.05	20.00	0.10	0.10	18.53	1.15	3.6	0.31	3.29	11.6	0.005	0.01	0.01	0.018	0.065
Quarry 1: Grab Samples from crusher piles	MP-Q1	Q1-130-05	9.51	1	1.99	20.00	0.10	0.10	18.11	1.10	4.7	0.31	4.39	15.2	0.005	0.01	0.01	0.034	0.105
Quarry 1: Grab Samples from crusher piles	MP-Q1	Q1-130-06	9.54	1	2.01	20.00	0.10	0.10	18.27	1.10	4.3	0.31	3.99	13.9	0.005	0.01	0.01	0.032	0.095
Quarry 1: Grab Samples from crusher piles	MP-Q1	Q1-130-07	9.59	1	1.98	20.00	0.10	0.10	17.03	1.09	7.5	0.31	7.19	24.2	0.005	0.01	0.01	0.052	0.200
Quarry 1: Grab Samples from crusher piles	MP-Q1	Q1-130-08	9.43	1	2.02	20.00	0.10	0.10	17.48	1.19	6.2	0.31	5.89	20.0	0.006	0.01	0.01	0.078	0.250
Quarry 1: Grab Samples from crusher piles	MP-Q1	Q1-140-000-1-13-09-26	9.63	1	2.00	20.00	0.10	0.10	18.56	1.14	3.6	0.31	3.29	11.6	0.005	0.01	0.01	0.019	0.065
Quarry 1: Grab Samples from crusher piles	MP-Q1	Q1-140-000-2-13-09-26	9.73	1	1.99	20.00	0.10	0.10	18.40	1.13	4.0	0.31	3.69	12.9	0.005	0.01	0.01	0.022	0.080
Quarry 1: Grab Samples from crusher piles	MP-Q1	Q1-140-000-3-13-09-26	9.69	1	2.02	20.00	0.10	0.10	18.89	1.08	2.7	0.31	2.39	8.71	0.005	0.01	0.01	0.014	0.040
Quarry 1: Grab Samples from crusher piles	MP-Q1	Q1-140-000-4-13-09-26	9.65	1	2.00	20.00	0.10	0.10	18.52	1.09	3.7	0.31	3.39	11.9	0.005	0.01	0.01	0.022	0.075
Quarry 1: Grab Samples from crusher piles	MP-Q1	Q1-140-000-5-13-09-26	9.66	1	2.02	20.00	0.10	0.10	18.63	1.13	3.4	0.31	3.09	11.0	0.005	0.01	0.01	0.021	0.065
Quarry 1: Grab Samples from crusher piles	MP-Q1	Q1-140-000-6-13-09-26	9.58	1	1.99	20.00	0.10	0.10	18.88	1.11	2.8	0.31	2.49	9.03	0.005	0.01	0.01	0.010	0.035
Quarry 1: Grab Samples from crusher piles	MP-Q1	Q1-140-000-7-13-09-26	9.58	1	2.00	20.00	0.10	0.10	18.57	1.07	3.6	0.31	3.29	11.6	0.005	0.01	0.01	0.015	0.055
Quarry 1: Grab Samples from crusher piles	MP-Q1	Q1-140-000-8-13-09-26	9.73	1	2.03	20.00	0.10	0.10	18.64	1.10	3.4	0.31	3.09	11.0	0.005	0.01	0.01	0.009	0.030
Quarry 1: Grab Samples from crusher piles	MP-Q1	Q1-10-1	9.41	2	2.04	20.00	0.10	0.10	11.94	1.49	20	0.31	19.5	63.9	0.010	0.01	0.01	0.276	0.814
Quarry 1: Grab Samples from crusher piles	MP-Q1	Q1-10-2	9.13	2	2.05	20.00	0.10	0.10	8.45	1.71	28	0.31	27.9	91.0	0.024	0.02	0.01	0.443	1.29
Quarry 1: Grab Samples from crusher piles	MP-Q1	Q1-10-3	9.45	2	2.03	20.00	0.10	0.10	9.44	1.64	26	0.31	25.7	83.9	0.017	0.02	0.01	0.364	1.21
Quarry 1: Grab Samples from crusher piles	MP-Q1	Q1-10-4	9.39	2	1.99	20.00	0.10	0.10	11.11	1.52	22	0.31	22.0	71.9	0.018	0.02	0.01	0.308	1.00
Quarry 1: Grab Samples from crusher piles	MP-Q1	Q1-10-5	9.29	2	2.02	20.00	0.10	0.10	10.35	1.59	24	0.31	23.6	77.1	0.023	0.02	0.01	0.336	1.04
Quarry 1: Grab Samples																			

Quarry 1: Grab Samples from crusher piles	MP-Q1	Q1-20-8	9.65	2	2.01	20.00	0.10	0.10	13.45	1.35	16	0.31	16.0	52.6	0.008	0.01	0.01	0.232	0.669
Quarry 1: Grab Samples from crusher piles	MP-Q1	Q1-30-1	9.59	2	2.03	20.00	0.10	0.10	15.75	1.25	10	0.31	10.2	33.9	0.013	0.01	0.01	0.130	0.350
Quarry 1: Grab Samples from crusher piles	MP-Q1	Q1-30-2	9.78	2	2.00	20.00	0.10	0.10	18.08	1.14	4.8	0.31	4.49	15.5	0.010	0.01	0.01	0.030	0.040
Quarry 1: Grab Samples from crusher piles	MP-Q1	Q1-30-3	9.77	2	2.01	20.00	0.10	0.10	18.35	1.15	4.1	0.31	3.79	13.2	0.010	0.01	0.01	0.024	0.020
Quarry 1: Grab Samples from crusher piles	MP-Q1	Q1-30-4	8.03	1	1.97	35.80	0.10	0.10	23.75	1.86	31	0.31	30.3	98.7	0.011	0.01	0.01	0.028	0.030
Quarry 1: Grab Samples from crusher piles	MP-Q1	Q1-30-5	7.71	1	1.97	27.30	0.10	0.10	17.94	1.83	24	0.31	23.5	76.8	0.027	0.03	0.01	0.490	1.57
Quarry 1: Grab Samples from crusher piles	MP-Q1	Q1-30-6	9.84	2	1.99	29.20	0.10	0.10	16.34	1.22	32	0.31	32.0	104	0.012	0.01	0.01	0.069	0.175
Quarry 1: Grab Samples from crusher piles	MP-Q1	Q1-30-7	9.71	2	2.03	20.00	0.10	0.10	16.66	1.17	8.2	0.31	7.89	26.5	0.014	0.01	0.01	0.059	0.100
Quarry 1: Grab Samples from crusher piles	MP-Q1	Q1-30-8	9.66	2	1.99	20.00	0.10	0.10	17.58	1.16	6.1	0.31	5.79	19.7	0.013	0.01	0.01	0.036	0.055
Quarry 1: Grab Samples from crusher piles	MP-Q1	Q1-40-1	9.71	2	1.98	20.00	0.10	0.10	16.34	1.20	9.2	0.31	8.89	29.7	0.011	0.01	0.01	0.052	0.065
Quarry 1: Grab Samples from crusher piles	MP-Q1	Q1-40-2	9.74	2	2.00	20.00	0.10	0.10	17.32	1.20	6.7	0.31	6.39	21.6	0.010	0.01	0.01	0.046	0.080
Quarry 1: Grab Samples from crusher piles	MP-Q1	Q1-40-3	9.80	2	2.00	20.00	0.10	0.10	17.42	1.20	6.5	0.31	6.19	21.0	0.012	0.01	0.01	0.038	0.055
Quarry 1: Grab Samples from crusher piles	MP-Q1	Q1-40-4	9.77	2	1.97	20.00	0.10	0.10	17.16	1.18	7.2	0.31	6.89	23.2	0.013	0.01	0.01	0.052	0.075
Quarry 1: Grab Samples from crusher piles	MP-Q1	Q1-40-5	9.75	2	2.00	20.00	0.10	0.10	16.67	1.24	8.3	0.31	7.99	26.8	0.011	0.01	0.01	0.058	0.095
Quarry 1: Grab Samples from crusher piles	MP-Q1	Q1-40-6	9.90	2	1.97	20.00	0.10	0.10	16.54	1.39	8.8	0.31	8.49	28.4	0.012	0.01	0.01	0.055	0.055
Quarry 1: Grab Samples from crusher piles	MP-Q1	Q1-40-7	9.90	2	2.00	20.00	0.10	0.10	16.65	1.34	8.4	0.31	8.09	27.1	0.012	0.01	0.01	0.060	0.070
Quarry 1: Grab Samples from crusher piles	MP-Q1	Q1-40-8	9.85	2	2.05	20.00	0.10	0.10	15.99	1.38	9.8	0.31	9.49	31.6	0.013	0.01	0.01	0.101	0.110
Quarry 1: Grab Samples from crusher piles	MP-Q1	Q1-50-1	9.95	2	2.01	20.00	0.10	0.10	16.50	1.29	8.7	0.31	8.39	28.1	0.013	0.01	0.01	0.055	0.065
Quarry 1: Grab Samples from crusher piles	MP-Q1	Q1-50-2	9.83	2	2.01	20.00	0.10	0.10	16.61	1.27	8.4	0.31	8.09	27.1	0.011	0.01	0.01	0.060	0.075
Quarry 1: Grab Samples from crusher piles	MP-Q1	Q1-50-3	9.85	2	2.05	20.00	0.10	0.10	16.14	1.31	9.4	0.31	9.09	30.3	0.014	0.01	0.01	0.079	0.175
Quarry 1: Grab Samples from crusher piles	MP-Q1	Q1-50-4	9.71	2	1.97	20.00	0.10	0.10	16.63	1.25	8.6	0.31	8.29	27.7	0.014	0.01	0.01	0.069	0.120
Quarry 1: Grab Samples from crusher piles	MP-Q1	Q1-50-5	9.75	2	2.00	20.00	0.10	0.10	16.48	1.27	8.8	0.31	8.49	28.4	0.016	0.02	0.01	0.068	0.120
Quarry 1: Grab Samples from crusher piles	MP-Q1	Q1-50-6	9.82	2	2.04	20.00	0.10	0.10	17.13	1.19	7.0	0.31	6.69	22.6	0.011	0.01	0.01	0.039	0.055
Quarry 1: Grab Samples from crusher piles	MP-Q1	Q1-50-7	9.89	2	2.04	20.00	0.10	0.10	16.76	1.26	7.9	0.31	7.59	25.5	0.010	0.01	0.01	0.048	0.055
Quarry 1: Grab Samples from crusher piles	MP-Q1	Q1-50-8	9.75	2	1.99	20.00	0.10	0.10	15.61	1.25	11	0.31	10.7	35.5	0.019	0.02	0.01	0.094	0.230
Quarry 1: Grab Samples from crusher piles	MP-Q1	Q1-60-1	9.54	3	1.99	29.50	0.10	0.10	13.84	1.63	39	0.31	39.0	127	0.010	0.01	0.01	0.504	1.81
Quarry 1: Grab Samples from crusher piles	MP-Q1	Q1-60-2	9.53	2	2.01	20.00	0.10	0.10	13.74	1.38	16	0.31	15.3	50.3	0.016	0.02	0.01	0.171	0.425
Quarry 1: Grab Samples from crusher piles	MP-Q1	Q1-60-3	9.77	2	2.05	20.00	0.10	0.10	16.11	1.29	9.5	0.31	9.19	30.6	0.018	0.02	0.01	0.084	0.155
Quarry 1: Grab Samples from crusher piles	MP-Q1	Q1-60-4	9.73	2	2.00	20.00	0.10	0.10	14.14	1.36	15	0.31	14.4	47.4	0.014	0.01	0.01	0.154	0.410
Quarry 1: Grab Samples from crusher piles	MP-Q1	Q1-60-5	9.85	2	1.98	20.00	0.10	0.10	16.41	1.27	9.1	0.31	8.79	29.4	0.010	0.01	0.01	0.059	0.135
Quarry 1: Grab Samples from crusher piles	MP-Q1	Q1-60-6	9.87	2	2.04	20.00	0.10	0.10	16.36	1.29	8.9	0.31	8.59	28.7	0.012	0.01	0.01	0.063	0.120
Quarry 1: Grab Samples from crusher piles	MP-Q1	Q1-60-7	9.74	3	1.99	20.00	0.10	0.10	10.93	1.62	23	0.31	22.5	73.5	0.012	0.01	0.01	0.263	0.819
Quarry 1: Grab Samples from crusher piles	MP-Q1	Q1-60-8	9.54	3	2.02	20.00	0.10	0.10	16.75	1.81	8.0	0.31	7.69	25.8	0.011	0.01	0.01	0.354	1.14
Quarry 1: Grab Samples from crusher piles	MP-Q1	Q1-70-1	9.87	2	2.00	20.00	0.10	0.10	17.19	1.27	7.0	0.31	6.69	22.6	0.016	0.02	0.01	0.049	0.050
Quarry 1: Grab Samples from crusher piles	MP-Q1	Q1-70-2	9.47	2	2.01	20.00	0.10	0.10	16.62	1.21	8.4	0.31	8.09	27.1	0.017	0.02	0.01	0.049	0.055
Quarry 1: Grab Samples from crusher piles	MP-Q1	Q1-70-3	9.06	3	2.01	33.90	0.10	0.10	16.84	1.54	42	0.31	42.1	137	0.015	0.02	0.01	0.522	1.68
Quarry 1: Grab Samples from crusher piles	MP-Q1	Q1-70-4	9.65	2	1.96	20.00	0.10	0.10	16.03	1.28	10	0.31	9.79	32.6	0.029	0.02	0.01	0.046	0.040
Quarry 1: Grab Samples from crusher piles	MP-Q1	Q1-70-5	9.85	2	2.01	20.00	0.10	0.10	8.74	1.30	28	0.31	27.7	90.3	0.018	0.02	0.01	0.072	0.170
Quarry 1: Grab Samples from crusher piles	MP-Q1	Q1-70-6	9.28	2	2.03	20.00	0.10	0.10	9.82	1.64	25	0.31	24.8	81.0	0.025	0.02	0.01	0.300	0.809
Quarry 1: Grab Samples from crusher piles	MP-Q1	Q1-70-7	9.89	2	2.03	20.00	0.10	0.10	16.63	1.24	8.3	0.31	7.99	26.8	0.012	0.01	0.01	0.029	0.020
Quarry 1: Grab Samples from crusher piles	MP-Q1	Q1-70-8	9.51	3	2.02	20.00	0.10	0.10	9.54	1.69	26	0.31	25.6	83.5	0.017	0.02	0.01	0.299	0.914
Quarry 1: Grab Samples from crusher piles	MP-Q1	Q1-90-1	9.82	2	2.01	20.00	0.10	0.10	15.86	1.23	10	0.31	9.99	33.2	0.011	0.01	0.01	0.078	0.160
Quarry 1: Grab Samples from crusher piles	MP-Q1	Q1-90-2	9.81	2	1.99	20.00	0.10	0.10	17.08	1.11	7.3	0.31	6.99	23.5	0.010	0.01	0.01	0.047	0.055
Quarry 1: Grab Samples from crusher piles	MP-Q1	Q1-90-3	9.67	2	2.01	20.00	0.10	0.10	11.98	1.18	20	0.31	19.7	64.5	0.011	0.01	0.01	0.218	0.674
Quarry 1: Grab Samples from crusher piles	MP-Q1	Q1-90-4	9.59	2	1.98	20.00	0.10	0.10	9.74	1.40	26	0.31	25.6	83.5	0.012	0.01	0.01	0.312	1.08
Quarry 1: Grab Samples from crusher piles	MP-Q1	Q1-90-5	9.72	2	2.00	20.00	0.10	0.10	15.13	1.14	12	0.31	11.9	39.4	0.011	0.01	0.01	0.112	0.315
Quarry 1: Grab Samples from crusher piles	MP-Q1	Q1-90-6	9.83	2	1.98	20.00	0.10	0.10	17.52	1.07	6.3	0.31	5.99	20.3	0.008	0.01	0.01	0.026	0.030
Quarry 1: Grab Samples from crusher piles	MP-Q1	Q1-90-7	9.69	2	2.03	20.00	0.10	0.10	15.59	0.97	11	0.31	10.6	35.2	0.010	0.01	0.01	0.093	0.190
Quarry 1: Grab Samples from crusher piles	MP-Q1	Q1-90-8	9.68	2	2.02	20.00	0.10	0.10	11.11	1.29	22	0.31	21.7	71.0	0.010	0.01	0.01	0.270	0.859
Quarry 1: Grab Samples from crusher piles	MP-Q1	MP-80-1	9.73	2	2.03	20.00	0.10	0.10	13.97	1.16	15	0.31	14.6	48.1	0.012	0.01	0.01	0.151	0.425
Quarry 1: Grab Samples from crusher piles	MP-Q1	MP-80-2	9.72	2	2.01	20.00	0.10	0.10	12.65	0.94	18	0.31	18.0	59.0	0.012	0.01	0.01	0.161	0.475
Quarry 1: Grab Samples from crusher piles	MP-Q1	MP-80-3	9.62	2	2.01	20.00	0.10	0.10	15.32	0.93	12	0.31	11.3	37.4	0.010	0.01	0.01	0.088	0.150
Quarry 1: Grab Samples from crusher piles	MP-Q1	MP-80-4	9.57	2	2.03	32.30	0.10	0.10	11.76	1.50	51	0.31	50.3	163	0.011	0.01	0.01	0.642	2.48
Quarry 1: Grab Samples from crusher piles	MP-Q1	MP-80-5	9.63	2	2.00	32.50	0.10	0.10	9.83	1.32	57	0.31	56.4	183	0.011	0.01	0.01	0.298	1.06
Quarry 1: Grab Samples from crusher piles	MP-Q1	MP-80-6	9.50	3	1.96	20.00	0.10	0.10	13.62	1.45	16	0.31	16.0	52.6	0.010	0.01	0.01	0.617	2.34
Quarry 1: Grab Samples from crusher piles	MP-Q1	MP-80-7	9.76	2	2.04	20.00	0.10	0.10	15.92	1.06	10	0.31	9.69	32.3	0.011	0.01	0.01	0.061	0.125
Quarry 1: Grab Samples from crusher piles	MP-Q1	MP-80-8	9.36	2	1.98	106.40	0.10	0.10	20.87	1.86	216	0.31	216	697	0.012	0.01	0.01	2.59	11.1

Analysis: STATS MEAN MP-Q01 ABA																
Paste pH	Fizz Rate	Sample weight	HCl added	HCl	NaOH	Vol NaOH to pH=8.3	Final pH	NP	AP	Net NP	NP/AP	S	Acid Leachable SO4-S	Sulphide	C	CO3
9.56	1.90	2.00	21.61	0.10	0.10	15.78	1.27	14.58	0.31	14.27	47.02	0.01	0.01	0.01	0.16	0.50
Analysis: STATS MAX MP-Q01 ABA																

Paste pH	Fizz Rate	Sample weight	HCl added	HCl	NaOH	Vol NaOH to pH=8.3	Final pH	NP	AP	Net NP	NP/AP	S	Acid Leachable SO4-S	Sulphide	C	CO3
9.95	3.00	2.06	106.40	0.10	0.10	27.12	1.86	216.00	0.31	216.00	697.00	0.03	0.03	0.01	2.59	11.10
Analysis: STATS MIN MP-Q01 ABA																
Paste pH	Fizz Rate	Sample weight	HCl added	HCl	NaOH	Vol NaOH to pH=8.3	Final pH	NP	AP	Net NP	NP/AP	S	Acid Leachable SO4-S	Sulphide	C	CO3
7.69	1.00	1.96	20.00	0.10	0.10	8.45	0.93	-18.00	0.31	-18.50	-58.70	0.01	0.01	0.01	0.01	0.02



