



Australian Laboratory Services Pty. Ltd.

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Accreditation No: 825, Corporate Site No: 818.

CERTIFICATE BR19135534

Project: Barnes Hill

This report is for 326 Rock samples submitted to our lab in Brisbane, QLD, Australia on 5-JUN-2019.

The following have access to data associated with this certificate:

MIKE BLAKE

DR PIERRE RICHARD

SAMPLE PREPARATION

ALS CODE	DESCRIPTION
WEI-21	Received Sample Weight
WEI-22g	Dry Weight - Small Samples
WEI-23g	Wet Wt. of split - grams
LEV-01	Waste Disposal Levy
LOG-22	Sample login - Rcd w/o BarCode
TRA-21	Transfer sample
CRU-21	Crush entire sample
PUL-32	Pulverize 1000g to 85% < 75 um
BAG-01	Bulk Master for Storage
PUL-QC	Pulverizing QC Test

ANALYTICAL PROCEDURES

ALS CODE	DESCRIPTION	INSTRUMENT
ME-XRF12n	Fusion XRF for Laterite Ore	XRF
ME-GRA05	H2O/LOI by TGA furnace	TGA
OA-GRA05g	Moisture of split sample	

This is the Final Report and supersedes any preliminary report with this certificate number. Results apply to samples as submitted. All pages of this report have been checked and approved for release.

***** See Appendix Page for comments regarding this certificate *****

Comments: OA-GRA05g represents moisture on raw sample (prior to drying and sample prep).

LOI 105 by ME-GRA05 represents moisture (re-absorbed) on pulverised sample. LOI 300, LOI 350, LOI 350 and LOI 1000 represent LOI at various temps based on redried sample (105

Signature:

Shaun Kenny, Brisbane Laboratory Manager



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 Plus Appendix Pages
 Finalized Date: 21-JUN-2019
 Account: MONPTY

CERTIFICATE OF ANALYSIS BR19135534

Sample Description	Method Analyte Units LOD	WEI-21	PUL-QC	OA-GRA05g	WEI-22g	WEI-23g	ME-XRF12n									
		Recvd Wt. kg	Pass75um %	Moisture %	Dry Wt. g	Wet Wt. g	Al2O3 %	CaO %	Co %	Cr2O3 %	Cu %	Fe2O3 %	K2O %	MgO %	MnO %	Na2O %
		0.02	0.01	0.01	0.01	0.1	0.01	0.01	0.001	0.005	0.001	0.01	0.01	0.01	0.005	0.01
341500		<0.02					4.01	0.25	0.074	1.265	0.005	29.48	0.01	9.17	0.585	0.01
341501		0.28	99.0				6.35	0.23	0.021	3.51	<0.001	43.18	0.13	2.61	0.075	0.05
341502		0.20					5.81	0.05	0.043	3.75	<0.001	33.57	0.07	3.44	0.204	0.04
341503		0.23					7.20	0.04	0.065	3.76	<0.001	19.92	0.12	18.95	0.437	0.03
341504		0.22					9.11	0.21	0.033	1.115	<0.001	9.24	0.13	28.7	0.410	0.02
341505		0.19					1.58	0.13	0.021	1.775	<0.001	9.80	0.02	30.8	0.212	0.02
341506		0.36					2.84	0.05	0.037	1.480	<0.001	19.82	0.05	26.8	0.367	0.01
341507		0.53					1.31	0.01	0.010	0.911	<0.001	9.61	0.03	36.5	0.068	0.01
341508		0.59					1.38	0.01	0.008	0.538	<0.001	5.29	0.01	38.7	0.054	0.01
341509		0.33					24.1	0.03	0.234	1.145	<0.001	27.69	0.08	1.45	0.975	0.01
341510		0.28					15.40	0.06	0.207	3.46	<0.001	33.94	0.03	3.03	1.045	0.04
341511		0.30					7.77	0.06	0.058	2.78	<0.001	53.33	0.02	3.58	0.281	0.01
341512		0.39					6.66	0.06	0.072	4.17	<0.001	41.79	0.03	7.11	0.381	0.02
341513		0.21					8.74	0.07	0.059	2.93	<0.001	24.36	0.03	13.95	0.410	0.03
341514		0.26					6.84	0.05	0.038	1.960	<0.001	22.03	0.01	19.10	0.322	0.01
341515		0.31					5.51	0.07	0.050	2.62	<0.001	36.10	0.03	12.80	0.351	0.01
341516		0.36					2.38	0.04	0.030	1.990	<0.001	22.22	0.01	24.4	0.179	0.01
341517		0.47					0.77	0.02	0.022	1.615	<0.001	12.67	<0.01	31.9	0.116	0.01
341518		<0.02					17.30	0.21	0.056	0.672	0.020	40.91	0.07	0.77	1.940	0.33
341519		0.17					13.60	0.04	0.007	2.83	<0.001	37.60	0.12	6.93	0.064	0.02
341520		0.30					15.80	0.01	0.008	4.78	<0.001	50.29	0.16	1.52	0.132	0.01
341521		0.44					14.10	0.01	0.011	4.15	<0.001	54.78	0.13	1.02	0.149	<0.01
341522		0.58		25.4	416.00	557.8	12.85	0.01	0.012	4.59	<0.001	58.41	0.12	0.91	0.161	<0.01
341523		0.51					11.85	0.01	0.046	4.69	<0.001	62.24	0.07	1.02	0.312	<0.01
341524		0.37					6.82	0.06	0.084	2.78	0.002	37.46	0.06	12.85	0.396	0.36
341525		0.49					6.45	0.05	0.133	3.22	<0.001	50.90	0.06	8.45	0.672	0.26
341526		0.55					6.37	0.04	0.164	4.89	<0.001	64.20	0.05	2.58	0.935	0.20
341527		0.15					5.64	0.13	0.108	3.95	<0.001	58.73	0.07	4.58	0.713	0.14
341528		0.28					3.01	0.05	0.063	2.98	<0.001	35.14	0.02	17.85	0.526	0.09
341529		0.62					2.09	0.02	0.054	2.83	<0.001	30.13	0.01	21.8	0.455	0.08
341530		0.53					0.60	0.01	0.014	0.969	<0.001	11.24	<0.01	35.1	0.168	0.02
341531		0.44					0.92	0.01	0.021	1.225	<0.001	12.86	<0.01	33.3	0.172	0.02
341532		0.56					0.69	0.01	0.014	0.911	<0.001	8.89	<0.01	36.6	0.141	0.01
341533		0.49					0.54	0.01	0.014	0.840	<0.001	9.17	<0.01	37.1	0.095	0.04
341534		0.46					0.20	0.01	0.013	0.851	<0.001	8.76	<0.01	37.7	0.068	0.01
341535		0.48					0.09	0.01	0.011	0.850	<0.001	8.64	<0.01	35.5	0.061	0.02
341536		0.45					0.09	0.01	0.010	0.783	<0.001	8.06	<0.01	37.0	0.051	0.03
341537		0.45					0.05	0.01	0.010	0.664	<0.001	10.82	<0.01	36.3	0.059	0.01
341538		0.45					0.05	0.01	0.010	0.755	<0.001	8.01	<0.01	37.9	0.059	0.01
341539		0.30					7.32	0.01	0.016	7.91	<0.001	72.38	0.03	0.81	0.097	<0.01

Comments: OA-GRA05g represents moisture on raw sample (prior to drying and sample prep).

LOI 105 by ME-GRA05 represents moisture (re-absorbed) on pulverised sample. LOI 300, LOI 350, LOI 350 and LOI 1000 represent LOI at various temps based on redried sample (105

***** See Appendix Page for comments regarding this certificate *****



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CERTIFICATE OF ANALYSIS BR19135534

Sample Description	Method Analyte Units LOD	ME-XRF12n	ME-GRA05	ME-GRA05	ME-GRA05	ME-GRA05	ME-GRA05							
		Ni %	P2O5 %	Pb %	SiO2 %	TiO2 %	Zn %	Total %	Sc %	LOI 105 %	LOI 300 %	LOI 350 %	LOI 650 %	LOI 1000 %
		0.005	0.005	<0.005	0.05	0.01	0.001	0.01	0.001	0.01	0.01	0.01	0.01	0.01
341500		0.707	0.014	<0.005	46.9	0.05	0.017	100.05	0.002					7.15
341501		0.492	0.023	<0.005	36.8	0.41	0.012	100.00	0.001					5.83
341502		1.095	0.011	<0.005	40.3	0.16	0.013	100.00	<0.001					11.08
341503		0.732	0.023	<0.005	37.7	0.18	0.015	100.10	0.001					10.60
341504		0.418	0.034	<0.005	38.1	0.16	0.009	99.94	<0.001					12.04
341505		0.766	0.007	<0.005	43.1	0.03	0.006	100.05	<0.001					11.52
341506		0.613	0.010	<0.005	37.6	0.07	0.006	100.05	<0.001					10.05
341507		0.221	<0.005	<0.005	39.4	0.02	0.003	100.05	0.001					11.82
341508		0.186	<0.005	<0.005	41.1	0.03	0.002	99.99	0.001					12.58
341509		0.182	0.028	<0.005	29.1	0.57	0.008	99.91	0.001					13.90
341510		0.456	0.019	<0.005	30.4	0.33	0.025	100.05	0.001					11.22
341511		0.492	0.014	<0.005	24.6	0.18	0.022	100.00	0.002					6.59
341512		0.702	0.015	<0.005	29.8	0.14	0.029	100.00	0.001					8.68
341513		0.742	0.011	<0.005	37.5	0.17	0.036	99.96	0.002					10.62
341514		0.792	0.006	<0.005	38.8	0.13	0.017	100.05	0.001					9.66
341515		0.807	0.009	<0.005	33.1	0.12	0.022	99.99	0.001					8.09
341516		0.791	0.006	<0.005	37.7	0.06	0.012	100.00	0.001					9.90
341517		0.696	0.005	<0.005	41.1	0.02	0.006	100.05	0.001					10.89
341518		0.098	0.065	<0.005	25.0	0.84	0.020	99.99	0.061					10.85
341519		0.161	0.034	<0.005	26.0	0.57	0.012	100.05	0.001					11.79
341520		0.080	0.030	<0.005	14.15	0.57	0.030	100.00	0.002					11.82
341521		0.101	0.030	<0.005	12.65	0.46	0.030	100.00	0.003					11.78
341522		0.130	0.032	<0.005	11.25	0.38	0.032	99.97	0.005					10.57
341523		0.175	0.027	<0.005	12.25	0.25	0.036	99.99	0.004					6.68
341524		0.420	0.018	<0.005	25.0	0.19	0.021	100.05	0.002					12.27
341525		0.415	0.012	<0.005	18.95	0.19	0.025	100.00	0.003					9.24
341526		0.453	0.017	<0.005	12.20	0.15	0.044	100.00	0.004					6.86
341527		0.423	0.023	<0.005	17.85	0.16	0.037	99.99	0.003					6.79
341528		0.760	0.009	<0.005	30.0	0.07	0.026	99.99	0.003					8.85
341529		0.812	0.005	<0.005	32.1	0.04	0.018	100.00	0.002					9.08
341530		0.269	<0.005	<0.005	40.1	0.01	0.008	99.97	0.001					11.34
341531		0.325	<0.005	<0.005	39.9	0.01	0.014	99.96	0.001					11.04
341532		0.229	<0.005	<0.005	40.5	<0.01	0.010	99.94	0.001					11.82
341533		0.207	<0.005	<0.005	39.8	<0.01	0.008	100.05	0.001					12.09
341534		0.193	<0.005	<0.005	39.5	0.01	0.002	99.92	0.001					12.50
341535		0.172	<0.005	<0.005	43.1	0.01	0.002	100.05	0.001					11.52
341536		0.130	<0.005	<0.005	41.8	0.01	0.002	100.00	0.001					11.95
341537		0.122	<0.005	<0.005	40.3	0.01	0.001	100.05	<0.001					11.64
341538		0.124	<0.005	<0.005	40.8	0.01	0.002	99.97	<0.001					12.17
341539		0.108	0.016	<0.005	3.05	0.19	0.024	99.99	0.004					7.69