Quarry Q1 - Grab Sample Metals Results

Location	Prefix	Sample ID	Analysis																													
			Hg	Al	As	Ba	Be	Bi	Ca	Cd	Co	Cr	Cu	Fe	K	Li	Mg	Mn	Mo	Na	Ni	Pb	S	Sb	Se	Sn	Sr	Ti	Tl	U	V	Zn
Quarry 1: Grab Samples from crusher piles	MP-Q1	Q1-110-1	0.05	3300	0.5	15	0.15	0.09	1400	0.02	0.99	39	3.9	6700	1200	17	1700	140	1.2	370	5.3	4.2	110	0.8	0.7	0.5	8.6	130	0.08	3.0	3	16
Quarry 1: Grab Samples from crusher piles	MP-Q1	Q1-110-2	0.05	3700	0.5	15	0.14	0.09	6100	0.02	1.1	40	3.3	7700	1500	19	4500	150	1.1	370	5.4	4.2	190	0.8	0.7	0.5	8.7	160	0.10	2.2	3	17
Quarry 1: Grab Samples from crusher piles	MP-Q1	Q1-110-3	0.05	3600	0.5	15	0.16	0.09	2400	0.02	1.0	45	2.9	7700	1600	19	1900	140	1.2	370	5.4	5.0	150	0.8	0.7	0.5	7.8	190	0.12	3.9	3	17
Quarry 1: Grab Samples from crusher piles	MP-Q1	Q1-110-4	0.05	5500	0.5	28	0.20	0.09	1400	0.02	1.9	38	4.5	11000	2700	23	3300	200	1.1	370	5.8	4.8	140	0.8	0.7	0.7	9.4	340	0.21	5.3	7	22
Quarry 1: Grab Samples from crusher piles	MP-Q1	Q1-110-5	0.05	3500	0.5	15	0.13	0.09	1700	0.02	1.00	38	2.5	7700	1400	17	1600	140	1.1	370	4.7	4.4	140	0.8	0.7	0.5	7.4	160	0.10	2.5	3	16
Quarry 1: Grab Samples from crusher piles	MP-Q1	Q1-110-6	0.05	3800	0.5	16	0.17	0.09	5500	0.02	1.1	39	3.4	7900	1600	19	2300	140	7.8	360	5.0	4.9	240	0.8	0.7	0.5	11	190	0.10	3.3	3	17
Quarry 1: Grab Samples from crusher piles	MP-Q1	Q1-110-7	0.05	3600	0.5	14	0.15	0.09	3000	0.02	0.99	40	3.3	7300	1300	19	2300	140	1.2	330	5.0	5.4	190	0.8	0.7	0.5	8.4	150	0.10	4.1	3	15
Quarry 1: Grab Samples from crusher piles	MP-Q1	Q1-110-8	0.05	3300	0.5	16	0.12	0.09	1300	0.02	1.0	37	2.4	7000	1400	19	1500	140	1.2	340	4.8	5.0	90	0.8	0.7	0.5	7.0	160	0.10	2.9	2	17
Quarry 1: Grab Samples from crusher piles	MP-Q1	Q1-100-1	0.05	3600	0.5	14	0.14	0.09	1700	0.02	1.0	43	8.2	7400	1300	20	2000	150	1.2	360	5.2	4.9	110	0.8	0.7	0.5	8.2	140	0.08	3.1	3	17
Quarry 1: Grab Samples from crusher piles	MP-Q1	Q1-100-2	0.05	3800	0.5	12	0.17	0.09	1700	0.02	1.2	37	7.3	7300	1200	16	2100	130	1.2	330	4.8	3.9	190	0.8	0.7	0.5	6.5	110	0.07	5.4	3	14
Quarry 1: Grab Samples from crusher piles	MP-Q1	Q1-100-3	0.05	3600	0.5	20	0.13	0.09	1600	0.02	1.1	45	6.3	7500	1500	18	1800	150	1.2	370	5.9	4.7	130	0.8	0.7	0.5	8.9	180	0.10	3.6	3	17
Quarry 1: Grab Samples from crusher piles	MP-Q1	Q1-100-4	0.05	3300	0.5	17	0.14	0.09	2100	0.02	1.0	40	5.1	7100	1400	16	2000	130	1.3	370	5.3	4.8	170	0.8	0.7	0.5	8.3	150	0.09	6.4	3	15
Quarry 1: Grab Samples from crusher piles	MP-Q1	Q1-100-5	0.05	4100	0.5	13	0.24	0.09	3400	0.02	1.2	37	4.2	8300	1200	18	3000	150	1.1	340	5.0	3.9	240	0.8	0.7	0.5	7.9	110	0.07	3.5	3	17
Quarry 1: Grab Samples from crusher piles	MP-Q1	Q1-100-6	0.05	3900	0.5	15	0.18	0.09	2700	0.02	1.1	37	10	7900	1400	17	2500	140	1.6	340	4.7	4.6	180	0.8	0.7	0.5	7.7	130	0.09	3.7	3	16
Quarry 1: Grab Samples from crusher piles	MP-Q1	Q1-100-7	0.05	3200	0.6	14	0.15	0.09	3300	0.02	1.1	43	160	7000	1300	16	2400	150	1.5	380	7.3	5.0	210	0.8	0.7	0.5	8.3	140	0.08	4.5	3	17
Quarry 1: Grab Samples from crusher piles	MP-Q1	Q1-100-8	0.05	3300	0.8	16	0.17	0.09	3900	0.02	1.1	44	23	6900	1300	16	2800	130	1.9	350	5.9	4.3	210	0.8	0.7	0.5	8.5	110	0.07	3.8	2	15
Quarry 1: Grab Samples from crusher piles	MP-Q1	Q1-120-01	0.05	3700	1.9	19	0.11	0.09	1900	0.02	1.7	62	5.9	7500	1500	16	2600	150	1.2	400	12	5.4	130	0.8	0.7	0.5	9.2	190	0.10	6.0	4	17
Quarry 1: Grab Samples from crusher piles	MP-Q1	Q1-120-02	0.05	3500	0.5	20	0.11	0.09	5200	0.02	1.3	61	2.1	7100	1500	16	1500	150	1.1	460	5.5	5.5	160	0.8	0.7	0.5	9.3	160	0.10	3.4	2	16
Quarry 1: Grab Samples from crusher piles	MP-Q1	Q1-120-03	0.05	3500	0.7	17	0.13	0.10	1500	0.02	1.2	61	1.3	7000	1400	13	1500	130	1.0	440	4.1	3.9	55	0.8	0.7	0.5	8.5	130	0.08	2.3	3	14
Quarry 1: Grab Samples from crusher piles	MP-Q1	Q1-120-04	0.05	3300	0.5	19	0.11	0.09	860	0.02	1.1	60	1.1	6600	1400	14	1200	120	1.3	420	5.6	5.4	35	0.8	0.7	0.5	7.5	140	0.09	3.3	2	15
Quarry 1: Grab Samples from crusher piles	MP-Q1	Q1-120-05	0.05	3400	0.5	19	0.12	0.09	850	0.02	1.2	57	2.0	6900	1400	14	1300	120	1.2	440	5.0	5.6	64	0.8	0.7	0.5	8.8	130	0.09	3.2	2	15
Quarry 1: Grab Samples from crusher piles	MP-Q1	Q1-120-06	0.05	3300	0.5	20	0.11	0.09	1100	0.02	1.2	56	1.5	6600	1400	17	1200	120	1.9	430	4.7	6.2	71	0.8	0.7	0.5	9.9	150	0.10	4.3	2	15
Quarry 1: Grab Samples from crusher piles	MP-Q1	Q1-120-07	0.05	3500	0.5	18	0.13	0.09	1300	0.02	1.2	54	1.8	7200	1400	16	1500	120	1.2	390	4.7	5.8	85	0.8	0.7	0.5	10	130	0.09	4.8	3	16
Quarry 1: Grab Samples from crusher piles	MP-Q1	Q1-120-08	0.05	3300	0.6	22	0.15	0.09	1200	0.02	1.2	62	1.5	6900	1400	16	1200	120	1.2	440	5.1	7.5	83	0.8	0.7	0.5	9.3	150	0.10	4.5	2	16
Quarry 1: Grab Samples from crusher piles	MP-Q1	Q1-130-01	0.05	3300	0.8	19	0.15	0.09	1600	0.02	1.0	41	2.6	7700	1600	18	1800	150	1.2	290	5.0	5.6	0.8	0.7	0.6	4.9	200	0.10	4.3	3	18	18
Quarry 1: Grab Samples from crusher piles	MP-Q1	Q1-130-02	0.05	3400	1.5	23	0.15	0.09	1800	0.02	2.0	41	2.9	7900	1700	19	2000	150	1.2	300	5.2	5.3	0.8	0.7	0.6	5.2	230	0.11	3.4	4	18	18
Quarry 1: Grab Samples from crusher piles	MP-Q1	Q1-130-03	0.05	4100	1.2																											

Analysis: STATS MEAN MP-Q01 Aqua Regia																													
Analysis																													
Hg	Al	As	Ba	Be	Bi	Ca	Cd	Co	Cr	Cu	Fe	K	Li	Mg	Mn	Mo	Na	Ni	Pb	S	Sb	Se	Sn	Sr	Ti	Tl	U	V	Zn
0.05	3944.643	0.567857	21.875	0.169554	0.092321	3470.357	0.020179	1.069911	76.44643	6.307143	7609.821	1774.107	15.14286	2482.143	128.6607	0.9375	559.2857	4.084821	4.925893	84.11429	0.785714	0.682143	1.111607	35.60089	119.8882	0.580536	3.10625	4.232143	15.47321
Analysis: STATS MAX MP-Q01 Aqua Regia																													
Analysis																													
Hg	Al	As	Ba	Be	Bi	Ca	Cd	Co	Cr	Cu	Fe	K	Li	Mg	Mn	Mo	Na	Ni	Pb	S	Sb	Se	Sn	Sr	Ti	Tl	U	V	Zn
0.05	6000	1.9	39	0.26	0.25	45000	0.04	2.5	160	160	12000	2800	23	24000	200	7.8	1100	12	7.5	270	0.8	0.7	5.3	300	390	5.9	6.4	22	22
Analysis: STATS MIN MP-Q01 Aqua Regia																													
Analysis																													
Hg	Al	As	Ba	Be	Bi	Ca	Cd	Co	Cr	Cu	Fe	K	Li	Mg	Mn	Mo	Na	Ni	Pb	S	Sb	Se	Sn	Sr	Ti	Tl	U	V	Zn
0.05	2600	0.5	12	0.09	0.09	570	0.02	0.79	35	1.1	6400	1100	11	1100	100	0.2	260	2.6	3.4	0.8	0.7	0.5	0.5	4.8	0.05	0.06	1.7	1	12

Quarry QMR2 and Km 104 - Grab Samples ABA Results

Location	Prefix	Sample ID	Analysis																
			Paste pH	Fizz Rate	Sample weight	HCl added	HCl	NaOH	Vol NaOH to pH=8.3	Final pH	NP	AP	Net NP	NP/AP	S	Acid Leachable SO4-S	Sulphide	C	CO3
Mine Site: Accommodation Pad	MS	MS-CP-1	9.28	2	2.02	20.00	0.10	0.10	11.33	1.48	22	0.31	21.2	69.4	0.021	0.02	0.01	0.176	0.400
Mine Site: Accommodation Pad	MS	MS-CP-2	9.26	2	1.99	20.00	0.10	0.10	13.70	1.39	16	0.31	15.5	51.0	0.020	0.02	0.01	0.170	0.230
Mine Site: Accommodation Pad	MS	MS-CP-3	9.35	2	2.00	20.00	0.10	0.10	12.50	1.52	19	0.31	18.4	60.3	0.023	0.02	0.01	0.124	0.215
Mine Site: Accommodation Pad	MS	MS-CP-4	9.22	3	2.04	29.50	0.10	0.10	16.17	1.71	33	0.31	32.4	105	0.022	0.01	0.01	0.409	1.02
Mine Site: Accommodation Pad	MS	MS-CP-5	9.21	2	2.02	20.00	0.10	0.10	13.81	1.52	15	0.31	15.0	49.4	0.030	0.02	0.01	0.072	0.065
Mine Site: Accommodation Pad	MS	MS-CP-6	9.29	2	2.00	20.00	0.10	0.10	12.55	1.73	19	0.31	18.3	60.0	0.021	0.02	0.01	0.213	0.490
Mine Site: Accommodation Pad	MS	MS-CP-7	8.73	3	2.02	53.50	0.10	0.10	17.56	1.69	89	0.31	88.7	287	0.014	0.01	0.01	1.21	4.48
Mine Site: Accommodation Pad	MS	MS-CP-8	8.95	2	2.00	20.00	0.10	0.10	15.64	1.53	11	0.31	10.6	35.2	0.032	0.02	0.01	0.033	0.020
Mine Site: Accommodation Pad	MS	MS-CP-9	9.16	2	2.01	20.00	0.10	0.10	14.41	1.48	14	0.31	13.6	44.8	0.022	0.02	0.01	0.134	0.200
Mine Site: Accommodation Pad	MS	MS-CP-10	9.12	2	1.99	20.00	0.10	0.10	13.77	1.22	16	0.31	15.3	50.3	0.029	0.02	0.01	0.154	0.170
Mine Site: Accommodation Pad	MS	MS-CP-11	8.95	2	2.02	20.00	0.10	0.10	7.50	1.87	31	0.31	30.6	99.7	0.024	0.02	0.01	0.405	0.849
Mine Site: Accommodation Pad	MS	MS-CP-12	8.92	3	2.00	53.90	0.10	0.10	16.02	1.83	95	0.31	94.4	305	0.017	0.02	0.01	1.18	4.76
Mine Site: Accommodation Pad	MS	MS-CP-13	9.15	2	1.99	20.00	0.10	0.10	8.84	1.72	28	0.31	27.7	90.3	0.018	0.02	0.01	0.336	1.03
Mine Site: Accommodation Pad	MS	MS-CP-14	9.24	2	1.99	20.00	0.10	0.10	14.06	1.49	15	0.31	14.6	48.1	0.020	0.02	0.01	0.150	0.330
Mine Site: Accommodation Pad	MS	MS-CP-15	9.16	2	2.02	20.00	0.10	0.10	14.70	1.41	13	0.31	12.8	42.3	0.028	0.02	0.01	0.123	0.125
Mine Site: Accommodation Pad	MS	MS-CP-16	9.15	2	2.03	28.20	0.10	0.10	13.29	1.60	37	0.31	36.4	118	0.019	0.02	0.01	0.446	1.37
Mine Site: Accommodation Pad	MS	MS-CP-17	8.97	2	2.00	20.00	0.10	0.10	15.05	1.48	12	0.31	12.1	40.0	0.030	0.02	0.01	0.026	0.015
Mine Site: Accommodation Pad	MS	MS-CP-18	9.00	2	2.03	20.00	0.10	0.10	15.61	1.49	11	0.31	10.5	34.8	0.025	0.02	0.01	0.021	0.025
Mine Site: Accommodation Pad	MS	MS-CP-19	9.02	2	1.98	20.00	0.10	0.10	13.95	1.82	15	0.31	15.0	49.4	0.031	0.02	0.01	0.078	0.115
Mine Site: Accommodation Pad	MS	MS-CP-20	8.95	2	1.97	20.00	0.10	0.10	15.01	1.69	13	0.31	12.4	41.0	0.033	0.02	0.01	0.028	0.015
Mine Site: Accommodation Pad	MS	MS-CP-21	9.05	2	1.97	20.00	0.10	0.10	14.33	1.59	14	0.31	14.1	46.5	0.027	0.03	0.01	0.045	0.045
Mine Site: Accommodation Pad	MS	MS-CP-22	9.00	2	2.03	20.00	0.10	0.10	13.42	1.28	16	0.31	15.9	52.3	0.028	0.02	0.01	0.029	0.020
Mine Site: Accommodation Pad	MS	MS-CP-23	8.89	2	1.98	20.00	0.10	0.10	13.98	1.93	15	0.31	14.9	49.0	0.035	0.02	0.01	0.055	0.060
Mine Site: Accommodation Pad	MS	MS-CP-24	8.95	2	2.06	20.00	0.10	0.10	15.47	1.69	11	0.31	10.7	35.5	0.023	0.02	0.01	0.025	0.020
Mine Site: Accommodation Pad	MS	MS-Q104-1	8.67	2	1.99	20.00	0.10	0.10	17.98	1.35	5.1	0.31	4.79	16.5	0.017	0.02	0.01	0.021	0.010
Mine Site: Accommodation Pad	MS	MS-Q104-2	9.05	2	1.97	20.00	0.10	0.10	16.41	1.48	9.1	0.31	8.79	29.4	0.022	0.02	0.01	0.031	0.020
Mine Site: Accommodation Pad	MS	MS-Q104-3	8.63	2	1.98	20.00	0.10	0.10	16.92	1.44	7.8	0.31	7.49	25.2	0.020	0.02	0.01	0.027	0.020
Mine Site: Accommodation Pad	MS	MS-Q104-4	8.52	2	1.97	20.00	0.10	0.10	17.67	1.39	5.9	0.31	5.59	19.0	0.023	0.02	0.01	0.014	0.015
Mine Site: Accommodation Pad	MS	MS-Q104-5	8.99	2	1.99	20.00	0.10	0.10	14.91	1.66	13	0.31	12.5	41.3	0.034	0.02	0.01	0.054	0.040
Mine Site: Accommodation Pad	MS	MS-Q104-6	8.94	2	2.00	29.60	0.10	0.10	14.12	1.78	39	0.31	38.4	125	0.022	0.02	0.01	0.429	1.26
Mine Site: Accommodation Pad	MS	MS-Q104-7	9.01	2	1.99	20.00	0.10	0.10	14.71	1.80	13	0.31	13.0	42.9	0.033	0.02	0.01	0.054	0.045
Mine Site: Accommodation Pad	MS	MS-Q104-8	9.24	2	2.05	20.00	0.10	0.10	17.50	1.34	6.1	0.31	5.79	19.7	0.012	0.01	0.01	0.052	0.035

Analysis: STATS MEAN MS ABA																
Paste pH	Fizz Rate	Sample weight	HCl added	HCl	NaOH	Vol NaOH to pH=8.3	Final pH	NP	AP	Net NP	NP/AP	S	Acid Leachable SO4-S	Sulphide	C	CO3
9.03	2.09	2.00	22.96	0.10	0.10	14.47	1.58	21.22	0.31	20.86	68.23	0.02	0.02	0.01	0.20	0.55
Analysis: STATS MAX MS ABA																
Paste pH	Fizz Rate	Sample weight	HCl added	HCl	NaOH	Vol NaOH to pH=8.3	Final pH	NP	AP	Net NP	NP/AP	S	Acid Leachable SO4-S	Sulphide	C	CO3
9.35	3.00	2.06	53.90	0.10	0.10	17.98	1.93	95.00	0.31	94.40	305.00	0.04	0.03	0.01	1.21	4.76
Analysis: STATS MIN MS ABA																
Paste pH	Fizz Rate	Sample weight	HCl added	HCl	NaOH	Vol NaOH to pH=8.3	Final pH	NP	AP	Net NP	NP/AP	S	Acid Leachable SO4-S	Sulphide	C	CO3
8.52	2.00	1.97	20.00	0.10	0.10	7.50	1.22	5.10	0.31	4.79	16.50	0.01	0.01	0.01	0.01	0.01

Quarry QMR2 and Km 104 - Grab Samples Metals Results

Location	Prefix	Sample ID	Analysis																													
			Hg	Al	As	Ba	Be	Bi	Ca	Cd	Co	Cr	Cu	Fe	K	Li	Mg	Mn	Mo	Na	Ni	Pb	S	Sb	Se	Sn	Sr	Ti	Tl	U	V	Zn
Mine Site: Accommodation Pad	MS	MS-CP-1	0.05	7200	0.5	22	1.1	0.57	3300	0.07	4.9	160	14	15000	2600	10	9000	140	2.0	480	43	10	16	0.8	0.7	0.8	4.4	270	0.12	5.7	12	26
Mine Site: Accommodation Pad	MS	MS-CP-2	0.05	8300	0.5	14	1.2	0.28	2600	0.07	3.6	160	13	15000	3000	10	7300	120	0.9	550	13	7.4	49	0.8	0.7	1.2	3.3	250	0.13	6.3	12	25
Mine Site: Accommodation Pad	MS	MS-CP-3	0.05	12000	0.6	13	1.5	1.3	2300	0.06	6.3	170	19	21000	5400	13	15000	170	1.9	550	35	9.8	79	0.8	0.7	1.3	3.0	450	0.31	6.6	27	34
Mine Site: Accommodation Pad	MS	MS-CP-4	0.05	8700	0.8	15	1.0	0.43	6000	0.05	5.6	170	16	17000	3200	13	14000	140	0.9	480	30	8.1	97	0.8	0.7	0.8	4.4	290	0.15	5.2	21	24
Mine Site: Accommodation Pad	MS	MS-CP-5	0.05	9600	1.0	10	1.7	0.65	1300	0.06	4.4	150	17	17000	4000	11	8000	140	1.9	590	10.0	9.8	210	0.8	0.7	1.2	2.2	310	0.19	7.6	19	29
Mine Site: Accommodation Pad	MS	MS-CP-6	0.05	9600	0.7	15	1.4	0.33	3800	0.06	4.7	160	13	17000	3800	12	9200	150	0.9	540	16	8.5	79	0.8	0.7	0.9	3.8	340	0.19	6.0	19	29
Mine Site: Accommodation Pad	MS	MS-CP-7	0.05	3200	1.0	16	0.19	0.09	19000	0.03	3.7	120	8.1	9000	1300	5	15000	100	0.4	220	34	3.9	15	0.8	0.7	0.5	8.1	180	0.05	0.59	6	9.4
Mine Site: Accommodation Pad	MS	MS-CP-8	0.05	16000	0.5	8.6	1.6	0.48	1200	0.07	7.6	91	20	24000	3900	25	19000	160	0.4	590	15	9.1	98	0.8	0.7	0.8	2.5	280	0.20	8.1	41	32
Mine Site: Accommodation Pad	MS	MS-CP-9	0.05	9000	0.5	11	1.4	1.5	2300	0.07	3.8	97	13	14000	3100	11	8700	140	0.5	540	17	14	26	0.8	0.7	1.1	3.0	220	0.16	6.7	15	32
Mine Site: Accommodation Pad	MS	MS-CP-10	0.05	9800	0.6	20	1.3	0.35	2200	0.05	5.4	94	14	17000	3900	13	9200	140	0.5	440	21	8.9	250	0.8	0.7	0.7	3.0	370	0.20	5.9	25	29
Mine Site: Accommodation Pad	MS	MS-CP-11	0.05	8700	0.7	21	0.94	0.28	5500	0.04	4.7	100	13	19000	3000	13	8900	140	0.5	380	14	7.2	85	0.8	0.7	0.5	4.6	370	0.15	3.7	22	23
Mine Site: Accommodation Pad	MS	MS-CP-12	0.05	5800	0.5	34	0.48	0.13	20000	0.06	4.5	100	12	13000	3100	10	17000	140	0.6	360	28	6.6	93	0.8	0.7	0.5	8.5	350	0.13	7.4	13	20
Mine Site: Accommodation Pad	MS	MS-CP-13	0.05	6300	0.8	18	0.57	0.34	5700	0.05	4.0	110	12	13000	2200	9	8600	120	0.5	390	26	7.6	26	0.8	0.7	0.6	4.8	240	0.10	3.3	12	21
Mine Site: Accommodation Pad	MS	MS-CP-14	0.05	7100	0.5	12	0.94	0.94	2800	0.06	3.8	99	15	15000	2200	10	7700	110	0.4	460	21	9.1	28	0.8	0.7	0.9	3.1	190	0.10	5.0	12	22
Mine Site: Accommodation Pad	MS	MS-CP-15	0.05	9300	0.5	15	1.4	1.2	2100	0.19	5.2	99	18	19000	3600	13	9400	150	0.7	500	27	15	120	0.8	0.7	1.5	3.2	270	0.22	7.1	14	38
Mine Site: Accommodation Pad	MS	MS-CP-16	0.05	9900	1.0	15	1.2	0.60	7400	0.08	5.2	97	13	17000	4000	13	14000	150	0.4	490	22	7.7	33	0.8	0.7	0.8	4.2	330	0.20	5.5	25	26
Mine Site: Accommodation Pad	MS	MS-CP-17	0.05	15000	0.6	9.1	1.7	0.54	990	0.07	7.3	120	20	24000	4200	24	18000	160	1.5	630	13	9.9	120	0.8	0.7	0.8	2.4	270	0.21	8.7	37	31
Mine Site: Accommodation Pad	MS	MS-CP-18	0.05	14000	0.5	9.4	1.6	0.30	760	0.06	6.2	130	16	22000	4300	19	15000	150	0.8	640	12	8.9	46	0.8	0.7	0.8	2.2	290	0.22	8.5	33	31
Mine Site: Accommodation Pad	MS	MS-CP-19	0.05	16000	0.5	8.9	1.7	0.44	2600	0.06	8.3	120	26	25000	4100	26	20000	170	1.4	590	15	8.9	84	0.8	0.7	0.8	2.6	270	0.21	8.5	40	33
Mine Site: Accommodation Pad	MS	MS-CP-20	0.05	18000	0.5	9.6	1.9	0.41	950	0.07	8.8	120	24	27000	4500	28	20000	160	0.7	570	15	8.1	150	0.8	0.7	0.8	2.3	340	0.22	8.3	50	30
Mine Site: Accommodation Pad	MS	MS-CP-21	0.05	15000	0.6	8.5	1.5	0.57	1500	0.06	8.1	150	22	24000	3500	27	19000	160	1.6	580	18	9.1	100	0.8	0.7	0.9	2.5	230	0.19	9.2	38	31
Mine Site: Accommodation Pad	MS	MS-CP-22	0.05	16000	0.5	9.0	1.7	0.63	1000	0.06	7.2	120	20	23000	5000	24	18000	160	0.8	580	14	10.0	160	0.8	0.7	1.0	2.3	350	0.27	8.6	36	34
Mine Site: Accommodation Pad	MS	MS-CP-23	0.05	20000	0.6	12	1.7	0.42	2000	0.06	11	140	27	31000	4900	35	28000	190	1.4	600	24	7.9	190	0.8	0.7	0.9	2.5	330	0.25	7.6	51	34
Mine Site: Accommodation Pad	MS	MS-CP-24	0.05	14000	0.5	7.9	1.5	0.65	920	0.06	7.0	140	17	23000	3700	23	18000	140	0.8	550	15	8.7	120	0.8	0.7	0.7	2.0	220	0.17	7.2	37	31
Mine Site: Accommodation Pad	MS	MS-Q104-1	0.05	6200	0.7	5.9	1.5	0.29	630	0.08	1.7	130	13	8500	2100	7	4600	64	1.6	440	5.0	15	61	0.8	0.7	0.7	2.0	41	0.04	8.4	3	37
Mine Site: Accommodation Pad	MS	MS-Q104-2	0.05	10000	0.5	4.8	2.0	0.21	930	0.07	4.7	150	24	16000	2700	16	12000	120	0.8	560	11	8.8	160	0.8	0.7	0.9	1.9	130	0.11	12	18	29
Mine Site: Accommodation Pad	MS	MS-Q104-3	0.05	11000	0.8	5.7	1.7	0.14	720	0.06	4.5	150	12	17000	4300	15	9400	130	1.8	540	9.4	9.8	86	0.8	0.7	0.6	1.8	260	0.24	10	19	30
Mine Site: Accommodation Pad	MS	MS-Q104-4	0.05	6200	0.5	4.0	1.4	0.40	570	0.06	2.0	130	12	8000	2300	8	3900	67	0.7	690	6.0	6.8	64	0.8	0.7	0.5	2.9	37	0.06	4.6	1	20
Mine Site: Accommodation Pad	MS	MS-Q104-5	0.05	12000	0.5	9.4	1.6	0.30	1300	0.04	6.2	140	22	22000	2600	21	14000	120	1.8	460	11	7.2	340	0.8	0.7	0.7	2.2	190	0.09	8.8	39	19
Mine Site: Accommodation Pad	MS	MS-Q104-6	0.05	8500	0.6	16	1.0	0.19	7600	0.05	5.2	180	17	18000	2400	14	13000	130	0.9	320	23	7.2	170	0.8	0.7	0.5	5.1	220	0.09	4.1	21	23
Mine Site: Accommodation Pad	MS	MS-Q104-7	0.05	18000	0.5	11	1.8	0.43	1600	0.06	8.5	150	23	26000	4300	29	23000	180	1.6	560	20	8.5	58	0.8	0.7	0.8	2.5	310	0.21	8.5	43	34
Mine Site: Accommodation Pad	MS	MS-Q104-8	0.05	4900	0.5	9.7	1.5	0.30	980	0.08	1.3	160	9.6	7700	1900	5	3300	81	0.8	500	7.3	9.0	54	0.8	1.0	0.5	1.9	72	0.04	7.2	1	28

Analysis: STATS MEAN MS Aqua Regia																													
Analysis																													
Hg	Al	As	Ba	Be	Bi	Ca	Cd	Co	Cr	Cu	Fe	K	Li	Mg	Mn	Mo	Na	Ni	Pb	S	Sb	Se	Sn	Sr	Ti	Tl	U	V	Zn
0.05	10790.63	0.6125	12.51563	1.36625	0.490313	3517.188	0.064688	5.48125	131.4688	16.70938	18256.25	3409.375	16	13100	137.25	1.0125	511.5625	18.45938	8.953125	102.0938	0.8	0.709375	0.8125	3.2875	258.4375	0.163125	6.902813	23.8125	27.95
Analysis: STATS MAX MS Aqua Regia																													
Analysis																													
Hg	Al	As	Ba	Be	Bi	Ca	Cd	Co	Cr	Cu	Fe	K	Li	Mg	Mn	Mo	Na	Ni	Pb	S	Sb	Se	Sn	Sr	Ti	Tl	U	V	Zn
0.05	20000	1	34	2	1.5	20000	0.19	11	180	27	31000	5400	35	28000	190	2	690	43	15	340	0.8	1	1.5	8.5	450	0.31	12	51	38
Analysis: STATS MIN MS Aqua Regia																													
Analysis																													
Hg	Al	As	Ba	Be	Bi	Ca	Cd	Co	Cr	Cu	Fe	K	Li	Mg	Mn	Mo	Na	Ni	Pb	S	Sb	Se	Sn	Sr	Ti	Tl	U	V	Zn
0.05	3200	0.5	4	0.19	0.09	570	0.03	1.3	91	8.1	7700	1300	5	3300	64	0.4	220	5	3.9	15	0.8	0.7	0.5	1.8	37	0.04	0.59	1	9.4



SGS Canada Inc.

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Lakefield - Ontario - KOL 2H0

Phone: 705-652-2000 FAX: 705-652-6365

Baffinland Iron Mines Corp

Attn : Jim Millard

#300-2278 Upper Middle Road East, Oakville

Canada, L6H 0C3

Phone: 416-364-8820, Fax:416-364-0193

Modified ABA

10-October-2013

Date Rec. : 06 September 2013

LR Report: CA12201-SEP13

Reference: Mary River Project Quarry Testing

Copy: #1

CERTIFICATE OF ANALYSIS

Final Report

Sample ID	Sample Date & Time	Paste pH units	Fizz Rate ---	Sample weight g	HCl added mL	HCl Normality	NaOH Normality	NaOH to pH=8.3 mL	Final pH units
3: Analysis Approval Date		15-Nov-12	15-Nov-12	15-Nov-12	15-Nov-12	15-Nov-12	15-Nov-12	15-Nov-12	15-Nov-12
4: Analysis Approval Time		13:10	13:10	13:10	13:10	13:10	13:10	13:10	13:10
5: Q1-10-1	09-Jun-13	9.41	2	2.04	20.00	0.10	0.10	11.94	1.49
6: Q1-10-2	09-Jun-13	9.13	2	2.05	20.00	0.10	0.10	8.45	1.71
7: Q1-10-3	09-Jun-13	9.45	2	2.03	20.00	0.10	0.10	9.44	1.64
8: Q1-10-4	09-Jun-13	9.39	2	1.99	20.00	0.10	0.10	11.11	1.52
9: Q1-10-5	09-Jun-13	9.29	2	2.02	20.00	0.10	0.10	10.35	1.59
10: Q1-10-6	09-Jun-13	9.30	2	1.99	20.00	0.10	0.10	13.20	1.47
11: Q1-10-7	09-Jun-13	9.17	2	1.98	33.80	0.10	0.10	16.28	1.56
12: Q1-10-8	09-Jun-13	9.46	2	2.05	20.00	0.10	0.10	9.44	1.63
13: Q1-20-1	13-Jun-13	9.67	2	1.96	20.00	0.10	0.10	16.32	1.25
14: Q1-20-2	13-Jun-13	9.31	2	1.97	20.00	0.10	0.10	12.31	1.46
15: Q1-20-3	13-Jun-13	9.54	2	2.03	20.00	0.10	0.10	15.67	1.28
16: Q1-20-4	13-Jun-13	9.51	2	2.01	20.00	0.10	0.10	13.64	1.35
17: Q1-20-5	13-Jun-13	9.83	2	1.98	20.00	0.10	0.10	17.60	1.15
18: Q1-20-6	13-Jun-13	9.82	2	2.02	20.00	0.10	0.10	18.40	1.14
19: Q1-20-7	13-Jun-13	9.64	2	1.97	20.00	0.10	0.10	12.79	1.36
20: Q1-20-8	13-Jun-13	9.65	2	2.01	20.00	0.10	0.10	13.45	1.35
21: Q1-30-1	22-Jun-13	9.59	2	2.03	20.00	0.10	0.10	15.75	1.25



SGS Canada Inc.

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Lakefield - Ontario - KOL 2H0

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Modified ABA

LR Report :

CA12201-SEP13

Sample ID	Sample Date & Time	Paste pH units	Fizz Rate ---	Sample weight g	HCl added mL	HCl Normality	NaOH Normality	NaOH to pH=8.3 mL	Final pH units
22: Q1-30-2	22-Jun-13	9.78	2	2.00	20.00	0.10	0.10	18.08	1.14
23: Q1-30-3	22-Jun-13	9.77	2	2.01	20.00	0.10	0.10	18.35	1.15
24: Q1-30-4	22-Jun-13	8.03	1	1.97	35.80	0.10	0.10	23.75	1.86
25: Q1-30-5	22-Jun-13	7.71	1	1.97	27.30	0.10	0.10	17.94	1.83
26: Q1-30-6	22-Jun-13	9.84	2	1.99	29.20	0.10	0.10	16.34	1.22
27: Q1-30-7	22-Jun-13	9.71	2	2.03	20.00	0.10	0.10	16.66	1.17
28: Q1-30-8	22-Jun-13	9.66	2	1.99	20.00	0.10	0.10	17.58	1.16
29: Q1-40-1	22-Jun-13	9.71	2	1.98	20.00	0.10	0.10	16.34	1.20
30: Q1-40-2	05-Jul-13	9.74	2	2.00	20.00	0.10	0.10	17.32	1.20
31: Q1-40-3	05-Jul-13	9.80	2	2.00	20.00	0.10	0.10	17.42	1.20
32: Q1-40-4	05-Jul-13	9.77	2	1.97	20.00	0.10	0.10	17.16	1.18
33: Q1-40-5	05-Jul-13	9.75	2	2.00	20.00	0.10	0.10	16.67	1.24
34: Q1-40-6	05-Jul-13	9.90	2	1.97	20.00	0.10	0.10	16.54	1.39
35: Q1-40-7	05-Jul-13	9.90	2	2.00	20.00	0.10	0.10	16.65	1.34
36: Q1-40-8	05-Jul-13	9.85	2	2.05	20.00	0.10	0.10	15.99	1.38
37: Q1-50-1	09-Jul-13	9.95	2	2.01	20.00	0.10	0.10	16.50	1.29
38: Q1-50-2	09-Jul-13	9.83	2	2.01	20.00	0.10	0.10	16.61	1.27
39: Q1-50-3	09-Jul-13	9.85	2	2.05	20.00	0.10	0.10	16.14	1.31
40: Q1-50-4	09-Jul-13	9.71	2	1.97	20.00	0.10	0.10	16.63	1.25
41: Q1-50-5	09-Jul-13	9.75	2	2.00	20.00	0.10	0.10	16.48	1.27
42: Q1-50-6	09-Jul-13	9.82	2	2.04	20.00	0.10	0.10	17.13	1.19
43: Q1-50-7	09-Jul-13	9.89	2	2.04	20.00	0.10	0.10	16.76	1.26
44: Q1-50-8	09-Jul-13	9.75	2	1.99	20.00	0.10	0.10	15.61	1.25
45: Q1-60-1	17-Jul-13	9.54	3	1.99	29.50	0.10	0.10	13.84	1.63
46: Q1-60-2	17-Jul-13	9.53	2	2.01	20.00	0.10	0.10	13.74	1.38
47: Q1-60-3	17-Jul-13	9.77	2	2.05	20.00	0.10	0.10	16.11	1.29
48: Q1-60-4	17-Jul-13	9.73	2	2.00	20.00	0.10	0.10	14.14	1.36
49: Q1-60-5	17-Jul-13	9.85	2	1.98	20.00	0.10	0.10	16.41	1.27
50: Q1-60-6	17-Jul-13	9.87	2	2.04	20.00	0.10	0.10	16.36	1.29
51: Q1-60-7	17-Jul-13	9.74	3	1.99	20.00	0.10	0.10	10.93	1.62
52: Q1-60-8	17-Jul-13	9.54	3	2.02	20.00	0.10	0.10	16.75	1.81
53: Q1-70-1	23-Jul-13	9.87	2	2.00	20.00	0.10	0.10	17.19	1.27
54: Q1-70-2	23-Jul-13	9.47	2	2.01	20.00	0.10	0.10	16.62	1.21
55: Q1-70-3	23-Jul-13	9.06	3	2.01	33.90	0.10	0.10	16.84	1.54



SGS Canada Inc.

P.O. Box 4300 - 185 Concession St.

Lakefield - Ontario - KOL 2H0

Phone: 705-652-2000 FAX: 705-652-6365

Modified ABA

LR Report :

CA12201-SEP13

Sample ID	Sample Date & Time	Paste pH units	Fizz Rate ---	Sample weight g	HCl added mL	HCl Normality	NaOH Normality	NaOH to pH=8.3 mL	Final pH units
56: Q1-70-4	23-Jul-13	9.65	2	1.96	20.00	0.10	0.10	16.03	1.28
57: Q1-70-5	23-Jul-13	9.85	2	2.01	20.00	0.10	0.10	8.74	1.30
58: Q1-70-6	23-Jul-13	9.28	2	2.03	20.00	0.10	0.10	9.82	1.64
59: Q1-70-7	23-Jul-13	9.89	2	2.03	20.00	0.10	0.10	16.63	1.24
60: Q1-70-8	23-Jul-13	9.51	3	2.02	20.00	0.10	0.10	9.54	1.69
61: Q1-90-1	08-Aug-13	9.82	2	2.01	20.00	0.10	0.10	15.86	1.23
62: Q1-90-2	08-Aug-13	9.81	2	1.99	20.00	0.10	0.10	17.08	1.11
63: Q1-90-3	08-Aug-13	9.67	2	2.01	20.00	0.10	0.10	11.98	1.18
64: Q1-90-4	08-Aug-13	9.59	2	1.98	20.00	0.10	0.10	9.74	1.40
65: Q1-90-5	08-Aug-13	9.72	2	2.00	20.00	0.10	0.10	15.13	1.14
66: Q1-90-6	08-Aug-13	9.83	2	1.98	20.00	0.10	0.10	17.52	1.07
67: Q1-90-7	08-Aug-13	9.69	2	2.03	20.00	0.10	0.10	15.59	0.97
68: Q1-90-8	08-Aug-13	9.68	2	2.02	20.00	0.10	0.10	11.11	1.29
69: MP-80-1	02-Jul-13	9.73	2	2.03	20.00	0.10	0.10	13.97	1.16
70: MP-80-2	02-Jul-13	9.72	2	2.01	20.00	0.10	0.10	12.65	0.94
71: MP-80-3	02-Jul-13	9.62	2	2.01	20.00	0.10	0.10	15.32	0.93
72: MP-80-4	02-Jul-13	9.57	2	2.03	32.30	0.10	0.10	11.76	1.50
73: MP-80-5	02-Jul-13	9.63	2	2.00	32.50	0.10	0.10	9.83	1.32
74: MP-80-6	02-Jul-13	9.50	3	1.96	20.00	0.10	0.10	13.62	1.45
75: MP-80-7	02-Jul-13	9.76	2	2.04	20.00	0.10	0.10	15.92	1.06
76: MP-80-8	02-Jul-13	9.36	2	1.98	106.40	0.10	0.10	20.87	1.86
77: MS-CP-1	12-Aug-13	9.28	2	2.02	20.00	0.10	0.10	11.33	1.48
78: MS-CP-2	12-Aug-13	9.26	2	1.99	20.00	0.10	0.10	13.70	1.39
79: MS-CP-3	12-Aug-13	9.35	2	2.00	20.00	0.10	0.10	12.50	1.52
80: MS-CP-4	12-Aug-13	9.22	3	2.04	29.50	0.10	0.10	16.17	1.71
81: MS-CP-5	12-Aug-13	9.21	2	2.02	20.00	0.10	0.10	13.81	1.52
82: MS-CP-6	12-Aug-13	9.29	2	2.00	20.00	0.10	0.10	12.55	1.73
83: MS-CP-7	12-Aug-13	8.73	3	2.02	53.50	0.10	0.10	17.56	1.69
84: MS-CP-8	12-Aug-13	8.95	2	2.00	20.00	0.10	0.10	15.64	1.53
85: MS-CP-9	12-Aug-13	9.16	2	2.01	20.00	0.10	0.10	14.41	1.48
86: MS-CP-10	12-Aug-13	9.12	2	1.99	20.00	0.10	0.10	13.77	1.22
87: MS-CP-11	12-Aug-13	8.95	2	2.02	20.00	0.10	0.10	7.50	1.87
88: MS-CP-12	12-Aug-13	8.92	3	2.00	53.90	0.10	0.10	16.02	1.83
89: MS-CP-13	12-Aug-13	9.15	2	1.99	20.00	0.10	0.10	8.84	1.72



SGS Canada Inc.