Comments: OA-GRA05g represents moisture on raw sample (prior to drying and sample prep).
 LOI 105 by ME-GRA05 represents moisture (re-absorbed) on pulverised sample. LOI 300, LOI 350, LOI 350 and LOI 1000 represent LOI at various temps based on redried sample (105

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CERTIFICATE OF ANALYSIS BR19135534

Sample Description	Method Analyte Units LOD	WEI-21	PUL-QC	OA-GRA05g	WEI-22g	WEI-23g	ME-XRF12n									
		Recvd Wt. kg	Pass75um %	Moisture %	Dry Wt. g	Wet Wt. g	Al2O3 %	CaO %	Co %	Cr2O3 %	Cu %	Fe2O3 %	K2O %	MgO %	MnO %	Na2O %
		0.02	0.01	0.01	0.01	0.1	0.01	0.01	0.001	0.005	0.001	0.01	0.01	0.01	0.005	0.01
341540		0.39		19.30	302.10	374.3	10.35	0.07	0.013	4.18	<0.001	69.20	0.06	0.49	0.095	<0.01
341541		0.48					20.8	0.04	0.004	3.04	<0.001	39.94	0.16	1.38	0.037	0.03
341542		0.51					9.98	0.02	0.016	5.87	<0.001	66.74	0.02	0.77	0.098	<0.01
341543		0.49					11.60	0.02	0.020	2.98	<0.001	65.27	0.02	0.61	0.078	<0.01
341544		0.46					10.85	0.07	0.222	2.84	<0.001	58.25	0.02	0.95	1.105	<0.01
341545		0.31					9.49	0.15	0.136	3.00	<0.001	45.60	0.02	4.22	0.889	0.02
341546		0.55					4.23	0.03	0.024	2.38	<0.001	25.39	0.03	21.4	0.122	0.01
341547		0.29					2.55	0.05	0.032	1.760	<0.001	19.31	0.01	25.4	0.176	0.02
341548		0.27					1.14	0.05	0.033	1.435	<0.001	23.12	0.01	23.3	0.192	0.02
341549		0.27					6.67	1.70	0.044	1.615	<0.001	35.20	0.01	9.73	0.825	0.02
341550		0.25					9.42	0.19	0.158	2.77	<0.001	42.66	0.02	5.37	1.090	0.02
341551		0.15					5.35	1.08	0.052	2.76	<0.001	40.17	0.02	8.96	0.583	0.02
341552		0.19					2.79	0.12	0.074	4.53	<0.001	62.42	0.02	3.83	0.433	0.01
341553		0.22					2.46	0.25	0.075	4.02	0.001	50.29	0.01	6.40	0.433	0.01
341554		0.14					0.92	0.10	0.024	1.350	<0.001	21.39	0.01	26.0	0.158	0.01
341555		0.16					0.96	0.11	0.025	1.420	<0.001	20.02	0.01	26.0	0.167	0.01
341556		0.31	99.1				1.42	0.09	0.037	1.705	<0.001	24.56	0.01	20.8	0.273	0.03
341557		0.52					0.35	0.03	0.017	0.929	<0.001	12.26	<0.01	32.6	0.114	0.01
341558		0.18					1.28	0.09	0.049	4.17	<0.001	31.41	0.01	7.91	0.449	0.03
341559		0.24					1.04	0.09	0.046	2.67	<0.001	35.89	0.01	12.10	0.359	0.01
341560		0.26					0.92	0.05	0.039	2.41	<0.001	27.66	0.01	18.60	0.298	0.07
341561		0.38					0.43	0.02	0.024	1.580	<0.001	14.64	<0.01	29.5	0.174	0.21
341562		0.51					3.01	0.05	0.016	0.987	<0.001	12.02	0.02	32.8	0.184	0.03
341563		0.29					0.64	0.03	0.026	1.785	<0.001	17.59	<0.01	29.5	0.160	0.03
341564		0.54					0.55	0.02	0.021	1.645	<0.001	13.38	<0.01	31.9	0.140	0.05
341565		0.32					0.61	0.02	0.024	2.11	<0.001	21.13	<0.01	27.7	0.150	0.01
341566		<0.02					4.02	0.25	0.074	1.270	0.002	29.52	0.01	9.15	0.584	<0.01
341567		0.52					0.91	0.03	0.029	2.20	<0.001	21.04	<0.01	27.0	0.212	0.02
341568		0.65					1.14	0.03	0.026	1.700	<0.001	20.41	0.01	29.2	0.176	0.02
341571		0.32					14.50	0.04	0.004	3.71	<0.001	51.80	0.10	1.35	0.057	0.01
341572		0.38					6.94	0.02	0.008	5.83	<0.001	72.95	0.01	0.50	0.092	<0.01
341573		0.36					19.30	0.02	0.005	7.93	<0.001	43.76	0.07	0.68	0.052	<0.01
341574		0.36					20.1	0.03	0.007	7.28	<0.001	41.56	0.05	0.68	0.046	0.01
341575		0.34					5.07	0.01	0.019	5.90	<0.001	79.96	0.02	0.59	0.079	<0.01
341576		0.37					3.95	0.01	0.017	6.97	<0.001	78.45	0.01	0.60	0.093	<0.01
341577		0.33					5.52	0.02	0.048	5.72	0.002	73.65	0.03	0.88	0.550	<0.01
341578		0.35					5.19	0.02	0.274	5.63	<0.001	74.65	0.02	0.58	1.335	<0.01
341579		0.35					2.49	0.02	0.657	3.32	0.003	79.63	0.02	0.47	3.44	<0.01
341580		0.40					6.40	0.02	0.186	4.17	<0.001	72.70	0.02	1.06	1.175	<0.01
341581		0.44					5.43	0.06	0.148	4.71	<0.001	67.99	0.02	1.36	1.075	<0.01

Comments: OA-GRA05g represents moisture on raw sample (prior to drying and sample prep).

LOI 105 by ME-GRA05 represents moisture (re-absorbed) on pulverised sample. LOI 300, LOI 350, LOI 350 and LOI 1000 represent LOI at various temps based on redried sample (105

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Sample Description	Method Analyte Units LOD	ME-XRF12n	ME-GRA05	ME-GRA05	ME-GRA05	ME-GRA05	ME-GRA05							
		Ni %	P2O5 %	Pb %	SiO2 %	TiO2 %	Zn %	Total %	Sc %	LOI 105 %	LOI 300 %	LOI 350 %	LOI 650 %	LOI 1000 %
		0.005	0.005	<0.005	0.05	0.01	0.001	0.01	0.001	0.01	0.01	0.01	0.01	0.01
341540		0.073	0.026	<0.005	5.85	0.37	0.014	99.98	0.004					8.85
341541		0.036	0.050	<0.005	20.9	1.05	0.004	99.95	0.003					12.22
341542		0.096	0.024	<0.005	6.94	0.28	0.015	99.99	0.004					8.78
341543		0.150	0.019	<0.005	11.50	0.10	0.009	100.00	0.003					7.36
341544		0.400	0.014	<0.005	17.60	0.14	0.013	99.99	0.003					7.10
341545		0.793	0.010	<0.005	26.8	0.16	0.030	99.95	0.002					8.18
341546		0.646	0.010	<0.005	35.1	0.17	0.010	100.00	0.002					10.18
341547		0.775	0.006	<0.005	39.3	0.05	0.011	99.91	0.001					10.17
341548		0.924	0.005	<0.005	40.0	0.03	0.011	99.96	0.001					9.37
341549		0.877	0.014	<0.005	35.6	0.12	0.016	100.05	<0.001					7.23
341550		0.837	0.010	<0.005	28.8	0.17	0.035	99.95	0.002					7.93
341551		0.866	0.012	<0.005	33.7	0.11	0.021	99.95	0.001					5.90
341552		0.713	0.010	<0.005	21.0	0.07	0.023	99.98	0.003					3.62
341553		0.870	0.009	<0.005	29.8	0.06	0.026	99.98	0.001					4.91
341554		0.463	0.006	<0.005	40.3	0.03	0.006	100.05	<0.001					9.10
341555		0.471	0.006	<0.005	41.3	0.03	0.008	100.05	0.001					9.33
341556		0.766	<0.005	<0.005	41.9	0.04	0.008	100.05	0.001					8.13
341557		0.643	<0.005	<0.005	42.1	0.01	0.004	99.94	0.001					10.65
341558		1.135	0.005	<0.005	47.1	0.02	0.017	100.05	0.002					5.96
341559		0.867	<0.005	<0.005	40.7	0.03	0.013	100.00	0.001					5.88
341560		0.828	0.005	<0.005	40.7	0.03	0.011	100.05	0.001					8.02
341561		0.487	<0.005	<0.005	40.4	0.01	0.006	100.00	<0.001					11.89
341562		0.326	0.010	<0.005	39.2	0.07	0.006	100.00	0.001					11.09
341563		0.498	<0.005	<0.005	39.5	0.01	0.007	99.95	0.001					9.96
341564		0.505	<0.005	<0.005	40.6	0.01	0.006	100.05	0.001					10.93
341565		0.547	<0.005	<0.005	38.5	0.01	0.007	100.05	0.001					9.03
341566		0.707	0.013	<0.005	47.0	0.05	0.017	99.95	0.002					6.95
341567		0.574	<0.005	<0.005	38.7	0.01	0.014	100.00	<0.001					9.03
341568		0.384	0.005	<0.005	36.7	0.03	0.007	99.97	0.001					9.97
341571		0.031	0.063	<0.005	14.00	0.94	0.004	100.00	0.002					13.03
341572		0.053	0.038	<0.005	2.25	0.35	0.014	100.00	0.004					10.50
341573		0.028	0.040	<0.005	11.20	0.98	0.014	100.00	0.005					15.28
341574		0.056	0.033	<0.005	15.80	0.43	0.017	100.05	0.004					13.38
341575		0.087	0.014	<0.005	2.12	0.15	0.011	99.99	0.003					5.67
341576		0.085	0.012	<0.005	1.78	0.07	0.015	99.99	0.005					7.62
341577		0.166	0.016	<0.005	4.00	0.10	0.018	100.00	0.005					8.73
341578		0.452	0.013	<0.005	3.00	0.11	0.018	100.00	0.002					8.00
341579		0.816	0.012	<0.005	1.67	0.05	0.025	100.00	0.003					6.35
341580		0.346	0.015	<0.005	8.13	0.22	0.018	99.99	0.002					5.11
341581		0.598	0.011	<0.005	13.20	0.14	0.020	99.99	0.002					4.83

Comments: OA-GRA05g represents moisture on raw sample (prior to drying and sample prep).