P.O. Box 4300 - 185 Concession St.

Lakefield - Ontario - KOL 2H0

Phone: 705-652-2000 FAX: 705-652-6365

Modified ABA

LR Report :

CA12201-SEP13

Sample ID	Sample Date & Time	Paste pH units	Fizz Rate ---	Sample weight g	HCl added mL	HCl Normality	NaOH Normality	NaOH to pH=8.3 mL	Final pH units
90: MS-CP-14	12-Aug-13	9.24	2	1.99	20.00	0.10	0.10	14.06	1.49
91: MS-CP-15	12-Aug-13	9.16	2	2.02	20.00	0.10	0.10	14.70	1.41
92: MS-CP-16	12-Aug-13	9.15	2	2.03	28.20	0.10	0.10	13.29	1.60
93: MS-CP-17	12-Aug-13	8.97	2	2.00	20.00	0.10	0.10	15.05	1.48
94: MS-CP-18	12-Aug-13	9.00	2	2.03	20.00	0.10	0.10	15.61	1.49
95: MS-CP-19	12-Aug-13	9.02	2	1.98	20.00	0.10	0.10	13.95	1.82
96: MS-CP-20	12-Aug-13	8.95	2	1.97	20.00	0.10	0.10	15.01	1.69
97: MS-CP-21	12-Aug-13	9.05	2	1.97	20.00	0.10	0.10	14.33	1.59
98: MS-CP-22	12-Aug-13	9.00	2	2.03	20.00	0.10	0.10	13.42	1.28
99: MS-CP-23	12-Aug-13	8.89	2	1.98	20.00	0.10	0.10	13.98	1.93
100: MS-CP-24	12-Aug-13	8.95	2	2.06	20.00	0.10	0.10	15.47	1.69
101: MS-Q104-1	12-Aug-13	8.67	2	1.99	20.00	0.10	0.10	17.98	1.35
102: MS-Q104-2	12-Aug-13	9.05	2	1.97	20.00	0.10	0.10	16.41	1.48
103: MS-Q104-3	12-Aug-13	8.63	2	1.98	20.00	0.10	0.10	16.92	1.44
104: MS-Q104-4	12-Aug-13	8.52	2	1.97	20.00	0.10	0.10	17.67	1.39
105: MS-Q104-5	12-Aug-13	8.99	2	1.99	20.00	0.10	0.10	14.91	1.66
106: MS-Q104-6	12-Aug-13	8.94	2	2.00	29.60	0.10	0.10	14.12	1.78
107: MS-Q104-7	12-Aug-13	9.01	2	1.99	20.00	0.10	0.10	14.71	1.80
108: MS-Q104-8	12-Aug-13	9.24	2	2.05	20.00	0.10	0.10	17.50	1.34



SGS Canada Inc.

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Lakefield - Ontario - KOL 2H0

Phone: 705-652-2000 FAX: 705-652-6365

Modified ABA

LR Report :

CA12201-SEP13

*NP (Neutralization Potential)

= $50 \times (N \text{ of HCL} \times \text{Total HCL added} - N \text{ NaOH} \times \text{NaOH added})$

Weight of Sample

*AP (Acid Potential) = % Sulphide Sulphur $\times$ 31.25

*Net NP (Net Neutralization Potential) = NP-AP

NP/AP Ratio = NP/AP

*Results expressed as tonnes CaCO₃ equivalent/1000 tonnes of material

Samples with a % Sulphide value of <0.01 will be calculated using a 0.01 value.

Sulphur analysis performed following BC ARD Guidelines (Price 1997)

Brian Graham B.Sc.

Project Specialist

Environmental Services, Analytical



SGS Canada Inc.

P.O. Box 4300 - 185 Concession St.

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Phone: 705-652-2000 FAX: 705-652-6365

Baffinland Iron Mines Corp

Attn : Jim Millard

#300-2278 Upper Middle Road East, Oakville

Canada, L6H 0C3

Phone: 416-364-8820, Fax:416-364-0193

Modified ABA

10-October-2013

Date Rec. : 06 September 2013

LR Report: CA12201-SEP13

Reference: Mary River Project Quarry Testing

Copy: #1

CERTIFICATE OF ANALYSIS

Final Report

Sample ID	NP t CaCO3/1000 t	AP t CaCO3/1000 t	Net NP t CaCO3/1000 t	NP/AP ratio	Sulphur (total) %	Acid Leachable SO4-S %	Sulphide %	Carbon (total) %	Carbonate %
3: Analysis Approval Date	15-Nov-12	---	---	---	02-Nov-12	---	09-Oct-13	04-Oct-13	09-Oct-13
4: Analysis Approval Time	13:10	---	---	---	16:03	---	10:43	13:09	10:35
5: Q1-10-1	20	0.31	19.5	63.9	0.010	0.01	< 0.01	0.276	0.814
6: Q1-10-2	28	0.31	27.9	91.0	0.024	0.02	< 0.01	0.443	1.29
7: Q1-10-3	26	0.31	25.7	83.9	0.017	0.02	< 0.01	0.364	1.21
8: Q1-10-4	22	0.31	22.0	71.9	0.018	0.02	< 0.01	0.308	1.00
9: Q1-10-5	24	0.31	23.6	77.1	0.023	0.02	< 0.01	0.336	1.04
10: Q1-10-6	17	0.31	16.8	55.2	0.020	0.02	< 0.01	0.209	0.595
11: Q1-10-7	44	0.31	43.9	143	0.024	0.02	< 0.01	0.640	2.17
12: Q1-10-8	26	0.31	25.5	83.2	0.017	0.02	< 0.01	0.365	1.23
13: Q1-20-1	9.4	0.31	9.09	30.3	0.016	0.02	< 0.01	0.113	0.300
14: Q1-20-2	20	0.31	19.2	62.9	0.019	0.02	< 0.01	0.309	0.814
15: Q1-20-3	11	0.31	10.4	34.5	0.014	0.01	< 0.01	0.140	0.380
16: Q1-20-4	16	0.31	15.5	51.0	0.020	0.02	< 0.01	0.244	0.654
17: Q1-20-5	6.0	0.31	5.69	19.4	0.007	< 0.01	< 0.01	0.062	0.130
18: Q1-20-6	4.0	0.31	3.69	12.9	0.009	< 0.01	< 0.01	0.033	0.040
19: Q1-20-7	18	0.31	18.0	59.0	0.009	< 0.01	< 0.01	0.264	0.754
20: Q1-20-8	16	0.31	16.0	52.6	0.008	< 0.01	< 0.01	0.232	0.669
21: Q1-30-1	10	0.31	10.2	33.9	0.013	0.01	< 0.01	0.130	0.350



SGS Canada Inc.

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Lakefield - Ontario - KOL 2HO

Phone: 705-652-2000 FAX: 705-652-6365

Modified ABA

LR Report :

CA12201-SEP13

Sample ID	NP t CaCO3/1000 t	AP t CaCO3/1000 t	Net NP t CaCO3/1000 t	NP/AP ratio	Sulphur (total) %	Acid Leachable SO4-S %	Sulphide %	Carbon (total) %	Carbonate %
22: Q1-30-2	4.8	0.31	4.49	15.5	0.010	0.01	< 0.01	0.030	0.040
23: Q1-30-3	4.1	0.31	3.79	13.2	0.010	0.01	< 0.01	0.024	0.020
24: Q1-30-4	31	0.31	30.3	98.7	0.011	0.01	< 0.01	0.028	0.030
25: Q1-30-5	24	0.31	23.5	76.8	0.027	0.03	< 0.01	0.490	1.57
26: Q1-30-6	32	0.31	32.0	104	0.012	0.01	< 0.01	0.069	0.175
27: Q1-30-7	8.2	0.31	7.89	26.5	0.014	0.01	< 0.01	0.059	0.100
28: Q1-30-8	6.1	0.31	5.79	19.7	0.013	0.01	< 0.01	0.036	0.055
29: Q1-40-1	9.2	0.31	8.89	29.7	0.011	0.01	< 0.01	0.052	0.065
30: Q1-40-2	6.7	0.31	6.39	21.6	0.010	0.01	< 0.01	0.046	0.080
31: Q1-40-3	6.5	0.31	6.19	21.0	0.012	0.01	< 0.01	0.038	0.055
32: Q1-40-4	7.2	0.31	6.89	23.2	0.013	0.01	< 0.01	0.052	0.075
33: Q1-40-5	8.3	0.31	7.99	26.8	0.011	0.01	< 0.01	0.058	0.095
34: Q1-40-6	8.8	0.31	8.49	28.4	0.012	0.01	< 0.01	0.055	0.055
35: Q1-40-7	8.4	0.31	8.09	27.1	0.012	0.01	< 0.01	0.060	0.070
36: Q1-40-8	9.8	0.31	9.49	31.6	0.013	0.01	< 0.01	0.101	0.110
37: Q1-50-1	8.7	0.31	8.39	28.1	0.013	0.01	< 0.01	0.055	0.065
38: Q1-50-2	8.4	0.31	8.09	27.1	0.011	0.01	< 0.01	0.060	0.075
39: Q1-50-3	9.4	0.31	9.09	30.3	0.014	0.01	< 0.01	0.079	0.175
40: Q1-50-4	8.6	0.31	8.29	27.7	0.014	0.01	< 0.01	0.069	0.120
41: Q1-50-5	8.8	0.31	8.49	28.4	0.016	0.02	< 0.01	0.068	0.120
42: Q1-50-6	7.0	0.31	6.69	22.6	0.011	0.01	< 0.01	0.039	0.055
43: Q1-50-7	7.9	0.31	7.59	25.5	0.010	0.01	< 0.01	0.048	0.055
44: Q1-50-8	11	0.31	10.7	35.5	0.019	0.02	< 0.01	0.094	0.230
45: Q1-60-1	39	0.31	39.0	127	0.010	0.01	< 0.01	0.504	1.81
46: Q1-60-2	16	0.31	15.3	50.3	0.016	0.02	< 0.01	0.171	0.425
47: Q1-60-3	9.5	0.31	9.19	30.6	0.018	0.02	< 0.01	0.084	0.155
48: Q1-60-4	15	0.31	14.4	47.4	0.014	0.01	< 0.01	0.154	0.410
49: Q1-60-5	9.1	0.31	8.79	29.4	0.010	0.01	< 0.01	0.059	0.135
50: Q1-60-6	8.9	0.31	8.59	28.7	0.012	0.01	< 0.01	0.063	0.120
51: Q1-60-7	23	0.31	22.5	73.5	0.012	0.01	< 0.01	0.263	0.819
52: Q1-60-8	8.0	0.31	7.69	25.8	0.011	0.01	< 0.01	0.354	1.14
53: Q1-70-1	7.0	0.31	6.69	22.6	0.016	0.02	< 0.01	0.049	0.050
54: Q1-70-2	8.4	0.31	8.09	27.1	0.017	0.02	< 0.01	0.049	0.055
55: Q1-70-3	42	0.31	42.1	137	0.015	0.02	< 0.01	0.522	1.68



SGS Canada Inc.

P.O. Box 4300 - 185 Concession St.

Lakefield - Ontario - KOL 2H0

Phone: 705-652-2000 FAX: 705-652-6365

Modified ABA

LR Report :

CA12201-SEP13

Sample ID	NP t CaCO ₃ /1000 t	AP t CaCO ₃ /1000 t	Net NP t CaCO ₃ /1000 t	NP/AP ratio	Sulphur (total) %	Acid Leachable SO ₄ -S %	Sulphide %	Carbon (total) %	Carbonate %
56: Q1-70-4	10	0.31	9.79	32.6	0.029	0.02	0.01	0.046	0.040
57: Q1-70-5	28	0.31	27.7	90.3	0.018	0.02	< 0.01	0.072	0.170
58: Q1-70-6	25	0.31	24.8	81.0	0.025	0.02	< 0.01	0.300	0.809
59: Q1-70-7	8.3	0.31	7.99	26.8	0.012	0.01	< 0.01	0.029	0.020
60: Q1-70-8	26	0.31	25.6	83.5	0.017	0.02	< 0.01	0.299	0.914
61: Q1-90-1	10	0.31	9.99	33.2	0.011	0.01	< 0.01	0.078	0.160
62: Q1-90-2	7.3	0.31	6.99	23.5	0.010	0.01	< 0.01	0.047	0.055
63: Q1-90-3	20	0.31	19.7	64.5	0.011	0.01	< 0.01	0.218	0.674
64: Q1-90-4	26	0.31	25.6	83.5	0.012	0.01	< 0.01	0.312	1.08
65: Q1-90-5	12	0.31	11.9	39.4	0.011	0.01	< 0.01	0.112	0.315
66: Q1-90-6	6.3	0.31	5.99	20.3	0.008	< 0.01	< 0.01	0.026	0.030
67: Q1-90-7	11	0.31	10.6	35.2	0.010	0.01	< 0.01	0.093	0.190
68: Q1-90-8	22	0.31	21.7	71.0	0.010	0.01	< 0.01	0.270	0.859
69: MP-80-1	15	0.31	14.6	48.1	0.012	0.01	< 0.01	0.151	0.425
70: MP-80-2	18	0.31	18.0	59.0	0.012	0.01	< 0.01	0.161	0.475
71: MP-80-3	12	0.31	11.3	37.4	0.010	0.01	< 0.01	0.088	0.150
72: MP-80-4	51	0.31	50.3	163	0.011	0.01	< 0.01	0.642	2.48
73: MP-80-5	57	0.31	56.4	183	0.011	0.01	< 0.01	0.298	1.06
74: MP-80-6	16	0.31	16.0	52.6	0.010	0.01	< 0.01	0.617	2.34
75: MP-80-7	10	0.31	9.69	32.3	0.011	0.01	< 0.01	0.061	0.125
76: MP-80-8	216	0.31	216	697	0.012	0.01	< 0.01	2.59	11.1
77: MS-CP-1	22	0.31	21.2	69.4	0.021	0.02	< 0.01	0.176	0.400
78: MS-CP-2	16	0.31	15.5	51.0	0.020	0.02	< 0.01	0.170	0.230
79: MS-CP-3	19	0.31	18.4	60.3	0.023	0.02	< 0.01	0.124	0.215
80: MS-CP-4	33	0.31	32.4	105	0.022	0.01	0.01	0.409	1.02
81: MS-CP-5	15	0.31	15.0	49.4	0.030	0.02	0.01	0.072	0.065
82: MS-CP-6	19	0.31	18.3	60.0	0.021	0.02	< 0.01	0.213	0.490
83: MS-CP-7	89	0.31	88.7	287	0.014	0.01	< 0.01	1.21	4.48
84: MS-CP-8	11	0.31	10.6	35.2	0.032	0.02	0.01	0.033	0.020
85: MS-CP-9	14	0.31	13.6	44.8	0.022	0.02	< 0.01	0.134	0.200
86: MS-CP-10	16	0.31	15.3	50.3	0.029	0.02	0.01	0.154	0.170
87: MS-CP-11	31	0.31	30.6	99.7	0.024	0.02	< 0.01	0.405	0.849
88: MS-CP-12	95	0.31	94.4	305	0.017	0.02	< 0.01	1.18	4.76
89: MS-CP-13	28	0.31	27.7	90.3	0.018	0.02	< 0.01	0.336	1.03



SGS Canada Inc.

P.O. Box 4300 - 185 Concession St.

Lakefield - Ontario - KOL 2H0

Phone: 705-652-2000 FAX: 705-652-6365

Modified ABA

LR Report :

CA12201-SEP13

Sample ID	NP t CaCO ₃ /1000 t	AP t CaCO ₃ /1000 t	Net NP t CaCO ₃ /1000 t	NP/AP ratio	Sulphur (total) %	Acid Leachable SO ₄ -S %	Sulphide %	Carbon (total) %	Carbonate %
90: MS-CP-14	15	0.31	14.6	48.1	0.020	0.02	< 0.01	0.150	0.330
91: MS-CP-15	13	0.31	12.8	42.3	0.028	0.02	0.01	0.123	0.125
92: MS-CP-16	37	0.31	36.4	118	0.019	0.02	< 0.01	0.446	1.37
93: MS-CP-17	12	0.31	12.1	40.0	0.030	0.02	0.01	0.026	0.015
94: MS-CP-18	11	0.31	10.5	34.8	0.025	0.02	< 0.01	0.021	0.025
95: MS-CP-19	15	0.31	15.0	49.4	0.031	0.02	0.01	0.078	0.115
96: MS-CP-20	13	0.31	12.4	41.0	0.033	0.02	0.01	0.028	0.015
97: MS-CP-21	14	0.31	14.1	46.5	0.027	0.03	< 0.01	0.045	0.045
98: MS-CP-22	16	0.31	15.9	52.3	0.028	0.02	0.01	0.029	0.020
99: MS-CP-23	15	0.31	14.9	49.0	0.035	0.02	0.01	0.055	0.060
100: MS-CP-24	11	0.31	10.7	35.5	0.023	0.02	< 0.01	0.025	0.020
101: MS-Q104-1	5.1	0.31	4.79	16.5	0.017	0.02	< 0.01	0.021	0.010
102: MS-Q104-2	9.1	0.31	8.79	29.4	0.022	0.02	< 0.01	0.031	0.020
103: MS-Q104-3	7.8	0.31	7.49	25.2	0.020	0.02	< 0.01	0.027	0.020
104: MS-Q104-4	5.9	0.31	5.59	19.0	0.023	0.02	< 0.01	0.014	0.015
105: MS-Q104-5	13	0.31	12.5	41.3	0.034	0.02	0.01	0.054	0.040
106: MS-Q104-6	39	0.31	38.4	125	0.022	0.02	< 0.01	0.429	1.26
107: MS-Q104-7	13	0.31	13.0	42.9	0.033	0.02	0.01	0.054	0.045
108: MS-Q104-8	6.1	0.31	5.79	19.7	0.012	0.01	< 0.01	0.052	0.035



SGS Canada Inc.

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Phone: 705-652-2000 FAX: 705-652-6365

Modified ABA

LR Report :

CA12201-SEP13

*NP (Neutralization Potential)

= $50 \times (N \text{ of HCL} \times \text{Total HCL added} - N \text{ NaOH} \times \text{NaOH added})$

Weight of Sample

*AP (Acid Potential) = % Sulphide Sulphur $\times$ 31.25

*Net NP (Net Neutralization Potential) = NP-AP

NP/AP Ratio = NP/AP

*Results expressed as tonnes CaCO₃ equivalent/1000 tonnes of material

Samples with a % Sulphide value of <0.01 will be calculated using a 0.01 value.

Sulphur analysis performed following BC ARD Guidelines (Price 1997)

Brian Graham B.Sc.

Project Specialist

Environmental Services, Analytical



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Baffinland Iron Mines Corp

Attn : Jim Millard

#300-2278 Upper Middle Road East, Oakville

Canada, L6H 0C3

Phone: 416-364-8820, Fax:416-364-0193

Aqua regia

07-October-2013

Date Rec. : 06 September 2013

LR Report: CA12202-SEP13

Reference: Mary River Project Quarry Testing

Copy: #1

CERTIFICATE OF ANALYSIS

Final Report

Sample ID	Sample Date & Time	Hg µg/g	Al µg/g	As µg/g	Ba µg/g	Be µg/g	Bi µg/g	Ca µg/g	Cd µg/g	Co µg/g
3: Analysis Approval Date		01-Oct-13	07-Oct-13	30-Sep-13	30-Sep-13	30-Sep-13	30-Sep-13	07-Oct-13	30-Sep-13	30-Sep-13
4: Analysis Approval Time		09:46	11:46	11:12	11:12	11:12	11:12	11:47	11:12	11:12
5: Q1-10-1	09-Jun-13	< 0.05	3900	< 0.5	19	0.20	< 0.09	6000	< 0.02	1.4
6: Q1-10-2	09-Jun-13	< 0.05	3800	< 0.5	18	0.20	< 0.09	7800	< 0.02	1.1
7: Q1-10-3	09-Jun-13	< 0.05	4400	< 0.5	28	0.19	< 0.09	7400	< 0.02	1.4
8: Q1-10-4	09-Jun-13	< 0.05	4100	< 0.5	19	0.23	< 0.09	7300	< 0.02	1.1
9: Q1-10-5	09-Jun-13	< 0.05	4500	< 0.5	22	0.25	< 0.09	7400	< 0.02	1.2
10: Q1-10-6	09-Jun-13	< 0.05	6000	< 0.5	32	0.24	< 0.09	5300	0.02	2.5
11: Q1-10-7	09-Jun-13	< 0.05	3700	< 0.5	17	0.20	< 0.09	10000	< 0.02	1.00
12: Q1-10-8	09-Jun-13	< 0.05	3900	< 0.5	19	0.19	< 0.09	7200	< 0.02	0.97
13: Q1-20-1	13-Jun-13	< 0.05	3900	< 0.5	21	0.19	< 0.09	2500	< 0.02	0.92
14: Q1-20-2	13-Jun-13	< 0.05	3900	< 0.5	21	0.20	< 0.09	5400	< 0.02	0.98
15: Q1-20-3	13-Jun-13	< 0.05	4100	< 0.5	22	0.19	< 0.09	2900	< 0.02	1.0
16: Q1-20-4	13-Jun-13	< 0.05	3800	< 0.5	19	0.19	< 0.09	4300	< 0.02	0.89
17: Q1-20-5	13-Jun-13	< 0.05	3900	< 0.5	23	0.12	< 0.09	1500	< 0.02	0.82
18: Q1-20-6	13-Jun-13	< 0.05	4100	< 0.5	23	0.15	< 0.09	910	< 0.02	0.85
19: Q1-20-7	13-Jun-13	< 0.05	3900	< 0.5	20	0.16	< 0.09	5600	< 0.02	0.88
20: Q1-20-8	13-Jun-13	< 0.05	3900	0.6	23	0.15	< 0.09	4300	< 0.02	0.98
21: Q1-30-1	22-Jun-13	< 0.05	4000	< 0.5	21	0.17	< 0.09	3600	< 0.02	0.90
22: Q1-30-2	22-Jun-13	< 0.05	3900	< 0.5	23	0.15	< 0.09	970	< 0.02	0.84
23: Q1-30-3	22-Jun-13	< 0.05	3800	< 0.5	22	0.14	< 0.09	780	< 0.02	0.83
24: Q1-30-4	22-Jun-13	< 0.05	3800	< 0.5	21	0.13	< 0.09	850	< 0.02	0.82
25: Q1-30-5	22-Jun-13	< 0.05	3900	< 0.5	20	0.20	0.11	7800	< 0.02	0.96



SGS Canada Inc.