LOI 105 by ME-GRA05 represents moisture (re-absorbed) on pulverised sample. LOI 300, LOI 350, LOI 350 and LOI 1000 represent LOI at various temps based on redried sample (105

***** See Appendix Page for comments regarding this certificate *****



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Project: Barnes Hill

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 Finalized Date: 21-JUN-2019
 Account: MONPTY

CERTIFICATE OF ANALYSIS BR19135534

Sample Description	Method Analyte Units LOD	WEI-21	PUL-QC	OA-GRA05g	WEI-22g	WEI-23g	ME-XRF12n									
		Recvd Wt. kg	Pass75um %	Moisture %	Dry Wt. g	Wet Wt. g	Al2O3 %	CaO %	Co %	Cr2O3 %	Cu %	Fe2O3 %	K2O %	MgO %	MnO %	Na2O %
		0.02	0.01	0.01	0.01	0.1	0.01	0.01	0.001	0.005	0.001	0.01	0.01	0.01	0.005	0.01
341582		0.41					4.74	0.13	0.114	5.65	<0.001	53.75	0.02	3.37	0.755	0.02
341583		0.40					3.81	0.15	0.096	4.30	<0.001	47.28	0.01	3.93	0.702	0.02
341584		0.50					10.45	0.16	0.063	2.25	<0.001	32.57	0.03	8.22	0.941	0.04
341585		0.22		56.3	84.60	193.6	5.50	0.22	0.083	3.58	0.001	36.64	0.02	6.12	0.770	0.04
341586		0.29					4.10	0.19	0.096	4.10	<0.001	42.68	0.02	5.48	0.770	0.03
341587		<0.02					3.04	0.39	0.049	0.932	0.001	18.46	0.01	18.95	0.290	0.02
341588		0.22					1.82	0.17	0.068	4.26	<0.001	38.57	0.01	6.54	0.432	0.04
341589		0.28					0.86	0.10	0.041	2.39	<0.001	31.99	0.01	14.25	0.255	0.47
341590		0.43					1.01	0.07	0.033	2.41	<0.001	26.66	<0.01	23.8	0.207	0.05
341591		0.31					0.59	0.06	0.031	1.970	<0.001	16.06	<0.01	28.1	0.172	0.03
341592		0.56					0.50	0.04	0.022	1.390	<0.001	13.94	<0.01	31.6	0.142	0.04
341593		0.37					0.38	0.03	0.020	1.170	<0.001	17.16	<0.01	32.2	0.112	0.02
341594		0.41					0.23	0.01	0.013	0.879	<0.001	9.25	<0.01	37.0	0.063	0.02
341595		0.29					0.26	0.01	0.014	0.876	<0.001	9.18	<0.01	37.2	0.067	0.02
341596		0.32					0.37	0.02	0.017	0.960	<0.001	9.49	<0.01	36.3	0.086	0.02
341597		0.31					1.10	0.47	0.010	0.984	<0.001	5.57	<0.01	36.7	0.130	0.03
341598		0.32					12.80	0.29	0.011	1.300	<0.001	19.08	0.12	15.30	0.087	0.06
341599		0.35					25.6	0.06	0.004	1.475	<0.001	30.05	0.22	2.42	0.037	0.03
341600		0.23		25.4	157.60	211.2	24.3	0.03	0.003	3.10	<0.001	35.86	0.10	0.85	0.058	0.01
341601		0.27					26.4	0.02	0.003	2.92	<0.001	33.70	0.05	0.45	0.055	0.01
341602		0.34					20.9	0.02	0.005	4.80	<0.001	42.25	0.06	0.76	0.036	<0.01
341603		0.25					8.05	0.01	0.021	8.52	<0.001	66.92	0.05	0.76	0.097	<0.01
341604		0.31					12.30	0.02	0.015	5.25	<0.001	61.06	0.08	0.85	0.062	<0.01
341605		0.27					13.90	0.04	0.016	3.85	<0.001	57.51	0.05	0.69	0.074	0.02
341606		0.28					13.15	0.02	0.015	3.08	<0.001	61.30	0.06	0.58	0.116	<0.01
341607		0.42					16.85	0.04	0.054	2.23	<0.001	50.39	0.13	0.82	0.250	0.01
341608		0.26					17.55	0.04	0.166	2.97	<0.001	47.45	0.13	1.05	0.669	0.03
341609		0.26					9.77	0.05	0.242	3.14	<0.001	64.42	0.05	0.92	1.225	<0.01
341610		0.48					5.63	0.08	0.236	4.43	<0.001	56.63	0.03	3.87	1.310	0.01
341611		0.26	99.0				2.50	0.13	0.109	3.84	<0.001	45.98	0.02	4.70	0.995	0.03
341612		0.26					2.41	0.11	0.067	2.92	<0.001	37.24	0.02	7.76	0.671	0.11
341613		<0.02					17.35	0.21	0.056	0.679	0.018	40.75	0.07	0.74	1.930	0.34
341614		0.38					1.50	0.09	0.056	3.09	<0.001	28.49	0.01	17.65	0.343	0.05
341615		0.35					1.01	0.07	0.034	1.730	<0.001	24.88	0.01	18.80	0.288	0.03
341616		0.64					1.44	0.05	0.038	1.730	0.002	18.20	0.01	26.4	0.307	0.18
341617		0.51					0.82	0.04	0.024	1.450	<0.001	21.00	0.01	26.3	0.152	0.03
341618		0.34					1.74	0.04	0.018	1.515	<0.001	13.18	0.01	30.7	0.106	0.02
341619		0.39					0.70	0.04	0.025	2.04	<0.001	17.96	0.01	28.9	0.139	0.02
341620		0.30					0.45	0.04	0.027	1.690	<0.001	31.48	0.01	23.3	0.160	0.01
341621		0.33					0.27	0.03	0.016	1.075	<0.001	31.18	0.01	24.0	0.105	0.26

Comments: OA-GRA05g represents moisture on raw sample (prior to drying and sample prep).

LOI 105 by ME-GRA05 represents moisture (re-absorbed) on pulverised sample. LOI 300, LOI 350, LOI 350 and LOI 1000 represent LOI at various temps based on redried sample (105

***** See Appendix Page for comments regarding this certificate *****



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Project: Barnes Hill

CERTIFICATE OF ANALYSIS BR19135534

Sample Description	Method Analyte Units LOD	ME-XRF12n	ME-GRA05	ME-GRA05	ME-GRA05	ME-GRA05	ME-GRA05							
		Ni %	P2O5 %	Pb %	SiO2 %	TiO2 %	Zn %	Total %	Sc %	LOI 105 %	LOI 300 %	LOI 350 %	LOI 650 %	LOI 1000 %
		0.005	0.005	0.005	0.05	0.01	0.001	0.01	0.001	0.01	0.01	0.01	0.01	0.01
341582		0.918	0.010	<0.005	23.7	0.11	0.027	99.97	0.002					6.23
341583		1.075	0.008	<0.005	32.1	0.09	0.024	99.97	0.001					5.94
341584		0.970	0.011	<0.005	34.0	0.66	0.026	100.00	0.001					9.20
341585		1.035	0.012	<0.005	36.0	0.22	0.027	100.00	0.004					9.30
341586		1.225	0.009	<0.005	33.0	0.18	0.029	99.98	0.003					7.59
341587		2.96	<0.005	<0.005	44.2	0.04	0.030	100.05	0.002					9.79
341588		1.450	<0.005	<0.005	40.3	0.04	0.026	100.00	0.003					5.78
341589		1.080	<0.005	<0.005	35.7	0.02	0.015	100.00	0.001					11.34
341590		0.814	<0.005	<0.005	36.1	0.02	0.010	100.00	0.001					8.49
341591		0.731	<0.005	<0.005	42.0	0.01	0.007	99.94	0.001					9.93
341592		0.521	<0.005	<0.005	40.6	0.01	0.005	99.95	<0.001					10.90
341593		0.316	<0.005	<0.005	38.0	0.01	0.003	100.00	<0.001					10.44
341594		0.211	<0.005	<0.005	40.4	0.01	0.003	100.05	0.001					11.89
341595		0.216	<0.005	<0.005	40.2	0.01	0.002	100.00	<0.001					11.86
341596		0.255	<0.005	<0.005	40.5	0.01	0.003	99.99	<0.001					11.83
341597		0.316	0.006	<0.005	42.3	0.03	0.002	99.95	0.001					12.16
341598		0.160	0.028	<0.005	37.9	0.77	0.003	100.00	0.001					11.87
341599		0.051	0.036	<0.005	23.8	1.05	0.001	100.05	0.002					14.80
341600		0.045	0.031	<0.005	20.1	0.87	0.004	100.05	0.003					14.14
341601		0.051	0.033	<0.005	19.15	0.64	0.003	100.00	0.002					15.84
341602		0.044	0.026	<0.005	16.80	0.43	0.009	100.00	0.003					13.25
341603		0.182	0.022	<0.005	4.72	0.28	0.022	99.99	0.005					9.77
341604		0.087	0.027	<0.005	9.78	0.33	0.011	100.05	0.004					9.64
341605		0.106	0.020	<0.005	13.90	0.16	0.011	100.05	0.003					9.31
341606		0.069	0.027	<0.005	12.65	0.25	0.007	99.95	0.002					8.27
341607		0.093	0.026	<0.005	19.65	0.38	0.007	99.99	0.001					8.67
341608		0.158	0.032	<0.005	19.30	0.37	0.014	100.00	0.002					9.55
341609		0.346	0.018	<0.005	13.05	0.22	0.018	99.98	0.002					6.00
341610		0.741	0.012	<0.005	20.4	0.11	0.031	99.98	0.003					5.91
341611		1.280	0.006	<0.005	34.1	0.06	0.039	100.05	0.002					5.72
341612		1.220	0.005	<0.005	40.2	0.04	0.041	99.98	0.001					6.50
341613		0.098	0.066	<0.005	25.0	0.83	0.020	100.05	0.061					11.06
341614		1.510	0.005	<0.005	38.4	0.03	0.034	99.95	0.001					8.15
341615		1.135	<0.005	<0.005	43.7	0.02	0.015	99.97	0.001					7.86
341616		0.871	0.005	<0.005	38.4	0.03	0.012	99.97	0.001					11.57
341617		0.995	<0.005	<0.005	39.3	0.02	0.006	99.96	0.001					9.46
341618		0.821	<0.005	<0.005	40.6	0.03	0.005	99.99	0.001					10.92
341619		0.851	<0.005	<0.005	39.1	0.01	0.007	100.05	0.001					9.93
341620		0.848	<0.005	<0.005	33.9	0.01	0.005	100.00	0.001					7.79
341621		0.831	<0.005	<0.005	31.1	0.01	0.003	100.00	<0.001					10.23

Comments: OA-GRA05g represents moisture on raw sample (prior to drying and sample prep).

LOI 105 by ME-GRA05 represents moisture (re-absorbed) on pulverised sample. LOI 300, LOI 350, LOI 350 and LOI 1000 represent LOI at various temps based on redried sample (105

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 Account: MONPTY

CERTIFICATE OF ANALYSIS BR19135534

Sample Description	Method Analyte Units LOD	WEI-21	PUL-QC	OA-GRA05g	WEI-22g	WEI-23g	ME-XRF12n									
		Recvd Wt. kg	Pass75um %	Moisture %	Dry Wt. g	Wet Wt. g	Al2O3 %	CaO %	Co %	Cr2O3 %	Cu %	Fe2O3 %	K2O %	MgO %	MnO %	Na2O %
		0.02	0.01	0.01	0.01	0.1	0.01	0.01	0.001	0.005	0.001	0.01	0.01	0.005	0.01	
341622		0.40					0.90	0.04	0.031	1.645	<0.001	20.64	0.01	26.5	0.198	0.06
341623		0.64					0.31	0.02	0.017	1.105	<0.001	14.85	<0.01	32.1	0.103	0.03
341624		0.46					0.49	0.02	0.017	1.150	0.002	12.66	<0.01	33.3	0.102	0.03
341625		0.24					14.05	0.03	0.014	2.92	<0.001	59.01	0.07	0.65	0.110	<0.01
341626		0.19					8.88	0.03	0.013	3.31	<0.001	60.38	0.05	5.27	0.110	0.01
341627		0.29					17.45	0.03	0.010	3.60	<0.001	51.37	0.08	1.28	0.072	0.01
341628		0.27					15.90	0.03	0.010	3.82	<0.001	56.01	0.05	0.60	0.094	0.01
341629		0.28					16.00	0.03	0.338	3.75	<0.001	52.42	0.02	0.64	1.680	0.02
341630		0.38					6.31	0.01	0.184	4.28	0.001	77.04	0.01	0.64	1.300	<0.01
341631		0.32					9.88	0.02	0.153	5.09	<0.001	65.52	0.01	0.91	1.155	0.01
341632		0.33					11.10	0.02	0.194	2.78	<0.001	53.26	0.11	2.74	1.400	0.01
341633		0.44					7.64	0.03	0.201	4.87	<0.001	63.90	0.02	1.13	1.395	<0.01
341634		0.39		36.1	239.20	374.1	5.47	0.12	0.150	7.96	<0.001	46.35	0.01	3.63	0.753	0.04
341635		0.38					3.90	0.07	0.093	3.39	<0.001	36.04	0.01	10.75	0.485	0.02
341636		0.39					1.30	0.07	0.050	2.73	<0.001	24.39	0.01	14.80	0.194	0.03
341637		0.31		35.0	190.30	292.6	0.85	0.07	0.043	2.44	<0.001	22.83	0.01	15.95	0.211	0.06
341638		0.27					0.51	0.06	0.031	2.11	<0.001	22.96	0.01	20.0	0.162	0.13
341639		0.58					0.91	0.04	0.037	2.23	<0.001	20.26	0.01	18.80	0.194	0.36
341640		0.52					0.45	0.03	0.018	1.610	<0.001	12.24	<0.01	28.2	0.078	0.06
341641		0.40					3.16	0.09	0.015	1.155	<0.001	9.06	0.03	32.6	0.283	0.04
341642		<0.02					3.99	0.25	0.073	1.230	0.005	29.45	0.01	9.20	0.582	0.01
341643		0.36					0.41	0.02	0.015	1.200	<0.001	9.17	<0.01	33.6	0.144	0.05
341644		0.20					1.18	0.07	0.048	2.87	<0.001	24.13	0.01	14.45	0.182	0.02
341645		0.33					5.77	0.18	0.015	1.375	<0.001	14.04	0.04	15.20	0.269	0.07
341646		0.28					1.95	0.41	0.028	1.105	0.001	18.40	0.03	10.05	0.358	0.03
341647		0.55					9.46	2.79	0.006	0.275	<0.001	8.93	0.06	23.3	0.229	0.04
341648		0.27					14.30	0.75	0.004	0.077	0.001	10.44	0.06	24.8	0.351	0.04
341649		0.39					3.13	0.26	0.007	0.679	<0.001	9.84	0.03	27.3	0.207	0.05
341650		Not Recvd														
341651		0.45					1.38	0.16	0.011	0.745	<0.001	11.84	0.02	26.5	0.257	0.05
341652		0.42		15.25	336.60	397.1	14.55	0.03	0.007	3.21	0.002	55.44	0.09	0.89	0.052	0.02
341653		0.50					13.40	0.01	0.010	3.04	0.003	63.72	0.05	0.43	0.068	0.02
341654		0.28					7.08	0.01	0.022	4.47	0.003	76.72	0.02	0.42	0.100	<0.01
341655		0.30					7.05	0.01	0.023	5.89	0.007	74.90	0.02	0.52	0.109	<0.01
341656		0.30		16.00	243.20	289.5	6.09	0.01	0.021	3.37	0.005	77.76	0.03	0.33	0.095	<0.01
341657		0.40					4.90	0.01	0.021	3.63	0.004	79.88	0.02	0.35	0.108	<0.01
341658		0.40					13.10	0.01	0.014	2.96	0.001	60.74	0.06	0.37	0.095	0.04
341659		<0.02					3.08	0.39	0.050	0.925	0.002	18.34	0.01	19.00	0.288	0.04
341660		0.29					10.65	0.01	0.017	2.19	0.002	68.24	0.03	0.29	0.067	0.03
341661		0.34					9.03	0.01	0.014	3.28	0.002	66.13	0.04	1.16	0.128	0.01

Comments: OA-GRA05g represents moisture on raw sample (prior to drying and sample prep).

LOI 105 by ME-GRA05 represents moisture (re-absorbed) on pulverised sample. LOI 300, LOI 350, LOI 350 and LOI 1000 represent LOI at various temps based on redried sample (105

***** See Appendix Page for comments regarding this certificate *****



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CERTIFICATE OF ANALYSIS BR19135534

Sample Description	Method Analyte Units LOD	ME-XRF12n	ME-GRA05	ME-GRA05	ME-GRA05	ME-GRA05	ME-GRA05							
		Ni %	P2O5 %	Pb %	SiO2 %	TiO2 %	Zn %	Total %	Sc %	LOI 105 %	LOI 300 %	LOI 350 %	LOI 650 %	LOI 1000 %
		0.005	0.005	0.005	0.05	0.01	0.001	0.01	0.001	0.01	0.01	0.01	0.01	0.01
341622		0.938	<0.005	<0.005	38.8	0.02	0.008	100.00	<0.001					9.81
341623		0.554	<0.005	<0.005	40.1	0.01	0.003	100.00	<0.001					10.60
341624		0.527	<0.005	<0.005	40.4	0.01	0.004	100.05	<0.001					11.12
341625		0.072	0.026	<0.005	14.00	0.26	0.007	100.00	0.003					8.41
341626		0.148	0.044	<0.005	14.35	0.70	0.005	100.00	0.002					6.47
341627		0.110	0.037	<0.005	13.45	0.70	0.011	99.99	0.004					11.44
341628		0.108	0.030	<0.005	12.90	0.43	0.012	100.00	0.004					9.63
341629		0.247	0.015	<0.005	15.45	0.15	0.013	100.00	0.003					8.68
341630		0.295	0.012	<0.005	4.77	0.10	0.017	100.00	0.003					4.59
341631		0.292	0.016	<0.005	8.71	0.20	0.016	99.99	0.003					7.48
341632		0.376	0.021	<0.005	16.80	0.19	0.013	100.00	0.002					10.28
341633		0.447	0.018	<0.005	10.40	0.19	0.018	99.99	0.002					9.09
341634		1.095	0.008	<0.005	27.1	0.09	0.025	100.05	0.001	8.38	3.73	4.20	6.45	6.71
341635		1.000	0.007	<0.005	35.8	0.09	0.024	99.96	0.001					7.83
341636		1.405	<0.005	<0.005	47.1	0.03	0.013	99.99	0.001					7.41
341637		1.225	<0.005	<0.005	47.7	0.02	0.007	99.95	<0.001					8.07
341638		0.931	<0.005	<0.005	43.1	0.01	0.005	99.97	<0.001					9.37
341639		0.828	<0.005	<0.005	43.3	0.02	0.007	100.00	0.001					11.82
341640		0.662	<0.005	<0.005	46.1	0.01	0.004	100.00	<0.001					10.26
341641		0.526	0.010	<0.005	41.1	0.09	0.003	99.98	<0.001					11.58
341642		0.705	0.012	<0.005	46.9	0.05	0.018	100.05	0.002					7.23
341643		0.519	<0.005	<0.005	43.3	0.01	0.003	100.05	<0.001					11.36
341644		1.440	<0.005	<0.005	47.3	0.02	0.013	100.00	0.001					7.81
341645		0.332	0.010	<0.005	52.3	0.16	0.013	99.96	0.001					10.00
341646		0.363	<0.005	<0.005	58.6	0.04	0.008	99.95	<0.001					8.42
341647		0.098	0.046	<0.005	45.4	0.23	0.002	99.98	<0.001					9.03
341648		0.040	0.060	<0.005	37.9	0.49	0.002	99.97	<0.001					10.57
341649		0.152	0.011	<0.005	47.4	0.08	0.003	100.05	<0.001					10.79
341650														
341651		0.175	<0.005	<0.005	48.0	0.04	0.004	100.05	<0.001					10.74
341652		0.108	0.030	<0.005	13.05	0.74	0.009	99.99	0.003					11.45
341653		0.134	0.022	<0.005	7.88	0.41	0.014	99.96	0.003					10.26
341654		0.181	0.011	<0.005	3.44	0.19	0.031	99.98	0.004					6.85
341655		0.164	0.013	<0.005	3.43	0.15	0.028	99.99	0.005					7.22
341656		0.130	0.011	<0.005	4.08	0.21	0.025	100.00	0.006	1.59	5.35	5.63	6.82	7.45
341657		0.148	0.009	<0.005	2.78	0.14	0.021	99.99	0.005					7.60
341658		0.128	0.020	<0.005	12.55	0.63	0.015	100.05	0.004					8.80
341659		2.93	<0.005	<0.005	43.9	0.04	0.030	100.00	0.001					10.10
341660		0.136	0.012	<0.005	9.63	0.22	0.010	100.00	0.006					7.96
341661		0.138	0.020	<0.005	10.05	0.29	0.019	100.00	0.007					9.08

Comments: OA-GRA05g represents moisture on raw sample (prior to drying and sample prep).