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Aqua regia

LR Report :

CA12202-SEP13

Sample ID	Sample Date & Time	Hg µg/g	Al µg/g	As µg/g	Ba µg/g	Be µg/g	Bi µg/g	Ca µg/g	Cd µg/g	Co µg/g
26: Q1-30-6	22-Jun-13	< 0.05	3900	< 0.5	24	0.15	< 0.09	2100	< 0.02	0.95
27: Q1-30-7	22-Jun-13	< 0.05	3800	< 0.5	20	0.16	< 0.09	1500	< 0.02	0.89
28: Q1-30-8	22-Jun-13	< 0.05	3500	< 0.5	18	0.14	< 0.09	1100	< 0.02	0.79
29: Q1-40-1	22-Jun-13	< 0.05	3800	< 0.5	20	0.15	< 0.09	1300	< 0.02	0.84
30: Q1-40-2	05-Jul-13	< 0.05	4100	< 0.5	22	0.17	< 0.09	1300	< 0.02	0.88
31: Q1-40-3	05-Jul-13	< 0.05	4000	< 0.5	22	0.16	< 0.09	1100	< 0.02	0.86
32: Q1-40-4	05-Jul-13	< 0.05	4000	< 0.5	21	0.16	< 0.09	1300	< 0.02	0.85
33: Q1-40-5	05-Jul-13	< 0.05	4100	0.6	25	0.19	< 0.09	1600	< 0.02	0.96
34: Q1-40-6	05-Jul-13	< 0.05	5400	< 0.5	39	0.24	< 0.09	1400	< 0.02	1.0
35: Q1-40-7	05-Jul-13	< 0.05	5100	< 0.5	35	0.20	< 0.09	1400	< 0.02	1.0
36: Q1-40-8	05-Jul-13	< 0.05	5100	< 0.5	35	0.22	< 0.09	1700	< 0.02	0.96
37: Q1-50-1	09-Jul-13	< 0.05	5100	< 0.5	36	0.21	< 0.09	1500	< 0.02	1.1
38: Q1-50-2	09-Jul-13	< 0.05	4400	< 0.5	27	0.18	< 0.09	1400	< 0.02	0.97
39: Q1-50-3	09-Jul-13	< 0.05	4500	< 0.5	27	0.19	< 0.09	1900	< 0.02	1.00
40: Q1-50-4	09-Jul-13	< 0.05	4300	< 0.5	24	0.20	< 0.09	1700	< 0.02	1.0
41: Q1-50-5	09-Jul-13	< 0.05	4400	< 0.5	26	0.19	< 0.09	1600	< 0.02	0.98
42: Q1-50-6	09-Jul-13	< 0.05	4200	< 0.5	25	0.17	< 0.09	1100	< 0.02	0.96
43: Q1-50-7	09-Jul-13	< 0.05	4500	< 0.5	29	0.19	< 0.09	1200	< 0.02	0.95
44: Q1-50-8	09-Jul-13	< 0.05	4000	< 0.5	22	0.17	< 0.09	2600	< 0.02	0.95
45: Q1-60-1	17-Jul-13	< 0.05	4900	< 0.5	28	0.20	< 0.09	12000	< 0.02	1.2
46: Q1-60-2	17-Jul-13	< 0.05	4600	< 0.5	24	0.23	< 0.09	3900	< 0.02	1.1
47: Q1-60-3	17-Jul-13	< 0.05	4500	< 0.5	27	0.20	0.09	2000	< 0.02	1.0
48: Q1-60-4	17-Jul-13	< 0.05	4300	< 0.5	26	0.20	< 0.09	3600	< 0.02	1.1
49: Q1-60-5	17-Jul-13	< 0.05	4400	< 0.5	25	0.17	< 0.09	1800	< 0.02	0.98
50: Q1-60-6	17-Jul-13	< 0.05	4200	< 0.5	26	0.18	< 0.09	1800	< 0.02	0.94
51: Q1-60-7	17-Jul-13	< 0.05	4900	< 0.5	28	0.19	0.15	6900	< 0.02	1.1
52: Q1-60-8	17-Jul-13	< 0.05	4900	< 0.5	26	0.24	< 0.09	8400	< 0.02	1.3
53: Q1-70-1	23-Jul-13	< 0.05	4800	< 0.5	29	0.19	< 0.09	1200	< 0.02	1.1
54: Q1-70-2	23-Jul-13	< 0.05	4000	< 0.5	20	0.19	< 0.09	1300	< 0.02	0.87
55: Q1-70-3	23-Jul-13	< 0.05	4700	0.5	26	0.23	< 0.09	9200	< 0.02	1.4
56: Q1-70-4	23-Jul-13	< 0.05	4900	< 0.5	25	0.25	< 0.09	1300	< 0.02	1.0
57: Q1-70-5	23-Jul-13	< 0.05	4800	< 0.5	29	0.20	0.09	2500	< 0.02	1.2
58: Q1-70-6	23-Jul-13	< 0.05	4600	0.7	23	0.26	0.25	6500	< 0.02	1.1
59: Q1-70-7	23-Jul-13	< 0.05	4500	< 0.5	29	0.18	< 0.09	890	< 0.02	0.97
60: Q1-70-8	23-Jul-13	< 0.05	4400	0.8	24	0.21	0.09	6600	< 0.02	1.0
61: Q1-90-1	08-Aug-13	< 0.05	4500	< 0.5	30	0.16	< 0.09	2100	< 0.02	1.0
62: Q1-90-2	08-Aug-13	< 0.05	3900	< 0.5	25	0.14	< 0.09	1300	< 0.02	0.89
63: Q1-90-3	08-Aug-13	< 0.05	4500	< 0.5	26	0.17	< 0.09	4600	< 0.02	1.3
64: Q1-90-4	08-Aug-13	< 0.05	4200	0.6	21	0.18	< 0.09	6700	< 0.02	1.00
65: Q1-90-5	08-Aug-13	< 0.05	3700	< 0.5	22	0.15	< 0.09	2600	< 0.02	0.87



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Aqua regia

LR Report :

CA12202-SEP13

Sample ID	Sample Date & Time	Hg µg/g	Al µg/g	As µg/g	Ba µg/g	Be µg/g	Bi µg/g	Ca µg/g	Cd µg/g	Co µg/g
66: Q1-90-6	08-Aug-13	< 0.05	3800	< 0.5	23	0.14	< 0.09	860	< 0.02	0.87
67: Q1-90-7	08-Aug-13	< 0.05	3900	< 0.5	22	0.16	< 0.09	2100	< 0.02	0.90
68: Q1-90-8	08-Aug-13	< 0.05	3900	0.7	22	0.14	< 0.09	6300	< 0.02	1.1
69: MP-80-1	02-Jul-13	< 0.05	4200	< 0.5	24	0.17	< 0.09	4100	< 0.02	0.94
70: MP-80-2	02-Jul-13	< 0.05	3800	< 0.5	21	0.16	0.10	4000	< 0.02	0.92
71: MP-80-3	02-Jul-13	< 0.05	4100	< 0.5	20	0.17	< 0.09	2100	< 0.02	0.95
72: MP-80-4	02-Jul-13	< 0.05	3900	< 0.5	18	0.17	< 0.09	12000	< 0.02	0.97
73: MP-80-5	02-Jul-13	< 0.05	4100	< 0.5	21	0.17	< 0.09	7300	< 0.02	0.98
74: MP-80-6	02-Jul-13	< 0.05	4000	< 0.5	20	0.16	< 0.09	11000	< 0.02	1.1
75: MP-80-7	02-Jul-13	< 0.05	4300	0.6	28	0.17	< 0.09	1900	< 0.02	0.98
76: MP-80-8	02-Jul-13	< 0.05	3700	0.9	19	0.16	< 0.09	45000	< 0.02	1.2
77: MS-CP-1	12-Aug-13	< 0.05	7200	< 0.5	22	1.1	0.57	3300	0.07	4.9
78: MS-CP-2	12-Aug-13	< 0.05	8300	< 0.5	14	1.2	0.28	2600	0.07	3.6
79: MS-CP-3	12-Aug-13	< 0.05	12000	0.6	13	1.5	1.3	2300	0.06	6.3
80: MS-CP-4	12-Aug-13	< 0.05	8700	0.8	15	1.0	0.43	6000	0.05	5.6
81: MS-CP-5	12-Aug-13	< 0.05	9600	1.0	10	1.7	0.65	1300	0.06	4.4
82: MS-CP-6	12-Aug-13	< 0.05	9600	0.7	15	1.4	0.33	3800	0.06	4.7
83: MS-CP-7	12-Aug-13	< 0.05	3200	1.0	16	0.19	< 0.09	19000	0.03	3.7
84: MS-CP-8	12-Aug-13	< 0.05	16000	< 0.5	8.6	1.6	0.48	1200	0.07	7.6
85: MS-CP-9	12-Aug-13	< 0.05	9000	< 0.5	11	1.4	1.5	2300	0.07	3.8
86: MS-CP-10	12-Aug-13	< 0.05	9800	0.6	20	1.3	0.35	2200	0.05	5.4
87: MS-CP-11	12-Aug-13	< 0.05	8700	0.7	21	0.94	0.28	5500	0.04	4.7
88: MS-CP-12	12-Aug-13	< 0.05	5800	0.5	34	0.48	0.13	20000	0.06	4.5
89: MS-CP-13	12-Aug-13	< 0.05	6300	0.8	18	0.57	0.34	5700	0.05	4.0
90: MS-CP-14	12-Aug-13	< 0.05	7100	< 0.5	12	0.94	0.94	2800	0.06	3.8
91: MS-CP-15	12-Aug-13	< 0.05	9300	< 0.5	15	1.4	1.2	2100	0.19	5.2
92: MS-CP-16	12-Aug-13	< 0.05	9900	1.0	15	1.2	0.60	7400	0.08	5.2
93: MS-CP-17	12-Aug-13	< 0.05	15000	0.6	9.1	1.7	0.54	990	0.07	7.3
94: MS-CP-18	12-Aug-13	< 0.05	14000	< 0.5	9.4	1.6	0.30	760	0.06	6.2
95: MS-CP-19	12-Aug-13	< 0.05	16000	< 0.5	8.9	1.7	0.44	2600	0.06	8.3
96: MS-CP-20	12-Aug-13	< 0.05	18000	< 0.5	9.6	1.9	0.41	950	0.07	8.8
97: MS-CP-21	12-Aug-13	< 0.05	15000	0.6	8.5	1.5	0.57	1500	0.06	8.1
98: MS-CP-22	12-Aug-13	< 0.05	16000	< 0.5	9.0	1.7	0.63	1000	0.06	7.2
99: MS-CP-23	12-Aug-13	< 0.05	20000	0.6	12	1.7	0.42	2000	0.06	11
100: MS-CP-24	12-Aug-13	< 0.05	14000	0.5	7.9	1.5	0.65	920	0.06	7.0
101: MS-Q104-1	12-Aug-13	< 0.05	6200	0.7	5.9	1.5	0.29	630	0.08	1.7
102: MS-Q104-2	12-Aug-13	< 0.05	10000	< 0.5	4.8	2.0	0.21	930	0.07	4.7
103: MS-Q104-3	12-Aug-13	< 0.05	11000	0.8	5.7	1.7	0.14	720	0.06	4.5
104: MS-Q104-4	12-Aug-13	< 0.05	6200	0.5	4.0	1.4	0.40	570	0.06	2.0
105: MS-Q104-5	12-Aug-13	< 0.05	12000	< 0.5	9.4	1.6	0.30	1300	0.04	6.2



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Aqua regia

LR Report :

CA12202-SEP13

Sample ID	Sample Date & Time	Hg µg/g	Al µg/g	As µg/g	Ba µg/g	Be µg/g	Bi µg/g	Ca µg/g	Cd µg/g	Co µg/g
106: MS-Q104-6	12-Aug-13	< 0.05	8500	0.6	16	1.0	0.19	7600	0.05	5.2
107: MS-Q104-7	12-Aug-13	< 0.05	18000	< 0.5	11	1.8	0.43	1600	0.06	8.5
108: MS-Q104-8	12-Aug-13	< 0.05	4900	< 0.5	9.7	1.5	0.30	980	0.08	1.3

Brian Graham B.Sc.
Project Specialist
Environmental Services, Analytical



SGS Canada Inc.

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Baffinland Iron Mines Corp

Attn : Jim Millard

#300-2278 Upper Middle Road East, Oakville

Canada, L6H 0C3

Phone: 416-364-8820, Fax:416-364-0193

Aqua regia

07-October-2013

Date Rec. : 06 September 2013

LR Report: CA12202-SEP13

Reference: Mary River Project Quarry Testing

Copy: #1

CERTIFICATE OF ANALYSIS

Final Report

Sample ID	Cr µg/g	Cu µg/g	Fe µg/g	K µg/g	Li µg/g	Mg µg/g	Mn µg/g	Mo µg/g	Na µg/g	Ni µg/g
3: Analysis Approval Date	30-Sep-13	30-Sep-13	07-Oct-13	07-Oct-13	30-Sep-13	07-Oct-13	30-Sep-13	30-Sep-13	07-Oct-13	30-Sep-13
4: Analysis Approval Time	11:12	11:12	11:45	11:45	11:13	11:45	11:13	11:13	11:45	11:13
5: Q1-10-1	66	2.9	7100	1600	13	3100	110	0.3	570	4.2
6: Q1-10-2	78	2.9	7200	1600	12	4200	100	0.3	510	3.7
7: Q1-10-3	77	2.6	8000	2200	14	4000	120	0.3	590	3.6
8: Q1-10-4	68	2.4	7500	1700	14	3000	110	0.3	540	3.2
9: Q1-10-5	73	2.9	7900	1800	14	3900	120	0.3	550	3.3
10: Q1-10-6	71	5.5	12000	2300	16	4400	150	0.3	700	4.0
11: Q1-10-7	81	2.8	7200	1500	11	6000	100	0.3	560	3.7
12: Q1-10-8	74	2.3	7200	1600	13	4100	110	0.2	560	3.2
13: Q1-20-1	79	3.3	7100	1700	12	2300	110	0.2	640	3.1
14: Q1-20-2	84	2.8	7200	1700	12	3400	100	0.3	600	3.6
15: Q1-20-3	79	2.4	7300	1700	13	2600	110	0.2	590	3.3
16: Q1-20-4	73	2.1	7100	1600	12	3200	100	0.2	540	3.0
17: Q1-20-5	74	1.7	7200	2000	13	1600	110	0.2	690	2.8
18: Q1-20-6	73	1.7	7400	2000	14	1500	110	0.2	680	2.8
19: Q1-20-7	74	2.1	7100	1900	13	2700	100	0.2	660	3.1
20: Q1-20-8	73	2.0	7500	2000	14	3100	110	0.2	640	3.0
21: Q1-30-1	76	2.7	7200	1700	14	1800	120	0.3	620	3.0
22: Q1-30-2	81	2.0	7200	1800	14	1400	130	0.3	670	3.1
23: Q1-30-3	77	1.9	7200	1700	14	1400	130	0.2	650	2.9
24: Q1-30-4	71	1.9	7100	1700	13	1400	130	0.2	650	2.8
25: Q1-30-5	75	2.8	7800	1700	14	5100	120	0.2	560	3.3
26: Q1-30-6	76	2.1	7300	1800	15	1600	130	0.2	630	3.1



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Aqua regia

LR Report :

CA12202-SEP13

Sample ID	Cr µg/g	Cu µg/g	Fe µg/g	K µg/g	Li µg/g	Mg µg/g	Mn µg/g	Mo µg/g	Na µg/g	Ni µg/g
27: Q1-30-7	72	2.1	7000	1500	13	1700	120	0.3	580	2.9
28: Q1-30-8	66	1.9	6800	1500	13	1500	110	0.2	490	2.6
29: Q1-40-1	73	3.2	7200	1600	12	1700	110	0.2	580	2.9
30: Q1-40-2	74	2.2	7400	1800	15	1700	120	0.3	610	3.0
31: Q1-40-3	70	2.4	7300	1800	14	1600	120	0.2	630	2.8
32: Q1-40-4	78	2.1	7100	1800	13	1600	120	0.2	630	3.0
33: Q1-40-5	92	2.8	7500	2000	15	1600	130	1.2	660	2.7
34: Q1-40-6	160	4.0	8100	2800	15	1600	140	1.0	1100	4.3
35: Q1-40-7	120	3.3	8100	2500	13	1700	120	1.6	1000	3.2
36: Q1-40-8	140	3.9	8000	2500	13	1800	130	1.0	1000	3.9
37: Q1-50-1	110	3.3	8300	2600	15	1700	130	1.6	1000	3.3
38: Q1-50-2	100	3.0	7600	2100	14	1700	120	1.5	820	3.0
39: Q1-50-3	130	3.7	7900	2100	14	1800	130	0.9	810	3.9
40: Q1-50-4	98	3.0	7800	2000	13	1800	120	1.4	710	2.9
41: Q1-50-5	130	3.7	8000	2000	13	1900	120	0.8	740	3.7
42: Q1-50-6	98	2.7	7800	2000	13	1600	120	1.3	720	2.7
43: Q1-50-7	140	3.8	8000	2200	13	1500	120	0.9	890	4.0
44: Q1-50-8	89	2.7	7600	1800	13	1800	120	1.2	650	2.7
45: Q1-60-1	140	4.3	8900	2500	17	3200	140	0.9	700	4.5
46: Q1-60-2	100	2.7	8200	2000	15	2600	130	1.4	710	3.2
47: Q1-60-3	150	4.1	8300	2000	14	1900	130	1.0	780	4.2
48: Q1-60-4	110	3.7	7600	1900	14	2400	120	1.4	690	3.3
49: Q1-60-5	120	2.7	7800	2100	15	1700	130	0.8	690	3.4
50: Q1-60-6	110	2.7	7600	1900	12	1600	120	1.3	760	3.0
51: Q1-60-7	150	3.5	8800	2400	17	2600	140	0.9	830	4.1
52: Q1-60-8	110	3.6	8500	2300	17	3200	130	1.5	660	3.6
53: Q1-70-1	150	4.5	8500	2200	12	1900	120	1.0	880	5.2
54: Q1-70-2	73	2.1	7000	1700	14	1800	110	0.2	590	3.1
55: Q1-70-3	110	4.3	8500	2200	14	5500	130	1.4	680	4.1
56: Q1-70-4	130	5.1	8700	1900	13	2400	120	0.8	760	4.2
57: Q1-70-5	100	4.6	8600	2400	16	2000	140	1.4	750	3.0
58: Q1-70-6	140	4.6	8500	1900	14	3200	130	1.5	640	4.4
59: Q1-70-7	99	3.5	7600	2000	14	1700	120	1.4	780	2.9
60: Q1-70-8	130	4.5	7900	1900	13	3300	120	1.3	720	4.2
61: Q1-90-1	140	4.5	8300	2300	16	1700	140	2.3	850	4.1
62: Q1-90-2	75	2.4	7100	1900	14	1500	120	0.3	650	3.7
63: Q1-90-3	80	3.2	8500	2100	16	3600	120	0.3	610	4.7
64: Q1-90-4	76	2.7	7700	1900	16	3700	130	0.2	630	3.7
65: Q1-90-5	77	2.2	7100	1800	14	2000	120	0.3	600	3.3
66: Q1-90-6	74	2.0	7200	1800	14	1300	120	0.2	640	3.0
67: Q1-90-7	75	2.1	7300	1800	14	2000	120	0.2	610	3.1