LOI 105 by ME-GRA05 represents moisture (re-absorbed) on pulverised sample. LOI 300, LOI 350, LOI 350 and LOI 1000 represent LOI at various temps based on redried sample (105

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CERTIFICATE OF ANALYSIS BR19135534

Sample Description	Method Analyte Units LOD	WEI-21	PUL-QC	OA-GRA05g	WEI-22g	WEI-23g	ME-XRF12n									
		Recvd Wt. kg	Pass75um %	Moisture %	Dry Wt. g	Wet Wt. g	Al2O3 %	CaO %	Co %	Cr2O3 %	Cu %	Fe2O3 %	K2O %	MgO %	MnO %	Na2O %
		0.02	0.01	0.01	0.01	0.1	0.01	0.01	0.001	0.005	0.001	0.01	0.01	0.01	0.005	0.01
341662		0.39					6.24	0.35	0.017	2.47	<0.001	33.59	0.02	9.21	0.066	0.21
341663		0.36					4.42	1.71	0.224	1.240	<0.001	22.96	0.02	8.67	1.530	0.39
341664		0.40					0.88	0.04	0.043	1.800	<0.001	13.77	<0.01	15.30	0.219	0.15
341665		0.39					0.91	0.27	0.104	1.085	<0.001	16.46	0.01	7.05	1.965	0.13
341666		<0.02					17.30	0.21	0.056	0.676	0.019	40.83	0.07	0.74	1.925	0.35
341667		0.47					0.49	0.04	0.041	1.145	0.002	14.85	<0.01	24.9	0.307	0.08
341668		0.40					0.65	0.03	0.066	1.355	0.002	22.39	0.01	13.55	0.621	0.08
341669		0.44					0.32	0.02	0.031	1.100	<0.001	12.91	<0.01	30.9	0.102	0.05
341670		0.34	99.0				20.5	0.06	0.004	0.162	0.010	16.82	1.44	3.68	0.130	0.39
341671		0.36					16.55	0.09	0.001	0.126	0.007	13.84	2.10	7.08	0.287	2.33
341672		0.28					16.55	0.04	0.005	0.040	0.049	24.07	4.18	4.11	0.476	0.91
341673		0.28					6.95	0.10	0.027	1.710	0.027	27.82	0.87	3.88	0.217	0.60
341674		0.24					9.62	0.11	0.058	0.691	0.013	25.77	0.59	5.77	0.663	0.47
341675		0.31					12.40	0.16	0.108	0.468	0.012	19.74	0.61	6.97	2.15	0.44
341676		0.23					8.62	0.11	0.054	1.110	0.010	21.64	0.13	6.26	0.846	0.44
341677		0.42					7.37	1.56	0.016	0.723	<0.001	14.62	0.15	15.30	0.501	0.38
341678		0.48					4.89	2.31	0.008	0.512	<0.001	9.70	0.06	20.9	0.250	0.31
341679		0.46					2.84	0.51	0.006	0.523	<0.001	7.36	0.03	24.7	0.121	0.16
341680		0.57					4.99	3.24	0.007	0.500	<0.001	7.76	0.07	22.2	0.188	0.27
341681		0.42					3.18	0.42	0.009	0.744	<0.001	8.56	0.04	23.9	0.132	0.22
341682		0.33					6.09	0.87	0.010	0.724	<0.001	9.62	0.05	21.1	0.186	0.27
341683		0.35					5.84	0.98	0.011	0.763	<0.001	9.56	0.05	21.3	0.192	0.27
341684		0.41					3.85	2.28	0.006	0.488	<0.001	7.85	0.05	23.3	0.178	0.27
341685		0.51					3.74	2.51	0.005	0.459	0.002	7.23	0.05	24.2	0.148	0.27
341686		0.52					6.55	3.57	0.004	0.302	<0.001	9.88	0.23	21.2	0.256	0.46
341687		0.52					4.15	4.30	0.006	0.464	<0.001	9.03	0.09	22.2	0.196	0.32
341688		0.27					7.02	0.28	0.015	2.12	<0.001	19.98	0.31	5.79	0.075	0.19
341689		0.56					4.50	0.37	0.012	1.290	<0.001	17.36	0.16	14.30	0.248	0.12
341690		0.58					0.45	0.05	0.010	0.979	0.003	7.58	0.01	36.7	0.075	0.01
341691		0.46					0.28	0.02	0.012	0.847	<0.001	8.41	0.01	37.1	0.054	0.03
341692		0.40					6.27	0.45	0.021	3.12	<0.001	41.12	0.14	4.34	0.142	0.07
341693		0.38					23.7	0.99	0.037	0.494	<0.001	12.25	0.33	8.12	0.160	0.26
341694		0.27					22.3	0.61	0.062	0.654	<0.001	17.83	0.12	4.25	0.451	0.19
341695		0.33					7.49	0.44	0.016	2.03	<0.001	33.72	0.06	4.05	0.108	0.15
341696		0.27					7.20	0.21	0.019	2.99	<0.001	42.36	0.06	3.53	0.095	0.15
341697		0.30		34.0	182.80	277.0	3.89	0.14	0.020	2.67	<0.001	56.99	0.04	2.91	0.092	0.09
341698		0.29					2.28	0.15	0.024	2.73	<0.001	44.04	0.02	4.45	0.090	0.12
341699		0.32					3.07	0.17	0.032	1.835	<0.001	25.52	0.02	14.65	0.262	0.10
341700		0.36					0.51	0.04	0.021	1.415	<0.001	14.98	<0.01	25.4	0.157	0.05
341701		0.29		26.8	201.20	274.9	0.65	0.04	0.027	1.735	<0.001	14.34	<0.01	24.6	0.206	0.05

Comments: OA-GRA05g represents moisture on raw sample (prior to drying and sample prep).
 LOI 105 by ME-GRA05 represents moisture (re-absorbed) on pulverised sample. LOI 300, LOI 350, LOI 350 and LOI 1000 represent LOI at various temps based on redried sample (105

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Sample Description	Method Analyte Units LOD	ME-XRF12n	ME-GRA05	ME-GRA05	ME-GRA05	ME-GRA05	ME-GRA05							
		Ni %	P2O5 %	Pb %	SiO2 %	TiO2 %	Zn %	Total %	Sc %	LOI 105 %	LOI 300 %	LOI 350 %	LOI 650 %	LOI 1000 %
		0.005	0.005	0.005	0.05	0.01	0.001	0.01	0.001	0.01	0.01	0.01	0.01	0.01
341662		0.646	0.009	<0.005	37.0	0.18	0.019	100.05	0.004					9.28
341663		1.290	<0.005	<0.005	45.2	0.12	0.034	100.05	0.001					10.82
341664		1.460	<0.005	<0.005	56.9	0.03	0.022	100.00	0.002					8.69
341665		1.825	<0.005	<0.005	61.5	0.05	0.046	99.96	<0.001					7.73
341666		0.098	0.066	<0.005	24.8	0.84	0.019	99.95	0.059					11.10
341667		0.855	<0.005	<0.005	47.2	0.02	0.006	100.10	0.001					9.77
341668		1.185	<0.005	<0.005	52.2	0.02	0.007	100.00	<0.001					7.37
341669		0.668	<0.005	<0.005	42.8	0.02	0.004	100.00	<0.001					10.82
341670		0.068	0.013	<0.005	44.3	1.72	0.020	99.96	0.006					10.34
341671		0.022	0.014	<0.005	48.7	1.63	0.023	100.00	0.002					7.00
341672		0.020	0.013	<0.005	39.3	2.06	0.063	100.05	0.003					7.84
341673		0.283	0.009	<0.005	47.8	0.51	0.055	99.99	0.001					8.82
341674		0.178	0.023	<0.005	44.3	0.86	0.038	99.98	<0.001					10.43
341675		0.163	0.029	<0.005	44.6	1.02	0.044	100.05	<0.001					10.58
341676		0.273	0.018	<0.005	49.2	0.17	0.033	99.96	<0.001					10.71
341677		0.142	0.039	<0.005	50.5	0.44	0.026	100.00	0.001					7.94
341678		0.098	0.017	<0.005	54.3	0.09	0.011	99.91	<0.001					6.25
341679		0.081	0.005	<0.005	58.0	0.05	0.006	100.00	0.001					5.53
341680		0.098	<0.005	<0.005	54.6	0.10	0.006	99.98	<0.001					5.82
341681		0.096	<0.005	<0.005	56.6	0.05	0.005	99.97	0.001					5.91
341682		0.126	0.005	<0.005	54.0	0.12	0.005	99.93	<0.001					6.67
341683		0.125	<0.005	<0.005	54.1	0.13	0.005	99.95	0.001					6.53
341684		0.092	<0.005	<0.005	55.9	0.07	0.003	99.94	0.002					5.54
341685		0.053	<0.005	<0.005	56.0	0.11	0.004	100.00	0.001					5.17
341686		0.047	<0.005	<0.005	51.5	0.17	0.006	99.99	0.001					5.75
341687		0.057	<0.005	<0.005	54.3	0.14	0.005	99.92	0.001					4.60
341688		0.183	0.014	<0.005	56.7	0.76	0.007	100.05	<0.001					6.42
341689		0.159	0.008	<0.005	52.9	0.41	0.006	99.99	<0.001					7.99
341690		0.186	<0.005	<0.005	42.0	0.02	0.002	100.05	0.001					11.87
341691		0.227	<0.005	<0.005	41.0	0.03	0.002	99.97	<0.001					11.86
341692		0.132	0.020	<0.005	37.7	0.66	0.011	99.99	0.003					5.61
341693		0.178	<0.005	<0.005	41.7	0.12	0.003	100.05	0.006					11.58
341694		0.246	0.005	<0.005	40.8	0.18	0.004	99.97	0.008					12.07
341695		0.580	0.005	<0.005	40.9	0.16	0.010	100.05	0.007					10.03
341696		0.607	0.007	<0.005	34.6	0.15	0.012	100.05	0.006					7.69
341697		0.512	<0.005	<0.005	26.8	0.10	0.009	99.95	0.004	7.25	2.82	3.34	5.11	5.40
341698		0.767	<0.005	<0.005	39.3	0.05	0.011	100.00	0.002					5.62
341699		0.728	<0.005	<0.005	44.8	0.05	0.007	99.95	0.003					8.38
341700		0.637	<0.005	<0.005	47.4	0.01	0.005	100.00	0.001					9.15
341701		0.596	<0.005	<0.005	48.5	0.01	0.006	100.00	0.001	4.16	1.15	1.44	8.10	9.01

Comments: OA-GRA05g represents moisture on raw sample (prior to drying and sample prep).
 LOI 105 by ME-GRA05 represents moisture (re-absorbed) on pulverised sample. LOI 300, LOI 350, LOI 350 and LOI 1000 represent LOI at various temps based on redried sample (105

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CERTIFICATE OF ANALYSIS BR19135534

Sample Description	Method Analyte Units LOD	WEI-21	PUL-QC	OA-GRA05g	WEI-22g	WEI-23g	ME-XRF12n									
		Recvd Wt. kg	Pass75um %	Moisture %	Dry Wt. g	Wet Wt. g	Al2O3 %	CaO %	Co %	Cr2O3 %	Cu %	Fe2O3 %	K2O %	MgO %	MnO %	Na2O %
		0.02	0.01	0.01	0.01	0.1	0.01	0.01	0.001	0.005	0.001	0.01	0.01	0.01	0.005	0.01
341702		0.49					0.74	0.04	0.023	1.280	<0.001	16.50	0.01	29.4	0.114	0.08
341704		<0.02					4.02	0.25	0.073	1.250	0.003	29.45	0.01	9.19	0.581	0.01
341705		0.21					2.08	0.15	0.025	2.79	<0.001	43.64	0.02	4.65	0.089	0.11
341706		0.28					10.20	0.03	0.102	3.21	<0.001	64.85	0.09	0.76	0.325	0.02
341707		0.30					4.75	0.07	0.170	4.24	<0.001	46.33	0.04	2.89	0.657	0.05
341708		0.28					4.04	0.06	0.142	4.00	<0.001	41.60	0.02	4.52	0.510	0.05
341709		0.18					4.25	0.12	0.099	2.98	0.001	26.52	0.02	7.96	0.458	0.06
341710		0.40					6.80	0.60	0.094	2.78	0.005	46.54	0.06	7.05	0.393	0.03
341711		0.55					0.94	2.02	0.010	0.681	<0.001	12.04	0.01	27.6	0.313	0.21
341712		0.32					2.10	0.45	0.025	2.04	<0.001	19.73	0.01	16.30	0.392	0.16
341713		0.52					4.74	10.15	0.010	0.630	<0.001	11.26	0.03	16.70	1.170	0.16
341714		0.33					4.39	0.36	0.138	3.30	<0.001	29.35	0.05	9.48	0.282	0.20
341715		0.23					3.08	0.08	0.107	3.04	<0.001	24.71	0.03	12.65	0.289	0.05
341716		0.41					0.29	0.01	0.023	1.235	0.001	10.13	<0.01	31.8	0.067	0.02
341717		0.21					0.88	0.02	0.055	2.50	0.002	15.78	0.01	25.1	0.123	0.02
341718		0.32					4.19	0.03	0.078	2.31	<0.001	22.00	0.04	18.75	0.269	0.04
341719		0.20					1.37	0.03	0.059	2.57	<0.001	17.66	0.01	23.2	0.165	0.13
341720		0.33					1.52	0.03	0.056	2.04	<0.001	22.41	0.02	21.7	0.173	0.17
341730		<0.02					3.07	0.39	0.049	0.933	0.003	18.40	0.01	19.05	0.289	0.03
341731		0.62					0.21	0.02	0.012	1.420	<0.001	8.84	<0.01	37.1	0.067	0.02
341732		0.52					0.24	0.02	0.011	1.095	<0.001	7.66	<0.01	37.7	0.068	0.02
341733		0.57		4.12	528.70	551.4	0.19	0.02	0.011	1.180	<0.001	7.35	<0.01	38.0	0.066	0.02
341734		0.62	96.1				0.25	0.02	0.011	1.595	<0.001	6.77	<0.01	38.4	0.070	0.02
341735		0.50					0.33	0.01	0.010	1.385	0.001	7.43	<0.01	37.6	0.063	0.01
341736		0.55					0.22	0.01	0.010	1.500	<0.001	5.63	<0.01	38.6	0.059	0.02
341737		0.45					0.13	0.01	0.010	1.095	<0.001	6.30	<0.01	38.8	0.063	0.02
341738		0.46					0.14	0.01	0.011	1.135	0.005	8.18	<0.01	38.1	0.065	0.02
341739		0.44					0.20	0.01	0.010	1.365	0.001	8.29	<0.01	40.1	0.065	0.03
341740		0.31					18.75	0.02	0.018	3.17	<0.001	40.57	0.14	3.50	0.083	0.02
341741		0.45					10.25	<0.01	0.010	1.740	<0.001	25.38	0.07	14.70	0.047	0.05
341742		0.25					13.05	0.01	0.094	7.23	<0.001	51.42	0.11	1.32	0.349	0.01
341743		0.28					11.80	0.01	0.105	8.68	<0.001	45.18	0.08	2.02	0.393	0.03
341744		0.43					7.56	0.01	0.120	9.40	<0.001	58.13	0.03	2.70	0.517	0.01
341745		0.31					5.91	0.03	0.094	7.91	<0.001	51.85	0.02	3.63	0.413	0.02
341746		0.41					3.25	0.02	0.056	2.95	<0.001	36.40	0.01	17.15	0.234	0.03
341747		0.43					1.35	0.01	0.018	1.130	<0.001	14.34	<0.01	32.4	0.108	0.02
341748		0.41					1.29	0.01	0.017	1.155	<0.001	12.66	<0.01	33.5	0.102	0.03
341749		0.54					0.49	0.01	0.012	0.928	<0.001	9.44	<0.01	36.2	0.073	0.02
341751		0.64					0.69	0.01	0.011	1.015	0.002	7.09	<0.01	37.6	0.055	0.02
341752		0.59					0.57	0.01	0.013	1.095	<0.001	7.84	<0.01	36.6	0.064	0.02

Comments: OA-GRA05g represents moisture on raw sample (prior to drying and sample prep).
 LOI 105 by ME-GRA05 represents moisture (re-absorbed) on pulverised sample. LOI 300, LOI 350, LOI 350 and LOI 1000 represent LOI at various temps based on redried sample (105

***** See Appendix Page for comments regarding this certificate *****



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Project: Barnes Hill

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 Plus Appendix Pages
 Finalized Date: 21-JUN-2019
 Account: MONPTY

CERTIFICATE OF ANALYSIS BR19135534

Sample Description	Method Analyte Units LOD	ME-XRF12n	ME-GRA05	ME-GRA05	ME-GRA05	ME-GRA05	ME-GRA05							
		Ni %	P2O5 %	Pb %	SiO2 %	TiO2 %	Zn %	Total %	Sc %	LOI 105 %	LOI 300 %	LOI 350 %	LOI 650 %	LOI 1000 %
		0.005	0.005	0.005	0.05	0.01	0.001	0.01	0.001	0.01	0.01	0.01	0.01	0.01
341702		0.463	<0.005	<0.005	40.6	0.01	0.006	100.05	<0.001					10.48
341704		0.706	0.011	<0.005	46.9	0.05	0.017	99.98	0.002					7.14
341705		0.799	<0.005	<0.005	39.2	0.05	0.012	100.00	0.002					6.03
341706		0.215	0.034	<0.005	11.75	0.34	0.025	99.99	0.007					7.67
341707		0.815	0.017	<0.005	30.5	0.11	0.032	100.00	0.005					8.88
341708		0.996	0.008	<0.005	35.5	0.09	0.031	100.05	0.004					8.04
341709		1.195	<0.005	<0.005	46.1	0.07	0.022	99.96	0.002					9.65
341710		0.396	0.022	<0.005	27.0	0.23	0.022	100.00	0.006					7.64
341711		0.293	<0.005	<0.005	45.1	0.03	0.005	99.96	0.002					10.15
341712		0.675	<0.005	<0.005	47.8	0.06	0.008	100.00	0.003					9.72
341713		0.320	0.006	<0.005	48.6	0.09	0.014	99.99	0.001					5.76
341714		1.195	0.006	<0.005	39.3	0.11	0.016	100.00	0.003					10.99
341715		1.125	0.006	<0.005	44.5	0.06	0.009	100.00	0.001					9.86
341716		0.522	<0.005	<0.005	44.9	0.02	0.003	100.00	<0.001					10.81
341717		0.802	<0.005	<0.005	44.2	0.02	0.010	99.99	<0.001					10.21
341718		0.788	0.008	<0.005	41.5	0.10	0.011	99.95	0.001					9.54
341719		0.926	0.005	<0.005	42.6	0.03	0.010	100.00	0.001					10.67
341720		0.770	0.006	<0.005	40.0	0.04	0.008	100.05	0.001					10.49
341730		2.94	<0.005	<0.005	44.1	0.04	0.030	100.00	0.002					9.79
341731		0.230	<0.005	<0.005	39.8	<0.01	0.004	99.98	0.001					12.17
341732		0.219	<0.005	<0.005	40.4	0.01	0.003	100.05	<0.001					12.53
341733		0.219	<0.005	<0.005	40.4	0.01	0.002	100.10	<0.001					12.53
341734		0.229	<0.005	<0.005	39.6	0.01	0.004	99.92	<0.001					12.84
341735		0.234	<0.005	<0.005	40.7	0.01	0.003	100.00	0.001					12.14
341736		0.233	<0.005	<0.005	41.1	0.01	0.003	100.05	0.001					12.56
341737		0.231	<0.005	<0.005	40.5	0.01	0.002	100.10	<0.001					12.83
341738		0.233	<0.005	<0.005	38.9	0.01	0.002	100.00	0.001					13.09
341739		0.226	<0.005	<0.005	35.1	0.01	0.002	100.05	<0.001					14.54
341740		0.106	0.031	<0.005	21.8	0.78	0.009	99.99	0.003					10.62
341741		0.102	0.017	<0.005	37.9	0.30	0.007	99.99	0.003					9.17
341742		0.348	0.029	<0.005	14.00	0.33	0.024	100.00	0.006					11.13
341743		0.496	0.028	<0.005	19.80	0.35	0.025	100.00	0.005					10.53
341744		0.419	0.022	<0.005	13.25	0.11	0.041	100.00	0.003					7.38
341745		0.697	0.019	<0.005	22.8	0.07	0.036	99.96	0.003					6.13
341746		0.580	0.005	<0.005	31.5	0.03	0.022	99.96	<0.001					7.50
341747		0.339	<0.005	<0.005	39.1	0.01	0.007	100.00	<0.001					11.05
341748		0.322	<0.005	<0.005	39.5	0.01	0.007	100.05	<0.001					11.30
341749		0.173	<0.005	<0.005	40.7	0.01	0.004	99.98	<0.001					11.84
341751		0.161	<0.005	<0.005	41.1	0.01	0.004	100.00	<0.001					12.17
341752		0.168	<0.005	<0.005	41.8	0.01	0.005	100.05	<0.001					11.77