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Aqua regia

LR Report :

CA12202-SEP13

Sample ID	Cr µg/g	Cu µg/g	Fe µg/g	K µg/g	Li µg/g	Mg µg/g	Mn µg/g	Mo µg/g	Na µg/g	Ni µg/g
68: Q1-90-8	82	2.3	7600	1800	14	2700	120	0.3	650	3.5
69: MP-80-1	79	2.1	7700	2000	17	1900	130	0.3	650	3.3
70: MP-80-2	78	2.2	7100	1900	16	2000	120	0.3	570	3.2
71: MP-80-3	81	2.2	7600	1600	14	1900	130	0.7	620	3.3
72: MP-80-4	79	2.6	7300	1600	14	6000	120	0.3	570	3.4
73: MP-80-5	76	3.1	7600	1900	15	3000	120	0.2	610	3.3
74: MP-80-6	75	2.3	7700	1900	14	6100	120	1.6	550	3.3
75: MP-80-7	120	3.1	7900	2200	16	1500	130	1.5	780	3.2
76: MP-80-8	100	3.4	7300	2100	12	24000	130	0.6	580	3.9
77: MS-CP-1	160	14	15000	2600	10	9000	140	2.0	480	43
78: MS-CP-2	160	13	15000	3000	10	7300	120	0.9	550	13
79: MS-CP-3	170	19	21000	5400	13	15000	170	1.9	550	35
80: MS-CP-4	170	16	17000	3200	13	14000	140	0.9	480	30
81: MS-CP-5	150	17	17000	4000	11	8000	140	1.9	590	10.0
82: MS-CP-6	160	13	17000	3800	12	9200	150	0.9	540	16
83: MS-CP-7	120	8.1	9000	1300	5	15000	100	0.4	220	34
84: MS-CP-8	91	20	24000	3900	25	19000	160	0.4	590	15
85: MS-CP-9	97	13	14000	3100	11	8700	140	0.5	540	17
86: MS-CP-10	94	14	17000	3900	13	9200	140	0.5	440	21
87: MS-CP-11	100	13	19000	3000	13	8900	140	0.5	380	14
88: MS-CP-12	100	12	13000	3100	10	17000	140	0.6	360	28
89: MS-CP-13	110	12	13000	2200	9	8600	120	0.5	390	26
90: MS-CP-14	99	15	15000	2200	10	7700	110	0.4	460	21
91: MS-CP-15	99	18	19000	3600	13	9400	150	0.7	500	27
92: MS-CP-16	97	13	17000	4000	13	14000	150	0.4	490	22
93: MS-CP-17	120	20	24000	4200	24	18000	160	1.5	630	13
94: MS-CP-18	130	16	22000	4300	19	15000	150	0.8	640	12
95: MS-CP-19	120	26	25000	4100	26	20000	170	1.4	590	15
96: MS-CP-20	120	24	27000	4500	28	20000	160	0.7	570	15
97: MS-CP-21	150	22	24000	3500	27	19000	160	1.6	580	18
98: MS-CP-22	120	20	23000	5000	24	18000	160	0.8	580	14
99: MS-CP-23	140	27	31000	4900	35	28000	190	1.4	600	24
100: MS-CP-24	140	17	23000	3700	23	18000	140	0.8	550	15
101: MS-Q104-1	130	13	8500	2100	7	4600	64	1.6	440	5.0
102: MS-Q104-2	150	24	16000	2700	16	12000	120	0.8	560	11
103: MS-Q104-3	150	12	17000	4300	15	9400	130	1.8	540	9.4
104: MS-Q104-4	130	12	8000	2300	8	3900	67	0.7	690	6.0
105: MS-Q104-5	140	22	22000	2600	21	14000	120	1.8	460	11
106: MS-Q104-6	180	17	18000	2400	14	13000	130	0.9	320	23
107: MS-Q104-7	150	23	26000	4300	29	23000	180	1.6	560	20
108: MS-Q104-8	160	9.6	7700	1900	5	3300	81	0.8	500	7.3



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Aqua regia

LR Report :

CA12202-SEP13

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Aqua regia

07-October-2013

Date Rec. : 06 September 2013

LR Report: CA12202-SEP13

Reference: Mary River Project Quarry Testing

Copy: #1

CERTIFICATE OF ANALYSIS

Final Report

Sample ID	Pb µg/g	S µg/g	Sb µg/g	Se µg/g	Sn µg/g	Sr µg/g	Ti µg/g	Tl µg/g	U µg/g	V µg/g	Zn µg/g
3: Analysis Approval Date	30-Sep-13	07-Oct-13	30-Sep-13	30-Sep-13	30-Sep-13	30-Sep-13	30-Sep-13	30-Sep-13	30-Sep-13	30-Sep-13	30-Sep-13
4: Analysis Approval Time	11:13	11:47	11:13	11:13	11:13	11:13	11:13	11:13	11:13	11:13	11:13
5: Q1-10-1	4.1	130	< 0.8	< 0.7	< 0.5	7.1	110	0.07	3.2	3	15
6: Q1-10-2	4.1	220	< 0.8	< 0.7	< 0.5	7.1	96	0.06	3.1	2	12
7: Q1-10-3	4.0	130	< 0.8	< 0.7	< 0.5	7.5	170	0.10	3.6	4	15
8: Q1-10-4	3.9	150	< 0.8	< 0.7	< 0.5	7.6	130	0.07	3.1	2	14
9: Q1-10-5	3.4	160	< 0.8	< 0.7	< 0.5	7.7	120	0.08	2.5	3	14
10: Q1-10-6	3.4	170	< 0.8	< 0.7	0.6	8.2	390	0.13	2.1	14	19
11: Q1-10-7	4.2	200	< 0.8	< 0.7	< 0.5	8.0	98	0.07	3.0	2	12
12: Q1-10-8	6.1	100	< 0.8	< 0.7	< 0.5	7.0	100	0.07	2.2	2	14
13: Q1-20-1	4.1	130	< 0.8	< 0.7	< 0.5	5.6	100	0.08	1.9	< 1	13
14: Q1-20-2	4.3	160	< 0.8	< 0.7	< 0.5	6.7	100	0.07	3.4	2	13
15: Q1-20-3	4.0	78	< 0.8	< 0.7	< 0.5	5.9	120	0.08	2.4	2	13
16: Q1-20-4	3.7	180	< 0.8	< 0.7	< 0.5	5.6	93	0.07	2.6	1	12
17: Q1-20-5	4.9	< 1	< 0.8	< 0.7	< 0.5	5.9	150	0.10	2.0	1	15
18: Q1-20-6	5.3	12	< 0.8	< 0.7	< 0.5	5.5	150	0.10	3.2	1	15
19: Q1-20-7	4.7	15	< 0.8	< 0.7	< 0.5	7.1	130	0.09	2.1	1	14
20: Q1-20-8	5.2	6	< 0.8	< 0.7	< 0.5	6.7	160	0.09	2.2	1	15
21: Q1-30-1	4.6	100	< 0.8	< 0.7	< 0.5	6.6	120	0.08	2.8	1	14
22: Q1-30-2	5.8	59	< 0.8	< 0.7	< 0.5	6.0	140	0.09	3.2	< 1	15
23: Q1-30-3	5.3	48	< 0.8	< 0.7	< 0.5	5.6	140	0.09	2.9	1	14
24: Q1-30-4	4.6	51	< 0.8	< 0.7	< 0.5	5.4	120	0.08	2.9	< 1	14
25: Q1-30-5	4.0	240	< 0.8	< 0.7	< 0.5	6.9	110	0.07	2.1	2	13
26: Q1-30-6	5.6	54	< 0.8	< 0.7	< 0.5	6.4	160	0.09	2.5	1	15



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Aqua regia

LR Report :

CA12202-SEP13

Sample ID	Pb µg/g	S µg/g	Sb µg/g	Se µg/g	Sn µg/g	Sr µg/g	Ti µg/g	Tl µg/g	U µg/g	V µg/g	Zn µg/g
27: Q1-30-7	4.6	74	< 0.8	< 0.7	< 0.5	5.5	110	0.07	3.0	1	14
28: Q1-30-8	4.3	92	< 0.8	< 0.7	< 0.5	4.8	120	0.08	2.3	1	14
29: Q1-40-1	4.2	55	< 0.8	< 0.7	< 0.5	5.2	120	0.08	2.7	1	14
30: Q1-40-2	6.0	37	< 0.8	< 0.7	< 0.5	5.7	140	0.10	3.8	1	15
31: Q1-40-3	4.7	71	< 0.8	< 0.7	< 0.5	5.6	140	0.09	2.9	1	14
32: Q1-40-4	3.9	44	< 0.8	< 0.7	< 0.5	5.4	130	0.09	2.4	1	14
33: Q1-40-5	5.4	43	< 0.8	< 0.7	< 0.5	6.2	140	0.10	3.2	2	15
34: Q1-40-6	6.3	31	< 0.8	< 0.7	< 0.5	9.3	140	0.11	3.2	< 1	14
35: Q1-40-7	4.8	43	< 0.8	< 0.7	< 0.5	8.3	130	0.11	2.9	1	17
36: Q1-40-8	5.1	55	< 0.8	< 0.7	< 0.5	8.3	130	0.10	3.1	< 1	14
37: Q1-50-1	6.1	52	< 0.8	< 0.7	< 0.5	8.5	150	0.12	3.4	< 1	18
38: Q1-50-2	5.0	51	< 0.8	< 0.7	< 0.5	6.9	130	0.10	2.9	< 1	14
39: Q1-50-3	5.7	90	< 0.8	< 0.7	< 0.5	7.2	130	0.10	5.0	< 1	18
40: Q1-50-4	4.9	93	< 0.8	< 0.7	< 0.5	6.2	120	0.09	3.3	< 1	15
41: Q1-50-5	4.7	100	< 0.8	< 0.7	< 0.5	6.5	120	0.09	3.1	< 1	14
42: Q1-50-6	4.7	67	< 0.8	< 0.7	< 0.5	6.0	130	0.09	3.1	< 1	15
43: Q1-50-7	4.6	49	< 0.8	< 0.7	< 0.5	7.2	120	0.09	2.5	< 1	14
44: Q1-50-8	4.9	160	< 0.8	< 0.7	< 0.5	5.9	120	0.09	3.5	< 1	14
45: Q1-60-1	4.9	9	< 0.8	< 0.7	< 0.5	12	210	0.13	1.8	1	15
46: Q1-60-2	4.6	110	< 0.8	< 0.7	< 0.5	7.4	130	0.10	2.5	1	15
47: Q1-60-3	5.4	130	< 0.8	< 0.7	< 0.5	6.7	110	0.09	2.6	< 1	15
48: Q1-60-4	4.5	67	< 0.8	< 0.7	< 0.5	7.3	110	0.09	2.4	< 1	15
49: Q1-60-5	4.3	22	< 0.8	< 0.7	< 0.5	6.3	140	0.10	2.2	< 1	15
50: Q1-60-6	3.6	50	< 0.8	< 0.7	< 0.5	6.3	84	0.07	1.9	1	13
51: Q1-60-7	5.4	42	< 0.8	< 0.7	< 0.5	9.6	150	0.11	2.0	< 1	16
52: Q1-60-8	5.1	16	< 0.8	< 0.7	< 0.5	8.6	180	0.11	1.9	1	14
53: Q1-70-1	4.5	94	< 0.8	< 0.7	< 0.5	7.0	91	0.08	2.1	< 1	14
54: Q1-70-2	3.7	130	< 0.8	< 0.7	< 0.5	5.2	120	0.09	1.7	2	14
55: Q1-70-3	4.7	79	< 0.8	< 0.7	< 0.5	8.6	150	0.10	2.5	2	15
56: Q1-70-4	3.6	270	< 0.8	< 0.7	< 0.5	6.1	71	0.07	3.0	< 1	16
57: Q1-70-5	5.1	150	< 0.8	< 0.7	< 0.5	6.8	160	0.12	3.2	1	17
58: Q1-70-6	5.5	240	< 0.8	< 0.7	< 0.5	7.6	99	0.08	3.4	< 1	14
59: Q1-70-7	4.5	69	< 0.8	< 0.7	< 0.5	6.8	95	0.08	2.6	< 1	14
60: Q1-70-8	4.5	160	< 0.8	< 0.7	< 0.5	8.2	100	0.08	2.4	< 1	14
61: Q1-90-1	6.4	49	< 0.8	< 0.7	< 0.5	7.9	170	0.12	3.5	< 1	17
62: Q1-90-2	6.0	30	< 0.8	< 0.7	< 0.5	6.2	150	0.10	3.3	1	15
63: Q1-90-3	5.1	33	< 0.8	< 0.7	< 0.5	7.0	210	0.11	2.7	4	17
64: Q1-90-4	5.2	59	< 0.8	< 0.7	< 0.5	7.3	150	0.09	3.1	1	15
65: Q1-90-5	5.4	44	< 0.8	< 0.7	< 0.5	6.0	130	0.09	3.1	2	14
66: Q1-90-6	4.9	< 1	< 0.8	< 0.7	< 0.5	5.8	140	0.09	2.8	< 1	15
67: Q1-90-7	5.0	26	< 0.8	< 0.7	< 0.5	5.9	130	0.08	3.2	1	15



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Aqua regia

LR Report :

CA12202-SEP13

Sample ID	Pb µg/g	S µg/g	Sb µg/g	Se µg/g	Sn µg/g	Sr µg/g	Ti µg/g	Tl µg/g	U µg/g	V µg/g	Zn µg/g
68: Q1-90-8	4.6	39	< 0.8	< 0.7	< 0.5	8.2	140	0.08	2.4	2	15
69: MP-80-1	5.2	74	< 0.8	< 0.7	< 0.5	7.3	170	0.11	2.8	2	15
70: MP-80-2	5.1	100	< 0.8	< 0.7	< 0.5	6.6	160	0.10	3.2	2	15
71: MP-80-3	5.3	30	< 0.8	< 0.7	< 0.5	5.9	99	0.07	2.5	2	15
72: MP-80-4	4.5	69	< 0.8	< 0.7	< 0.5	8.9	110	0.07	2.5	1	15
73: MP-80-5	5.0	70	< 0.8	< 0.7	< 0.5	8.3	160	0.09	3.1	2	15
74: MP-80-6	4.8	41	< 0.8	< 0.7	< 0.5	8.4	150	0.09	3.0	2	15
75: MP-80-7	5.6	71	< 0.8	< 0.7	< 0.5	7.2	160	0.12	3.4	< 1	14
76: MP-80-8	4.1	60	< 0.8	< 0.7	< 0.5	20	140	0.07	1.8	2	13
77: MS-CP-1	10	16	< 0.8	< 0.7	0.8	4.4	270	0.12	5.7	12	26
78: MS-CP-2	7.4	49	< 0.8	< 0.7	1.2	3.3	250	0.13	6.3	12	25
79: MS-CP-3	9.8	79	< 0.8	< 0.7	1.3	3.0	450	0.31	6.6	27	34
80: MS-CP-4	8.1	97	< 0.8	< 0.7	0.8	4.4	290	0.15	5.2	21	24
81: MS-CP-5	9.8	210	< 0.8	< 0.7	1.2	2.2	310	0.19	7.6	19	29
82: MS-CP-6	8.5	79	< 0.8	< 0.7	0.9	3.8	340	0.19	6.0	19	29
83: MS-CP-7	3.9	15	< 0.8	< 0.7	< 0.5	8.1	180	0.05	0.59	6	9.4
84: MS-CP-8	9.1	98	< 0.8	< 0.7	0.8	2.5	280	0.20	8.1	41	32
85: MS-CP-9	14	26	< 0.8	< 0.7	1.1	3.0	220	0.16	6.7	15	32
86: MS-CP-10	8.9	250	< 0.8	< 0.7	0.7	3.0	370	0.20	5.9	25	29
87: MS-CP-11	7.2	85	< 0.8	< 0.7	< 0.5	4.6	370	0.15	3.7	22	23
88: MS-CP-12	6.6	93	< 0.8	< 0.7	< 0.5	8.5	350	0.13	7.4	13	20
89: MS-CP-13	7.6	26	< 0.8	< 0.7	0.6	4.8	240	0.10	3.3	12	21
90: MS-CP-14	9.1	28	< 0.8	< 0.7	0.9	3.1	190	0.10	5.0	12	22
91: MS-CP-15	15	120	< 0.8	< 0.7	1.5	3.2	270	0.22	7.1	14	38
92: MS-CP-16	7.7	33	< 0.8	< 0.7	0.8	4.2	330	0.20	5.5	25	26
93: MS-CP-17	9.9	120	< 0.8	< 0.7	0.8	2.4	270	0.21	8.7	37	31
94: MS-CP-18	8.9	46	< 0.8	< 0.7	0.8	2.2	290	0.22	8.5	33	31
95: MS-CP-19	8.9	84	< 0.8	< 0.7	0.8	2.6	270	0.21	8.5	40	33
96: MS-CP-20	8.1	150	< 0.8	< 0.7	0.8	2.3	340	0.22	8.3	50	30
97: MS-CP-21	9.1	100	< 0.8	< 0.7	0.9	2.5	230	0.19	9.2	38	31
98: MS-CP-22	10.0	160	< 0.8	< 0.7	1.0	2.3	350	0.27	8.6	36	34
99: MS-CP-23	7.9	190	< 0.8	< 0.7	0.9	2.5	330	0.25	7.6	51	34
100: MS-CP-24	8.7	120	< 0.8	< 0.7	0.7	2.0	220	0.17	7.2	37	31
101: MS-Q104-1	15	61	< 0.8	< 0.7	0.7	2.0	41	0.04	8.4	3	37
102: MS-Q104-2	8.8	160	< 0.8	< 0.7	0.9	1.9	130	0.11	12	18	29
103: MS-Q104-3	9.8	86	< 0.8	< 0.7	0.6	1.8	260	0.24	10	19	30
104: MS-Q104-4	6.8	64	< 0.8	< 0.7	< 0.5	2.9	37	0.06	4.6	< 1	20
105: MS-Q104-5	7.2	340	< 0.8	< 0.7	0.7	2.2	190	0.09	8.8	39	19
106: MS-Q104-6	7.2	170	< 0.8	< 0.7	< 0.5	5.1	220	0.09	4.1	21	23
107: MS-Q104-7	8.5	58	< 0.8	< 0.7	0.8	2.5	310	0.21	8.5	43	34
108: MS-Q104-8	9.0	54	< 0.8	1.0	0.5	1.9	72	0.04	7.2	1	28



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Aqua regia

LR Report :

CA12202-SEP13

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Modified ABA

04-October-2013

Date Rec. : 12 September 2013

LR Report: CA12310-SEP13

Reference: Mary River Project Quarry Testing

Copy: #1

CERTIFICATE OF ANALYSIS

Final Report

Analysis	3: Analysis Approval Date	4: Analysis Approval Time	5: Q1-110-1	6: Q1-110-2	7: Q1-110-3	8: Q1-110-4	9: Q1-110-5	10: Q1-110-6	11: Q1-110-7	12: Q1-110-8
Sample Date & Time			18-Aug-13	18-Aug-13	18-Aug-13	18-Aug-13	18-Aug-13	18-Aug-13	18-Aug-13	18-Aug-13
Paste pH [units]	28-Sep-13	11:36	7.69	9.33	9.35	9.52	9.46	9.37	9.39	9.53
Fizz Rate [---]	28-Sep-13	11:36	2	2	2	2	2	2	2	2
Sample weight [g]	28-Sep-13	11:36	2.05	1.99	2.01	2.02	2.03	1.96	2.01	1.99
HCl added [mL]	28-Sep-13	11:36	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00
HCl [Normality]	28-Sep-13	11:36	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
NaOH [Normality]	28-Sep-13	11:36	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
NaOH to pH=8.3 [mL]	28-Sep-13	11:36	17.66	10.08	16.64	17.91	17.68	27.12	15.94	17.85
Final pH [units]	28-Sep-13	11:36	1.09	1.37	1.12	1.14	1.11	1.23	1.17	1.09
NP [t CaCO3/1000 t]	28-Sep-13	11:36	5.7	25	8.4	5.2	5.7	-18	10	5.4
AP [t CaCO3/1000 t]	---	---	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31
Net NP [t CaCO3/1000 t]	---	---	5.39	24.6	8.09	4.89	5.39	-18.5	9.79	5.09
NP/AP [ratio]	---	---	18.4	80.3	27.1	16.8	18.4	-58.7	32.6	17.4
Sulphur (total) [%]	02-Oct-13	13:49	0.006	0.006	0.006	< 0.005	0.006	0.009	0.009	0.005
Acid Leachable SO4-S [%]	---	---	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Sulphide [%]	04-Oct-13	12:00	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Carbon (total) [%]	02-Oct-13	13:49	0.104	0.316	0.097	0.039	0.056	0.187	0.115	0.042
Carbonate [%]	03-Oct-13	13:01	0.170	1.22	0.290	0.095	0.150	0.679	0.365	0.135



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Modified ABA

LR Report :

CA12310-SEP13

*NP (Neutralization Potential)

= $50 \times (N \text{ of HCL} \times \text{Total HCL added} - N \text{ NaOH} \times \text{NaOH added})$

Weight of Sample

*AP (Acid Potential) = % Sulphide Sulphur $\times$ 31.25

*Net NP (Net Neutralization Potential) = NP-AP

NP/AP Ratio = NP/AP

*Results expressed as tonnes CaCO₃ equivalent/1000 tonnes of material

Samples with a % Sulphide value of <0.01 will be calculated using a 0.01 value.

Sulphur analysis performed following BC ARD Guidelines (Price 1997)

Brian Graham B.Sc.

Project Specialist

Environmental Services, Analytical



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Aqua regia

03-October-2013

Date Rec. : 12 September 2013

LR Report: CA12311-SEP13

Reference: Mary River Project Quarry Testing

Copy: #1

CERTIFICATE OF ANALYSIS

Final Report

Analysis	3: Analysis Approval Date	4: Analysis Approval Time	5: Q1-110-1	6: Q1-110-2	7: Q1-110-3	8: Q1-110-4	9: Q1-110-5	10: Q1-110-6	11: Q1-110-7	12: Q1-110-8
Sample Date & Time			18-Aug-13	18-Aug-13	18-Aug-13	18-Aug-13	18-Aug-13	18-Aug-13	18-Aug-13	18-Aug-13
Mercury [µg/g]	25-Sep-13	17:58	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Aluminum [µg/g]	02-Oct-13	14:54	3300	3700	3600	5500	3500	3800	3600	3300
Arsenic [µg/g]	23-Sep-13	15:45	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Barium [µg/g]	23-Sep-13	15:45	15	15	15	28	15	16	14	16
Beryllium [µg/g]	23-Sep-13	15:45	0.15	0.14	0.16	0.20	0.13	0.17	0.15	0.12
Bismuth [µg/g]	23-Sep-13	15:45	< 0.09	< 0.09	< 0.09	< 0.09	< 0.09	< 0.09	< 0.09	< 0.09
Calcium [µg/g]	02-Oct-13	14:54	1400	6100	2400	1400	1700	5500	3000	1300
Cadmium [µg/g]	23-Sep-13	15:45	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
Cobalt [µg/g]	23-Sep-13	15:45	0.99	1.1	1.0	1.9	1.00	1.1	0.99	1.0
Chromium [µg/g]	23-Sep-13	15:45	39	40	45	38	38	39	40	37
Copper [µg/g]	23-Sep-13	15:45	3.9	3.3	2.9	4.5	2.5	3.4	3.3	2.4
Iron [µg/g]	02-Oct-13	14:54	6700	7700	7700	11000	7700	7900	7300	7000
Potassium [µg/g]	02-Oct-13	14:54	1200	1500	1600	2700	1400	1600	1300	1400
Lithium [µg/g]	23-Sep-13	15:45	17	19	19	23	17	19	19	19
Magnesium [µg/g]	02-Oct-13	14:54	1700	4500	1900	3300	1600	2300	2300	1500
Manganese [µg/g]	23-Sep-13	15:45	140	150	140	200	140	140	140	140
Molybdenum [µg/g]	23-Sep-13	15:45	1.2	1.1	1.2	1.1	1.1	7.8	1.2	1.2
Sodium [µg/g]	02-Oct-13	14:54	370	370	370	370	370	360	330	340



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LR Report :

CA12311-SEP13

Analysis	3: Analysis Approval Date	4: Analysis Approval Time	5: Q1-110-1	6: Q1-110-2	7: Q1-110-3	8: Q1-110-4	9: Q1-110-5	10: Q1-110-6	11: Q1-110-7	12: Q1-110-8
Nickel [µg/g]	23-Sep-13	15:45	5.3	5.4	5.4	5.8	4.7	5.0	5.0	4.8
Lead [µg/g]	23-Sep-13	15:45	4.2	4.2	5.0	4.8	4.4	4.9	5.4	5.0
Sulphur [µg/g]	02-Oct-13	14:54	110	190	150	140	140	240	190	90
Antimony [µg/g]	23-Sep-13	15:45	< 0.8	< 0.8	< 0.8	< 0.8	< 0.8	< 0.8	< 0.8	< 0.8
Selenium [µg/g]	23-Sep-13	15:45	< 0.7	< 0.7	< 0.7	< 0.7	< 0.7	< 0.7	< 0.7	< 0.7
Tin [µg/g]	23-Sep-13	15:45	< 0.5	< 0.5	< 0.5	0.7	< 0.5	< 0.5	< 0.5	< 0.5
Strontium [µg/g]	23-Sep-13	15:45	8.6	8.7	7.8	9.4	7.4	11	8.4	7.0
Titanium [µg/g]	23-Sep-13	15:45	130	160	190	340	160	190	150	160
Thallium [µg/g]	23-Sep-13	15:45	0.08	0.10	0.12	0.21	0.10	0.10	0.10	0.10
Uranium [µg/g]	23-Sep-13	15:45	3.0	2.2	3.9	5.3	2.5	3.3	4.1	2.9
Vanadium [µg/g]	23-Sep-13	15:45	3	3	3	7	3	3	3	2
Zinc [µg/g]	23-Sep-13	15:45	16	17	17	22	16	17	15	17

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Modified ABA

04-October-2013

Date Rec. : 12 September 2013

LR Report: CA12313-SEP13

Reference: Mary River Project Quarry Testing

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CERTIFICATE OF ANALYSIS

Final Report

Analysis	3: Analysis Approval Date	4: Analysis Approval Time	5: Q1-100-1	6: Q1-100-2	7: Q1-100-3	8: Q1-100-4	9: Q1-100-5	10: Q1-100-6	11: Q1-100-7	12: Q1-100-8
Sample Date & Time			15-Aug-13	15-Aug-13	15-Aug-13	15-Aug-13	15-Aug-13	15-Aug-13	15-Aug-13	15-Aug-13
Paste pH [units]	04-Oct-13	12:31	9.54	9.42	9.52	9.41	9.28	9.36	9.48	9.29
Fizz Rate [---]	04-Oct-13	12:31	2	2	2	2	2	2	2	2
Sample weight [g]	04-Oct-13	12:31	1.99	2.01	2.04	2.06	1.96	1.99	1.96	1.99
HCl added [mL]	04-Oct-13	12:31	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00
HCl [Normality]	04-Oct-13	12:31	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
NaOH [Normality]	04-Oct-13	12:31	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
NaOH to pH=8.3 [mL]	04-Oct-13	12:31	16.62	16.88	16.91	16.05	15.09	15.61	14.65	13.63
Final pH [units]	04-Oct-13	12:31	1.11	1.15	1.16	1.18	1.16	1.17	1.22	1.25
NP [t CaCO3/1000 t]	04-Oct-13	12:31	8.5	7.7	7.6	9.6	12	11	14	16
AP [t CaCO3/1000 t]	---	---	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31
Net NP [t CaCO3/1000 t]	---	---	8.19	7.39	7.29	9.29	12.2	10.7	13.4	15.7
NP/AP [ratio]	---	---	27.4	24.8	24.5	31.0	40.3	35.5	44.2	51.6
Sulphur (total) [%]	02-Oct-13	13:49	< 0.005	0.009	< 0.005	0.006	0.008	0.008	0.007	0.008
Acid Leachable SO4-S [%]	---	---	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Sulphide [%]	04-Oct-13	12:02	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Carbon (total) [%]	02-Oct-13	13:49	0.062	0.055	0.056	0.087	0.127	0.107	0.142	0.186
Carbonate [%]	03-Oct-13	13:01	0.160	0.145	0.150	0.225	0.380	0.295	0.400	0.580



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Modified ABA

LR Report :

CA12313-SEP13

*NP (Neutralization Potential)

= $50 \times (N \text{ of HCL} \times \text{Total HCL added} - N \text{ NaOH} \times \text{NaOH added})$

Weight of Sample

*AP (Acid Potential) = % Sulphide Sulphur $\times$ 31.25

*Net NP (Net Neutralization Potential) = NP-AP

NP/AP Ratio = NP/AP

*Results expressed as tonnes CaCO₃ equivalent/1000 tonnes of material

Samples with a % Sulphide value of <0.01 will be calculated using a 0.01 value.

Brian Graham B.Sc.

Project Specialist

Environmental Services, Analytical



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Aqua regia

03-October-2013

Date Rec. : 12 September 2013

LR Report: CA12314-SEP13

Reference: Mary River Project Quarry Testing

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CERTIFICATE OF ANALYSIS

Final Report

Analysis	3: Analysis Approval Date	4: Analysis Approval Time	5: Q1-100-1	6: Q1-100-2	7: Q1-100-3	8: Q1-100-4	9: Q1-100-5	10: Q1-100-6	11: Q1-100-7	12: Q1-100-8
Sample Date & Time			15-Aug-13	15-Aug-13	15-Aug-13	15-Aug-13	15-Aug-13	15-Aug-13	15-Aug-13	15-Aug-13
Mercury [µg/g]	25-Sep-13	17:58	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Aluminum [µg/g]	02-Oct-13	14:55	3600	3800	3600	3300	4100	3900	3200	3300
Arsenic [µg/g]	23-Sep-13	15:46	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	0.6	0.8
Barium [µg/g]	23-Sep-13	15:46	14	12	20	17	13	15	14	16
Beryllium [µg/g]	23-Sep-13	15:46	0.14	0.17	0.13	0.14	0.24	0.18	0.15	0.17
Bismuth [µg/g]	23-Sep-13	15:46	< 0.09	< 0.09	< 0.09	< 0.09	< 0.09	< 0.09	< 0.09	< 0.09
Calcium [µg/g]	02-Oct-13	14:55	1700	1700	1600	2100	3400	2700	3300	3900
Cadmium [µg/g]	23-Sep-13	15:46	< 0.02	< 0.02	< 0.02	< 0.02	0.02	< 0.02	< 0.02	< 0.02
Cobalt [µg/g]	23-Sep-13	15:46	1.0	1.2	1.1	1.0	1.2	1.1	1.1	1.1
Chromium [µg/g]	23-Sep-13	15:46	43	37	45	40	37	37	43	44
Copper [µg/g]	23-Sep-13	15:46	8.2	7.3	6.3	5.1	4.2	10	160	23
Iron [µg/g]	02-Oct-13	14:55	7400	7300	7500	7100	8300	7900	7000	6900
Potassium [µg/g]	02-Oct-13	14:55	1300	1200	1500	1400	1200	1400	1300	1300
Lithium [µg/g]	23-Sep-13	15:46	20	16	18	16	18	17	16	16
Magnesium [µg/g]	02-Oct-13	14:55	2000	2100	1800	2000	3000	2500	2400	2800
Manganese [µg/g]	23-Sep-13	15:46	150	130	150	130	150	140	150	130
Molybdenum [µg/g]	23-Sep-13	15:46	1.2	1.2	1.2	1.3	1.1	1.6	1.5	1.9
Sodium [µg/g]	02-Oct-13	14:55	360	330	370	370	340	340	380	350



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Aqua regia

LR Report :

CA12314-SEP13

Analysis	3: Analysis Approval Date	4: Analysis Approval Time	5: Q1-100-1	6: Q1-100-2	7: Q1-100-3	8: Q1-100-4	9: Q1-100-5	10: Q1-100-6	11: Q1-100-7	12: Q1-100-8
Nickel [µg/g]	23-Sep-13	15:46	5.2	4.8	5.9	5.3	5.0	4.7	7.3	5.9
Lead [µg/g]	23-Sep-13	15:46	4.9	3.9	4.7	4.8	3.9	4.6	5.0	4.3
Sulphur [µg/g]	02-Oct-13	14:55	110	190	130	170	240	180	210	210
Antimony [µg/g]	23-Sep-13	15:46	< 0.8	< 0.8	< 0.8	< 0.8	< 0.8	< 0.8	< 0.8	< 0.8
Selenium [µg/g]	23-Sep-13	15:46	< 0.7	< 0.7	< 0.7	< 0.7	< 0.7	< 0.7	< 0.7	< 0.7
Tin [µg/g]	23-Sep-13	15:46	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Strontium [µg/g]	23-Sep-13	15:46	8.2	6.5	8.9	8.3	7.9	7.7	8.3	8.5
Titanium [µg/g]	23-Sep-13	15:46	140	110	180	150	110	130	140	110
Thallium [µg/g]	23-Sep-13	15:46	0.08	0.07	0.10	0.09	0.07	0.09	0.08	0.07
Uranium [µg/g]	23-Sep-13	15:46	3.1	5.4	3.6	6.4	3.5	3.7	4.5	3.8
Vanadium [µg/g]	23-Sep-13	15:46	3	3	3	3	3	3	3	2
Zinc [µg/g]	23-Sep-13	15:46	17	14	17	15	17	16	17	15

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Modified ABA-Sobek

04-October-2013

Date Rec. : 17 September 2013

LR Report: CA12435-SEP13

Reference: Mary River Project Quarry Testing

Copy: #1

CERTIFICATE OF ANALYSIS

Final Report

Analysis	3: Analysis Approval Date	4: Analysis Approval Time	5: Q1-120-01	6: Q1-120-02	7: Q1-120-03	8: Q1-120-04	9: Q1-120-05	10: Q1-120-06	11: Q1-120-07	12: Q1-120-08
Sample Date & Time			26-Aug-13 08:30	26-Aug-13 08:30	26-Aug-13 08:30	26-Aug-13 08:30	26-Aug-13 08:30	26-Aug-13 08:30	26-Aug-13 08:30	26-Aug-13 08:30
Paste pH [units]	04-Oct-13	12:31	9.66	9.74	9.75	9.75	9.73	9.71	9.32	9.67
Fizz Rate [---]	04-Oct-13	12:31	2	2	2	2	2	2	2	2
Sample weight [g]	04-Oct-13	12:31	1.98	1.97	1.96	2.04	2.00	2.01	2.00	1.99
HCl added [mL]	04-Oct-13	12:31	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00
HCl [Normality]	04-Oct-13	12:31	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
NaOH [Normality]	04-Oct-13	12:31	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
NaOH to pH=8.3 [mL]	04-Oct-13	12:31	16.19	13.86	17.21	17.59	17.90	17.48	17.33	17.50
Final pH [units]	04-Oct-13	12:31	1.18	1.19	1.09	1.10	1.11	1.11	1.10	1.12
NP [t CaCO3/1000 t]	04-Oct-13	12:31	9.6	16	7.1	5.9	5.2	6.3	6.7	6.3
AP [t CaCO3/1000 t]	---	---	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31
Net NP [t CaCO3/1000 t]	---	---	9.29	15.3	6.79	5.59	4.89	5.99	6.39	5.99
NP/AP [ratio]	---	---	31.0	50.3	22.9	19.0	16.8	20.3	21.6	20.3
Sulphur (total) [%]	02-Oct-13	13:50	0.012	0.007	0.005	< 0.005	0.005	0.005	0.005	< 0.005
Acid Leachable SO4-S [%]	---	---	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Sulphide [%]	04-Oct-13	12:32	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.01
Carbon (total) [%]	02-Oct-13	13:50	0.073	0.149	0.043	0.028	0.026	0.031	0.039	0.032
Carbonate [%]	03-Oct-13	13:01	0.120	0.565	0.090	0.040	0.065	0.070	0.100	0.080



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Modified ABA-Sobek

LR Report :

CA12435-SEP13

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Aqua regia

03-October-2013

Date Rec. : 17 September 2013

LR Report: CA12436-SEP13

Reference: Mary River Project Quarry Testing

Copy: #1

CERTIFICATE OF ANALYSIS

Final Report

Analysis	3: Analysis Approval Date	4: Analysis Approval Time	5: Q1-120-01	6: Q1-120-02	7: Q1-120-03	8: Q1-120-04	9: Q1-120-05	10: Q1-120-06	11: Q1-120-07	12: Q1-120-08
Sample Date & Time			26-Aug-13 08:30	26-Aug-13 08:30	26-Aug-13 08:30	26-Aug-13 08:30	26-Aug-13 08:30	26-Aug-13 08:30	26-Aug-13 08:30	26-Aug-13 08:30
Mercury [µg/g]	25-Sep-13	17:58	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Aluminum [µg/g]	03-Oct-13	10:05	3700	3500	3500	3300	3400	3300	3500	3300
Arsenic [µg/g]	23-Sep-13	18:10	1.9	< 0.5	0.7	< 0.5	< 0.5	< 0.5	< 0.5	0.6
Barium [µg/g]	23-Sep-13	18:10	19	20	17	19	19	20	18	22
Beryllium [µg/g]	23-Sep-13	18:10	0.11	0.11	0.13	0.11	0.12	0.11	0.13	0.15
Bismuth [µg/g]	23-Sep-13	18:10	< 0.09	< 0.09	0.10	< 0.09	< 0.09	< 0.09	< 0.09	< 0.09
Calcium [µg/g]	03-Oct-13	10:05	1900	5200	1500	860	850	1100	1300	1200
Cadmium [µg/g]	23-Sep-13	18:11	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
Cobalt [µg/g]	23-Sep-13	18:11	1.7	1.3	1.2	1.1	1.2	1.2	1.2	1.2
Chromium [µg/g]	23-Sep-13	18:11	62	61	61	60	57	56	54	62
Copper [µg/g]	23-Sep-13	18:11	5.9	2.1	1.3	1.1	2.0	1.5	1.8	1.5
Iron [µg/g]	03-Oct-13	10:06	7500	7100	7000	6600	6900	6600	7200	6900
Potassium [µg/g]	03-Oct-13	10:06	1500	1500	1400	1400	1400	1400	1400	1400
Lithium [µg/g]	23-Sep-13	18:11	16	16	13	14	14	17	16	16
Magnesium [µg/g]	03-Oct-13	10:06	2600	1500	1500	1200	1300	1200	1500	1200
Manganese [µg/g]	23-Sep-13	18:11	150	150	130	120	120	120	120	120
Molybdenum [µg/g]	23-Sep-13	18:11	1.2	1.1	1.0	1.3	1.2	1.9	1.2	1.2
Sodium [µg/g]	03-Oct-13	10:06	400	460	440	420	440	430	390	440
Nickel [µg/g]	23-Sep-13	18:11	12	5.5	4.1	5.6	5.0	4.7	4.7	5.1
Lead [µg/g]	23-Sep-13	18:11	5.4	5.5	3.9	5.4	5.6	6.2	5.8	7.5
Sulphur [µg/g]	03-Oct-13	10:06	130	160	55	35	64	71	85	83
Antimony [µg/g]	23-Sep-13	18:11	< 0.8	< 0.8	< 0.8	< 0.8	< 0.8	< 0.8	< 0.8	< 0.8



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Aqua regia

LR Report :

CA12436-SEP13

Analysis	3: Analysis Approval Date	4: Analysis Approval Time	5: Q1-120-01	6: Q1-120-02	7: Q1-120-03	8: Q1-120-04	9: Q1-120-05	10: Q1-120-06	11: Q1-120-07	12: Q1-120-08
Selenium [µg/g]	23-Sep-13	18:11	< 0.7	< 0.7	< 0.7	< 0.7	< 0.7	< 0.7	< 0.7	< 0.7
Tin [µg/g]	23-Sep-13	18:11	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Strontium [µg/g]	23-Sep-13	18:11	9.2	9.3	8.5	7.5	8.8	9.9	10	9.3
Titanium [µg/g]	23-Sep-13	18:11	190	160	130	140	130	150	130	150
Thallium [µg/g]	23-Sep-13	18:11	0.10	0.10	0.08	0.09	0.09	0.10	0.09	0.10
Uranium [µg/g]	23-Sep-13	18:11	6.0	3.4	2.3	3.3	3.2	4.3	4.8	4.5
Vanadium [µg/g]	23-Sep-13	18:11	4	2	3	2	2	2	3	2
Zinc [µg/g]	23-Sep-13	18:11	17	16	14	15	15	15	16	16

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15-November-2013

Date Rec. : 04 November 2013
LR Report: CA13053-NOV13
Reference: Mary River Project-Quarry Testing