Comments: OA-GRA05g represents moisture on raw sample (prior to drying and sample prep).
 LOI 105 by ME-GRA05 represents moisture (re-absorbed) on pulverised sample. LOI 300, LOI 350, LOI 350 and LOI 1000 represent LOI at various temps based on redried sample (105

***** See Appendix Page for comments regarding this certificate *****



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Project: Barnes Hill

CERTIFICATE OF ANALYSIS BR19135534

Sample Description	Method Analyte Units LOD	WEI-21	PUL-QC	OA-GRA05g	WEI-22g	WEI-23g	ME-XRF12n									
		Recvd Wt. kg	Pass75um %	Moisture %	Dry Wt. g	Wet Wt. g	Al2O3 %	CaO %	Co %	Cr2O3 %	Cu %	Fe2O3 %	K2O %	MgO %	MnO %	Na2O %
		0.02	0.01	0.01	0.01	0.1	0.01	0.01	0.001	0.005	0.001	0.01	0.01	0.005	0.01	
341753		0.70					2.52	0.01	0.014	0.959	<0.001	18.04	<0.01	31.8	0.078	0.03
341754		0.75					1.79	0.01	0.010	0.780	<0.001	7.79	<0.01	36.8	0.083	0.02
341755		0.40					3.73	0.01	0.012	0.982	<0.001	8.53	<0.01	36.0	0.076	0.02
341756		0.50					4.95	0.01	0.012	0.947	<0.001	9.22	<0.01	35.5	0.061	0.02
341757		0.48					1.22	0.01	0.011	1.175	<0.001	7.49	<0.01	37.4	0.075	0.03
341767		0.42					11.50	0.03	0.094	4.52	<0.001	42.49	0.10	2.21	0.206	0.03
341768		0.25					8.85	0.05	0.120	5.42	<0.001	30.78	0.08	3.45	0.302	0.04
341769		0.22					3.91	0.06	0.130	4.99	<0.001	38.52	0.03	5.74	0.336	0.02
341792		<0.02					17.30	0.21	0.055	0.676	0.021	40.77	0.07	0.75	1.920	0.34
341798		0.23					8.29	0.02	0.154	9.17	0.001	68.51	0.03	1.62	0.758	<0.01
341799		0.48					6.05	0.03	0.172	7.45	0.001	67.33	0.02	2.15	0.838	0.01
341800		0.31					5.45	0.05	0.103	5.24	<0.001	51.39	0.02	6.44	0.556	0.02
341801		0.43					3.78	0.04	0.043	3.57	<0.001	37.10	0.01	16.90	0.287	0.01
341802		0.41					1.46	0.02	0.022	1.305	<0.001	13.38	<0.01	32.8	0.142	0.08
341803		0.41					1.18	0.01	0.015	1.040	<0.001	9.94	<0.01	35.7	0.113	0.02
341804		0.42					1.28	0.02	0.017	1.490	<0.001	16.72	<0.01	31.6	0.132	0.02
341805		0.38					0.69	0.01	0.013	0.853	0.001	25.24	<0.01	29.0	0.091	0.02
341806		0.43					1.58	0.03	0.022	1.220	<0.001	12.32	0.01	33.1	0.114	0.09
341807		0.49					1.24	0.03	0.051	1.505	<0.001	18.78	0.01	28.0	0.108	0.21
341808		0.50					1.56	0.14	0.026	0.990	<0.001	16.84	0.04	32.4	0.106	0.03
341821		0.35					3.79	0.03	0.038	3.85	<0.001	30.55	0.01	20.1	0.273	0.02
341822		<0.02					4.00	0.25	0.073	1.270	0.002	29.53	0.01	9.13	0.577	0.01
341823		0.24					13.70	0.04	0.122	3.72	<0.001	55.79	0.04	2.30	0.654	0.01
341824		0.24					6.30	0.05	0.105	6.24	<0.001	42.95	0.03	12.35	0.473	0.02
341825		0.28		45.3	145.10	265.2	6.13	0.09	0.069	4.69	<0.001	32.51	0.03	14.10	0.471	0.03
341826		0.33					5.55	0.10	0.073	5.05	0.001	35.73	0.02	11.30	0.476	0.03
341827		0.17					2.78	0.07	0.055	2.89	<0.001	32.34	0.03	16.35	0.302	0.35
341828		0.30					0.53	0.03	0.018	1.850	<0.001	14.64	0.01	31.5	0.094	0.05
341829		0.45					3.55	0.28	0.022	1.545	<0.001	13.82	0.02	29.7	0.250	0.09
341830		0.31					0.58	0.04	0.022	1.835	<0.001	19.92	0.01	28.3	0.132	0.07
341831		0.39					0.12	0.02	0.011	1.080	<0.001	7.24	<0.01	35.7	0.061	0.11
341832		0.40					0.13	0.02	0.013	1.210	<0.001	8.59	0.01	34.4	0.070	0.23
341833		0.37					0.78	0.02	0.016	1.595	<0.001	13.49	<0.01	32.6	0.126	0.10
341834		0.25					1.70	0.02	0.012	1.145	<0.001	10.64	0.01	34.6	0.099	0.08
341835		0.30					1.50	0.06	0.014	1.670	<0.001	9.35	<0.01	34.8	0.140	0.06
341836		0.34					0.70	0.04	0.013	1.375	<0.001	7.61	<0.01	36.4	0.100	0.04
341843		0.25					17.35	0.02	0.011	4.52	<0.001	51.39	0.06	0.99	0.097	0.02
341844		0.37					19.35	0.02	0.222	3.86	<0.001	43.86	0.02	0.73	1.050	0.01
341845		0.27	99.1				24.8	0.03	0.287	1.890	0.002	28.16	0.02	1.06	1.460	0.02
341846		0.40					10.95	0.03	0.142	4.80	0.003	59.50	0.02	1.65	0.806	0.01

Comments: OA-GRA05g represents moisture on raw sample (prior to drying and sample prep).

LOI 105 by ME-GRA05 represents moisture (re-absorbed) on pulverised sample. LOI 300, LOI 350, LOI 350 and LOI 1000 represent LOI at various temps based on redried sample (105

***** See Appendix Page for comments regarding this certificate *****



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Project: Barnes Hill

CERTIFICATE OF ANALYSIS BR19135534

Sample Description	Method Analyte Units LOD	ME-XRF12n	ME-GRA05	ME-GRA05	ME-GRA05	ME-GRA05	ME-GRA05							
		Ni %	P2O5 %	Pb %	SiO2 %	TiO2 %	Zn %	Total %	Sc %	LOI 105 %	LOI 300 %	LOI 350 %	LOI 650 %	LOI 1000 %
		0.005	0.005	0.005	0.05	0.01	0.001	0.01	0.001	0.01	0.01	0.01	0.01	0.01
341753		0.165	<0.005	<0.005	35.5	0.01	0.004	100.00	0.001					10.79
341754		0.136	<0.005	<0.005	40.2	<0.01	0.003	100.00	<0.001					12.32
341755		0.158	<0.005	<0.005	37.9	<0.01	0.005	100.05	<0.001					12.52
341756		0.154	<0.005	<0.005	36.6	0.01	0.004	100.10	<0.001					12.51
341757		0.166	<0.005	<0.005	40.1	<0.01	0.007	99.99	0.001					12.23
341767		0.604	0.018	<0.005	26.6	0.35	0.021	99.99	0.003					10.89
341768		0.875	0.010	<0.005	38.4	0.17	0.019	99.96	0.003					11.02
341769		1.085	0.008	<0.005	36.9	0.06	0.023	100.00	0.002					7.76
341792		0.097	0.064	<0.005	25.0	0.84	0.019	99.99	0.059					11.04
341798		0.328	0.046	<0.005	5.65	0.17	0.053	100.00	0.005					4.82
341799		0.615	0.034	<0.005	10.35	0.09	0.056	100.00	0.004					4.43
341800		0.889	0.018	<0.005	23.3	0.05	0.061	100.00	0.003					6.03
341801		0.770	0.008	<0.005	29.9	0.02	0.029	100.00	0.001					7.25
341802		0.646	<0.005	<0.005	38.0	0.01	0.011	100.05	0.001					11.79
341803		0.554	<0.005	<0.005	39.4	0.01	0.009	99.93	<0.001					11.75
341804		0.558	<0.005	<0.005	37.4	0.01	0.011	99.95	0.001					10.49
341805		0.546	<0.005	<0.005	33.9	0.01	0.004	99.95	<0.001					9.38
341806		0.518	<0.005	<0.005	38.6	0.09	0.004	99.92	<0.001					11.86
341807		0.739	<0.005	<0.005	37.2	0.02	0.007	100.05	0.001					11.43
341808		0.350	<0.005	<0.005	36.3	0.08	0.007	99.98	<0.001					10.91
341821		0.733	<0.005	<0.005	32.0	0.02	0.030	99.98	0.001					8.25
341822		0.707	0.007	<0.005	46.8	0.05	0.016	100.00	0.002					7.25
341823		0.170	0.029	<0.005	15.25	0.38	0.016	99.97	0.003					7.39
341824		0.807	0.023	<0.005	22.2	0.11	0.050	99.95	0.003					7.81
341825		1.040	0.007	<0.005	31.6	0.08	0.054	99.99	0.001					8.66
341826		1.260	0.006	<0.005	31.5	0.05	0.053	100.05	0.002					8.37
341827		1.075	<0.005	<0.005	31.5	0.03	0.026	100.00	0.001					10.97
341828		0.770	<0.005	<0.005	39.2	0.02	0.006	100.00	<0.001					10.98
341829		0.684	<0.005	<0.005	38.1	0.07	0.008	99.97	0.001					11.41
341830		0.819	<0.005	<0.005	37.6	0.02	0.005	99.95	<0.001					10.20
341831		0.769	<0.005	<0.005	41.9	0.01	0.002	100.05	<0.001					12.56
341832		0.652	<0.005	<0.005	40.5	<0.01	0.002	100.05	<0.001					13.47
341833		0.560	<0.005	<0.005	38.8	0.01	0.009	100.05	<0.001					11.52
341834		0.509	<0.005	<0.005	38.8	0.03	0.005	100.00	<0.001					11.99
341835		0.526	<0.005	<0.005	39.7	0.03	0.007	100.05	<0.001					11.90
341836		0.458	<0.005	<0.005	41.1	0.02	0.003	100.05	0.001					12.00
341843		0.072	0.035	<0.005	14.95	0.44	0.012	99.99	0.004					9.70
341844		0.134	0.030	0.005	18.65	0.50	0.015	100.05	0.005					10.98
341845		0.195	0.023	<0.005	29.0	0.55	0.009	99.96	0.002					11.97
341846		0.288	0.019	<0.005	14.35	0.20	0.020	99.96	0.003					6.86

Comments: OA-GRA05g represents moisture on raw sample (prior to drying and sample prep).