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CERTIFICATE OF ANALYSIS

Final Report

Analysis	3: Analysis Approval Date	4: Analysis Approval Time	5: Q1-130-01	6: Q1-130-02	7: Q1-130-03	8: Q1-130-04	9: Q1-130-05	10: Q1-130-06	11: Q1-130-07	12: Q1-130-08
Sample Date & Time			12-Sep-13 07:30	12-Sep-13 07:30	12-Sep-13 07:30	12-Sep-13 07:30	12-Sep-13 07:30	12-Sep-13 07:30	12-Sep-13 07:30	12-Sep-13 07:30
Mercury [µg/g]	13-Nov-13	18:56	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Aluminum [µg/g]	13-Nov-13	16:04	3300	3400	4100	3100	3100	3200	3200	3200
Arsenic [µg/g]	15-Nov-13	09:34	0.8	1.5	1.2	0.7	0.6	0.7	0.8	1.1
Barium [µg/g]	15-Nov-13	09:34	19	23	25	18	17	19	19	20
Beryllium [µg/g]	15-Nov-13	09:34	0.15	0.15	0.22	0.15	0.18	0.16	0.15	0.17
Bismuth [µg/g]	15-Nov-13	09:34	< 0.09	< 0.09	< 0.09	< 0.09	< 0.09	< 0.09	< 0.09	< 0.09
Calcium [µg/g]	13-Nov-13	16:04	1600	1800	3200	860	1100	1000	1400	1700
Cadmium [µg/g]	15-Nov-13	09:34	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.04
Cobalt [µg/g]	15-Nov-13	09:34	1.0	2.0	2.5	1.0	1.0	1.2	1.0	1.3
Chromium [µg/g]	15-Nov-13	09:34	41	41	39	40	43	43	43	42
Copper [µg/g]	15-Nov-13	09:34	2.6	2.9	2.8	3.1	2.6	3.1	3.9	6.3
Iron [µg/g]	13-Nov-13	16:04	7700	7900	8500	7300	7300	7600	7700	7900
Potassium [µg/g]	13-Nov-13	16:04	1600	1700	1900	1400	1400	1500	1500	1500
Lithium [µg/g]	15-Nov-13	09:34	18	19	22	17	17	18	18	18
Magnesium [µg/g]	13-Nov-13	16:05	1800	2000	3600	1500	1700	1800	1800	1900
Manganese [µg/g]	15-Nov-13	09:34	150	150	160	150	140	150	150	140
Molybdenum [µg/g]	15-Nov-13	09:34	1.2	1.2	1.1	1.1	1.3	1.2	1.3	1.4
Sodium [µg/g]	13-Nov-13	16:05	290	300	260	270	280	280	290	310
Nickel [µg/g]	15-Nov-13	09:35	5.0	5.2	5.1	4.8	4.7	5.2	5.3	5.8
Lead [µg/g]	15-Nov-13	09:35	5.6	5.3	4.5	4.7	4.7	5.1	5.7	6.8
Antimony [µg/g]	15-Nov-13	09:35	< 0.8	< 0.8	< 0.8	< 0.8	< 0.8	< 0.8	< 0.8	< 0.8
Selenium [µg/g]	15-Nov-13	09:35	< 0.7	< 0.7	< 0.7	< 0.7	< 0.7	< 0.7	< 0.7	< 0.7



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LR Report :

CA13053-NOV13

Analysis	3: Analysis Approval Date	4: Analysis Approval Time	5: Q1-130-01	6: Q1-130-02	7: Q1-130-03	8: Q1-130-04	9: Q1-130-05	10: Q1-130-06	11: Q1-130-07	12: Q1-130-08
Tin [µg/g]	15-Nov-13	09:35	0.6	0.6	0.6	0.6	0.5	0.6	0.6	0.6
Strontium [µg/g]	15-Nov-13	09:35	4.9	5.2	5.2	4.8	4.3	4.5	5.0	5.3
Titanium [µg/g]	15-Nov-13	09:35	200	230	250	180	180	210	210	220
Thallium [µg/g]	15-Nov-13	09:35	0.10	0.11	0.13	0.08	0.08	0.08	0.09	0.12
Uranium [µg/g]	15-Nov-13	09:35	4.3	3.4	5.9	3.0	3.0	3.7	3.5	4.0
Vanadium [µg/g]	15-Nov-13	09:35	3	4	6	3	3	4	4	4
Zinc [µg/g]	15-Nov-13	09:35	18	18	19	19	17	19	19	19

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ABA - Modified Sobek

19-November-2013

Date Rec. : 04 November 2013
LR Report: CA13054-NOV13
Reference: Mary River Project-Quarry Testing

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CERTIFICATE OF ANALYSIS

Final Report

Analysis	3: Analysis Approval Date	4: Analysis Approval Time	5: Q1-130-01	6: Q1-130-02	7: Q1-130-03	8: Q1-130-04	9: Q1-130-05	10: Q1-130-06	11: Q1-130-07	12: Q1-130-08
Sample Date & Time			12-Sep-13 07:30	12-Sep-13 07:30	12-Sep-13 07:30	12-Sep-13 07:30	12-Sep-13 07:30	12-Sep-13 07:30	12-Sep-13 07:30	12-Sep-13 07:30
Paste pH	19-Nov-13	13:55	9.43	9.44	9.46	9.52	9.51	9.54	9.59	9.43
Fizz Rate [---]	19-Nov-13	13:55	1	1	2	1	1	1	1	1
Sample weight [g]	19-Nov-13	13:55	1.98	1.99	2.01	2.05	1.99	2.01	1.98	2.02
HCl added [mL]	19-Nov-13	13:55	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00
HCl [Normality]	19-Nov-13	13:55	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
NaOH [Normality]	19-Nov-13	13:55	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
NaOH to [pH=8.3 mL]	19-Nov-13	13:55	17.52	17.24	14.24	18.53	18.11	18.27	17.03	17.48
Final pH	19-Nov-13	13:55	1.18	1.17	1.28	1.15	1.10	1.10	1.09	1.19
NP [t CaCO3/1000 t]	19-Nov-13	13:55	6.3	6.9	14	3.6	4.7	4.3	7.5	6.2
AP [t CaCO3/1000 t]	---	---	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31
Net NP [t CaCO3/1000 t]	---	---	5.99	6.59	14.0	3.29	4.39	3.99	7.19	5.89
NP/AP [ratio]	---	---	20.3	22.3	46.1	11.6	15.2	13.9	24.2	20.0
Sulphur (total) [%]	13-Nov-13	20:07	0.007	0.005	0.012	< 0.005	0.005	< 0.005	< 0.005	0.006
Acid Leachable SO4-S [%]	---	---	< 0.01	< 0.01	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Sulphide [%]	13-Nov-13	20:11	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Carbon (total) [%]	13-Nov-13	20:07	0.049	0.068	0.159	0.018	0.034	0.032	0.052	0.078
Carbonate [%]	13-Nov-13	20:05	0.185	0.220	0.620	0.065	0.105	0.095	0.200	0.250



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LR Report :

CA13054-NOV13

*NP (Neutralization Potential)

= $50 \times (N \text{ of HCL} \times \text{Total HCL added} - N \text{ NaOH} \times \text{NaOH added})$

Weight of Sample

*AP (Acid Potential) = % Sulphide Sulphur $\times$ 31.25

*Net NP (Net Neutralization Potential) = NP-AP

NP/AP Ratio = NP/AP

*Results expressed as tonnes CaCO₃ equivalent/1000 tonnes of material

Samples with a % Sulphide value of <0.01 will be calculated using a 0.01 value.

Sulphur analysis performed following BC ARD Guidelines (Price 1997)

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15-November-2013

Date Rec. : 04 November 2013

LR Report: CA13055-NOV13

Reference: Mary River Project-Quarry Testing

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CERTIFICATE OF ANALYSIS

Final Report

Analysis	3: Analysis Approval Date	4: Analysis Approval Time	5: Q1-140-000-1-13-09- 26	6: Q1-140-000-2-13-09- 26	7: Q1-140-000-3-13-09- 26	8: Q1-140-000-4-13-09- 26	9: Q1-140-000-5-13-09- 26	10: Q1-140-000-6-13-09- 26	11: Q1-140-000-7-13-09- 26	12: Q1-140-000-8-13-09- 26
Sample Date & Time			26-Sep-13 08:30	26-Sep-13 08:30	26-Sep-13 08:30	26-Sep-13 08:30	26-Sep-13 08:30	26-Sep-13 08:30	26-Sep-13 08:30	26-Sep-13 08:30
Mercury [µg/g]	13-Nov-13	18:56	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Aluminum [µg/g]	13-Nov-13	16:05	2600	2800	2900	2800	2700	3200	3400	2900
Arsenic [µg/g]	15-Nov-13	09:35	0.7	0.6	0.6	0.5	< 0.5	0.6	< 0.5	0.6
Barium [µg/g]	15-Nov-13	09:35	17	18	18	19	21	21	21	19
Beryllium [µg/g]	15-Nov-13	09:35	0.15	0.15	0.11	0.12	0.09	0.12	0.12	0.12
Bismuth [µg/g]	15-Nov-13	09:35	< 0.09	< 0.09	< 0.09	< 0.09	< 0.09	< 0.09	< 0.09	< 0.09
Calcium [µg/g]	13-Nov-13	16:05	790	970	700	900	880	570	890	750
Cadmium [µg/g]	15-Nov-13	09:35	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
Cobalt [µg/g]	15-Nov-13	09:35	0.83	0.84	0.91	0.83	0.88	1.0	1.1	0.90
Chromium [µg/g]	15-Nov-13	09:35	35	40	41	44	42	42	43	46
Copper [µg/g]	15-Nov-13	09:35	112	32	18	12	7.2	6.3	5.5	6.1
Iron [µg/g]	13-Nov-13	16:05	6400	6600	7200	6800	6800	7700	8400	7000
Potassium [µg/g]	13-Nov-13	16:05	1100	1400	1400	1300	1400	1800	1900	1400
Lithium [µg/g]	15-Nov-13	09:35	14	15	16	16	16	19	22	15
Magnesium [µg/g]	13-Nov-13	16:05	1200	1200	1300	1200	1100	1400	1400	1400
Manganese [µg/g]	15-Nov-13	09:35	110	150	130	130	130	160	170	140
Molybdenum [µg/g]	15-Nov-13	09:35	1.0	1.1	1.1	1.2	1.1	1.2	1.2	1.3
Sodium [µg/g]	13-Nov-13	16:05	340	290	300	300	280	300	310	290
Nickel [µg/g]	15-Nov-13	09:35	4.4	4.4	4.7	4.9	4.7	5.2	4.9	5.3
Lead [µg/g]	15-Nov-13	09:35	5.0	6.3	5.3	6.2	7.4	4.9	6.0	3.6
Antimony [µg/g]	15-Nov-13	09:35	< 0.8	< 0.8	< 0.8	< 0.8	< 0.8	< 0.8	< 0.8	< 0.8
Selenium [µg/g]	15-Nov-13	09:35	< 0.7	< 0.7	< 0.7	< 0.7	< 0.7	< 0.7	< 0.7	< 0.7



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LR Report :

CA13055-NOV13

Analysis	3: Analysis Approval Date	4: Analysis Approval Time	5: Q1-140-000-1-13-09- 26	6: Q1-140-000-2-13-09- 26	7: Q1-140-000-3-13-09- 26	8: Q1-140-000-4-13-09- 26	9: Q1-140-000-5-13-09- 26	10: Q1-140-000-6-13-09- 26	11: Q1-140-000-7-13-09- 26	12: Q1-140-000-8-13-09- 26
Tin [µg/g]	15-Nov-13	09:35	0.5	0.6	0.5	< 0.5	< 0.5	0.7	0.7	0.5
Strontium [µg/g]	15-Nov-13	09:35	4.4	4.9	4.4	5.1	4.4	4.9	4.5	4.4
Titanium [µg/g]	15-Nov-13	09:35	120	180	190	160	200	260	300	180
Thallium [µg/g]	15-Nov-13	09:35	0.05	0.08	0.09	0.06	0.07	0.12	0.14	0.08
Uranium [µg/g]	15-Nov-13	09:35	5.1	3.4	2.4	2.4	3.8	2.0	3.3	3.0
Vanadium [µg/g]	15-Nov-13	09:35	3	3	2	3	2	4	4	3
Zinc [µg/g]	15-Nov-13	09:35	16	17	18	17	16	20	22	17

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ABA - Modified Sobek

14-November-2013

Date Rec. : 04 November 2013

LR Report: CA13056-NOV13

Reference: Mary River Project-Quarry Testing

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CERTIFICATE OF ANALYSIS

Final Report

Analysis	3: Approval Date	4: Approval Time	5: Q1-140-000-1-13-09- 26	6: Q1-140-000-2-13-09- 26	7: Q1-140-000-3-13-09- 26	8: Q1-140-000-4-13-09- 26	9: Q1-140-000-5-13-09- 26	10: Q1-140-000-6-13-09- 26	11: Q1-140-000-7-13-09- 26	12: Q1-140-000-8-13-09- 26
Sample Date & Time			26-Sep-13 08:30	26-Sep-13 08:30	26-Sep-13 08:30	26-Sep-13 08:30	26-Sep-13 08:30	26-Sep-13 08:30	26-Sep-13 08:30	26-Sep-13 08:30
Paste pH	14-Nov-13	14:44	9.63	9.73	9.69	9.65	9.66	9.58	9.58	9.73
Fizz Rate [---]	14-Nov-13	14:44	1	1	1	1	1	1	1	1
Sample weight [g]	14-Nov-13	14:44	2.00	1.99	2.02	2.00	2.02	1.99	2.00	2.03
HCl added [mL]	14-Nov-13	14:44	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00
HCl [Normality]	14-Nov-13	14:44	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
NaOH [Normality]	14-Nov-13	14:44	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
NaOH to pH=8.3 [mL]	14-Nov-13	14:44	18.56	18.40	18.89	18.52	18.63	18.88	18.57	18.64
Final pH	14-Nov-13	14:44	1.14	1.13	1.08	1.09	1.13	1.11	1.07	1.10
NP [t CaCO3/1000 t]	14-Nov-13	14:44	3.6	4.0	2.7	3.7	3.4	2.8	3.6	3.4
AP [t CaCO3/1000 t]	---	---	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31
Net NP [t CaCO3/1000 t]	---	---	3.29	3.69	2.39	3.39	3.09	2.49	3.29	3.09
NP/AP [ratio]	---	---	11.6	12.9	8.71	11.9	11.0	9.03	11.6	11.0
Sulphur (total) [%]	13-Nov-13	20:08	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.005	< 0.005
Acid Leachable SO4-S [%]	---	---	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Sulphide [%]	13-Nov-13	20:11	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Carbon (total) [%]	13-Nov-13	20:08	0.019	0.022	0.014	0.022	0.021	0.010	0.015	0.009
Carbonate [%]	13-Nov-13	20:06	0.065	0.080	0.040	0.075	0.065	0.035	0.055	0.030



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LR Report :

CA13056-NOV13

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06-December-2013

Date Rec. : 26 November 2013
LR Report: CA13741-NOV13
Reference: Project Name: Mary River
Project-Quarry Testing
PO#: 45000214

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CERTIFICATE OF ANALYSIS

Final Report

Analysis	3: Analysis Approval Date	4: Analysis Approval Time	5: Q1-540001B-V3-00 6	6: Q1-540001B-V8-00 7	7: Q1-68001-20-008	8: Q1-68001-50-009	9: Q1-68001-100-010	10: Q1-68001-200-011	11: Q1-68001-209-012	12: Q1-68001-280-013
Sample Date & Time			28-Oct-13 08:00	28-Oct-13 08:00	11-Nov-13 14:30	09-Nov-13 14:00	12-Nov-13 13:00	15-Nov-13 13:00	15-Nov-13 13:00	18-Nov-13 09:00
Paste pH	06-Dec-13	08:56	9.23	9.80	8.84	9.43	9.93	9.65	9.77	9.48
Fizz Rate [---]	06-Dec-13	08:56	1	1	1	2	1	2	1	2
Sample weight [g]	06-Dec-13	08:56	2.00	2.00	1.99	1.99	2.01	2.01	2.00	1.97
HCl added [mL]	06-Dec-13	08:56	20.00	20.00	20.00	20.00	20.00	29.90	20.00	26.50
HCl [Normality]	06-Dec-13	08:56	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
NaOH [Normality]	06-Dec-13	08:56	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
NaOH to [pH=8.3 mL]	06-Dec-13	08:56	16.95	17.17	17.51	6.33	17.67	9.19	17.75	10.18
Final pH	06-Dec-13	08:56	1.10	1.12	1.13	1.71	1.13	1.64	1.11	1.55
NP [t CaCO3/1000 t]	06-Dec-13	08:56	7.6	7.1	6.3	34	5.8	52	5.6	41
AP [t CaCO3/1000 t]	---	---	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31
Net NP [t CaCO3/1000 t]	---	---	7.29	6.79	5.99	34.0	5.49	51.2	5.29	41.1
NP/AP [ratio]	---	---	24.5	22.9	20.3	111	18.7	166	18.1	134
Sulphur (total) [%]	02-Dec-13	09:59	0.019	0.005	0.010	0.008	0.010	0.006	0.007	0.006
Acid Leachable SO4-S [%]	---	---	0.02	< 0.01	0.01	< 0.01	0.01	< 0.01	< 0.01	< 0.01
Sulphide [%]	02-Dec-13	09:59	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Carbon (total) [%]	29-Nov-13	16:20	0.036	0.047	0.196	0.445	0.031	0.624	0.105	0.518
Carbonate [%]	29-Nov-13	16:18	0.150	0.150	0.070	1.74	0.100	2.71	0.130	2.05



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ABA - Modified Sobek

LR Report :

CA13741-NOV13

*NP (Neutralization Potential)

= $50 \times (N \text{ of HCL} \times \text{Total HCL added} - N \text{ NaOH} \times \text{NaOH added})$

Weight of Sample

*AP (Acid Potential) = % Sulphide Sulphur $\times$ 31.25

*Net NP (Net Neutralization Potential) = NP-AP

NP/AP Ratio = NP/AP

*Results expressed as tonnes CaCO₃ equivalent/1000 tonnes of material

Samples with a % Sulphide value of <0.01 will be calculated using a 0.01 value.

Sulphur analysis performed following BC ARD Guidelines (Price 1997)

Brian Graham B.Sc.

Project Specialist

Environmental Services, Analytical

SGS Canada Inc.

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14-November-2013

Baffinland Iron Mines Corp

Attn : Sarah Canning

#300-2278 Upper Middle Road East, Oakville
Canada, L6H 0C3
Phone: 416-364-8820, Fax:416-364-0193

Date Rec. : 11 November 2013
LR Report: CA14232-NOV13
Reference: Mary River Project-Quarry
Testing PO#450000214

Copy: #1

CERTIFICATE OF ANALYSIS

Final Report

Analysis	3: Analysis Approval Date	4: Analysis Approval Time	5: Q1-540001-M1 7D-001	6: Q1-540001-M1 7-002	7: Q1-540001-M3 -003	8: Q1-540001B-R4- 004	9: Q1-540001B-R1 3-005
Sample Date & Time			28-Oct-13	28-Oct-13	28-Oct-13	03-Nov-13	03-Nov-13
Paste pH	14-Nov-13	14:46	9.42	9.59	9.14	9.14	9.44
Fizz Rate [---]	14-Nov-13	14:46	1	1	2	2	1
Sample weight [g]	14-Nov-13	14:46	2.04	2.01	1.99	2.03	2.01
HCl added [mL]	14-Nov-13	14:46	20.00	20.00	20.00	20.00	20.00
HCl [Normality]	14-Nov-13	14:46	0.10	0.10	0.10	0.10	0.10
NaOH [Normality]	14-Nov-13	14:46	0.10	0.10	0.10	0.10	0.10
NaOH to pH=8.3 [mL]	14-Nov-13	14:46	15.66	17.60	12.82	11.18	17.80
Final pH	14-Nov-13	14:46	1.12	1.13	1.28	1.35	1.11
NP [t CaCO3/1000 t]	14-Nov-13	14:46	11	6.0	18	22	5.5
AP [t CaCO3/1000 t]	---	---	0.31	0.31	0.31	0.31	0.31
Net NP [t CaCO3/1000 t]	---	---	10.3	5.69	17.7	21.4	5.19
NP/AP [ratio]	---	---	34.2	19.4	58.1	70.0	17.7
Sulphur (total) [%]	14-Nov-13	14:50	< 0.005	< 0.005	0.007	0.006	< 0.005
Acid Leachable SO4-S [%]	---	---	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Sulphide [%]	13-Nov-13	20:16	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Carbon (total) [%]	14-Nov-13	14:50	0.098	0.052	0.343	0.309	0.056
Carbonate [%]	13-Nov-13	20:13	0.310	0.195	1.14	1.14	0.170



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