LOI 105 by ME-GRA05 represents moisture (re-absorbed) on pulverised sample. LOI 300, LOI 350, LOI 350 and LOI 1000 represent LOI at various temps based on redried sample (105

***** See Appendix Page for comments regarding this certificate *****



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CERTIFICATE OF ANALYSIS BR19135534

Sample Description	Method Analyte Units LOD	WEI-21	PUL-QC	OA-GRA05g	WEI-22g	WEI-23g	ME-XRF12n									
		Recvd Wt. kg	Pass75um %	Moisture %	Dry Wt. g	Wet Wt. g	Al2O3 %	CaO %	Co %	Cr2O3 %	Cu %	Fe2O3 %	K2O %	MgO %	MnO %	Na2O %
		0.02	0.01	0.01	0.01	0.1	0.01	0.01	0.001	0.005	0.001	0.01	0.01	0.01	0.005	0.01
341847		0.39					13.95	0.21	0.094	3.67	0.003	45.89	0.02	3.64	0.696	0.02
341848		0.35					15.95	0.06	0.032	1.430	0.001	24.54	0.01	13.30	0.711	0.03
341849		0.38					11.30	0.08	0.044	1.925	<0.001	22.95	0.02	17.35	0.500	0.02
341850		0.43		27.2	299.60	411.6	0.84	0.02	0.019	1.570	<0.001	16.94	<0.01	30.9	0.132	0.02
341851		0.29					20.5	0.03	0.241	2.03	<0.001	41.04	0.02	0.95	1.165	0.01
341852		<0.02					3.10	0.39	0.050	0.946	0.002	18.52	0.01	19.05	0.290	0.03
341853		0.37					1.82	0.02	0.017	1.130	<0.001	12.14	0.01	33.5	0.119	0.02
341854		0.41					0.79	0.01	0.014	0.915	<0.001	9.98	<0.01	36.0	0.079	0.02
341855		0.46					2.99	0.05	0.010	0.460	<0.001	19.74	<0.01	32.1	0.076	0.01
341856		0.38					0.25	0.01	0.011	1.185	<0.001	8.43	<0.01	37.1	0.069	0.01
341857		0.34					0.09	0.01	0.012	0.682	<0.001	10.90	<0.01	36.4	0.062	0.02
341865		0.22					18.15	0.04	0.002	1.730	<0.001	23.14	0.44	1.18	0.018	0.03
341866		0.45		10.75	381.10	427.1	12.60	0.02	0.001	2.11	0.001	19.18	0.40	0.65	0.020	0.03
341867		0.35					21.4	0.01	0.004	5.07	<0.001	34.14	0.33	0.49	0.041	0.02
341868		0.49					16.45	0.01	0.009	4.66	<0.001	51.52	0.15	0.57	0.060	0.01
341869		0.44					14.20	<0.01	0.010	4.28	<0.001	57.24	0.07	0.59	0.095	0.01
341870		0.23					19.30	0.02	0.069	4.13	<0.001	41.45	0.03	0.85	0.393	0.02
341871		0.34					25.2	0.03	0.051	2.57	<0.001	26.15	0.01	1.14	0.327	0.02
341872		0.32					23.3	0.03	0.071	2.78	<0.001	29.98	0.01	1.48	0.688	0.02
341873		0.34					16.90	0.02	0.091	7.18	<0.001	40.86	0.02	1.85	1.210	0.02
341874		0.35					14.55	0.02	0.072	7.81	<0.001	45.58	0.02	1.40	1.435	0.01
341875		0.36					19.90	0.03	0.047	4.05	<0.001	34.38	0.02	1.86	1.250	0.02
341876		0.28					22.7	0.02	0.042	3.36	<0.001	30.22	0.03	1.14	2.37	0.02
341877		0.31					22.2	0.02	0.070	2.99	<0.001	28.33	0.02	1.88	2.13	0.04
341878		0.60					13.55	0.05	0.062	5.00	<0.001	36.08	0.02	3.79	0.920	0.22
341879		0.46					15.25	0.05	0.062	4.73	<0.001	34.01	0.02	3.33	1.015	0.21
341880		<0.02					17.35	0.21	0.055	0.686	0.018	41.06	0.07	0.75	1.930	0.34
341881		0.30					8.03	0.07	0.053	5.49	0.001	43.38	0.01	4.15	0.497	0.07
341882		0.42					13.65	0.09	0.054	3.13	<0.001	24.66	0.02	8.33	0.472	0.07
341883		0.35		48.0	172.30	331.2	9.65	0.09	0.049	3.26	<0.001	25.67	0.04	9.68	0.389	0.04
341884		0.27					10.35	0.09	0.047	2.70	0.001	27.85	0.04	9.86	0.394	0.05
341885		0.27					11.95	0.08	0.044	2.57	<0.001	25.47	0.04	9.59	0.373	0.05
341886		0.29					9.55	0.08	0.061	3.87	<0.001	30.85	0.03	6.92	0.508	0.29
341887		0.33					10.10	0.06	0.043	2.94	<0.001	26.74	0.03	6.74	0.402	1.19
341888		0.23					12.00	0.06	0.048	2.78	<0.001	27.45	0.03	8.16	0.431	0.51
341889		0.50					6.09	0.05	0.040	3.03	<0.001	25.02	0.03	14.15	0.278	0.53
341890		0.42					3.75	0.03	0.020	1.810	<0.001	12.00	0.03	26.9	0.138	0.54
341891		0.32					6.77	0.06	0.008	0.763	<0.001	5.99	0.04	34.5	0.109	0.03
341892		0.33					1.88	0.02	0.018	1.790	<0.001	10.89	0.02	33.0	0.118	0.03
341893		0.50					4.28	0.06	0.013	1.580	<0.001	8.93	0.03	33.5	0.102	0.04

Comments: OA-GRA05g represents moisture on raw sample (prior to drying and sample prep).

LOI 105 by ME-GRA05 represents moisture (re-absorbed) on pulverised sample. LOI 300, LOI 350, LOI 350 and LOI 1000 represent LOI at various temps based on redried sample (105

***** See Appendix Page for comments regarding this certificate *****



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Sample Description	Method Analyte Units LOD	ME-XRF12n	ME-GRA05	ME-GRA05	ME-GRA05	ME-GRA05	ME-GRA05							
		Ni %	P2O5 %	Pb %	SiO2 %	TiO2 %	Zn %	Total %	Sc %	LOI 105 %	LOI 300 %	LOI 350 %	LOI 650 %	LOI 1000 %
		0.005	0.005	0.005	0.05	0.01	0.001	0.01	0.001	0.01	0.01	0.01	0.01	0.01
341847		0.333	0.020	<0.005	21.8	0.48	0.021	100.05	0.003					8.85
341848		0.633	0.007	<0.005	32.5	0.51	0.033	100.00	0.001					9.97
341849		0.648	0.006	<0.005	34.1	0.42	0.023	100.05	0.001					10.36
341850		0.549	<0.005	<0.005	38.5	0.02	0.006	99.97	0.001					10.27
341851		0.157	0.020	<0.005	23.5	0.43	0.009	99.96	0.002					9.43
341852		2.97	<0.005	<0.005	44.1	0.04	0.030	99.98	0.001					9.57
341853		0.507	<0.005	<0.005	39.3	0.06	0.004	100.05	0.001					11.23
341854		0.332	<0.005	<0.005	40.0	0.02	0.002	99.94	<0.001					11.64
341855		0.177	0.025	<0.005	34.1	0.05	0.001	100.00	0.001					10.11
341856		0.286	<0.005	<0.005	40.8	0.01	0.003	100.00	<0.001					11.72
341857		0.272	<0.005	<0.005	40.1	0.01	0.002	100.05	<0.001					11.39
341865		0.025	0.026	<0.005	44.7	0.95	0.004	99.97	0.001					9.35
341866		0.023	0.018	<0.005	58.0	0.62	0.006	99.96	0.001					6.06
341867		0.057	0.027	<0.005	24.1	0.57	0.014	99.94	0.004					13.08
341868		0.124	0.019	<0.005	14.80	0.45	0.012	100.05	0.003					10.51
341869		0.116	0.017	<0.005	14.00	0.39	0.012	100.00	0.003					8.45
341870		0.176	0.017	<0.005	22.0	0.39	0.014	100.00	0.003					10.73
341871		0.132	0.009	<0.005	31.5	0.47	0.008	99.98	0.002					12.07
341872		0.134	<0.005	<0.005	29.8	0.45	0.013	99.97	0.002					10.97
341873		0.315	0.008	<0.005	20.8	0.40	0.026	99.96	0.002					9.85
341874		0.352	0.009	<0.005	17.40	0.36	0.033	100.00	0.003					10.48
341875		0.254	<0.005	<0.005	25.9	0.47	0.022	99.97	<0.001					11.37
341876		0.395	0.035	<0.005	26.3	0.64	0.021	100.10	0.001					12.19
341877		0.361	0.039	<0.005	28.9	0.41	0.019	100.05	0.001					12.14
341878		0.691	0.016	<0.005	27.6	0.26	0.023	100.00	0.001					10.82
341879		0.648	0.018	<0.005	28.3	0.29	0.021	100.00	0.001					11.20
341880		0.099	0.060	<0.005	24.9	0.84	0.019	99.96	0.060					10.74
341881		1.150	0.007	<0.005	28.4	0.15	0.034	100.00	0.001					7.96
341882		0.830	<0.005	<0.005	37.1	0.18	0.028	100.00	<0.001					10.99
341883		1.265	<0.005	<0.005	39.8	0.20	0.034	100.00	0.001	11.80	4.02	4.67	8.37	9.41
341884		0.954	<0.005	<0.005	36.3	0.17	0.036	99.98	<0.001					10.78
341885		0.746	0.007	<0.005	37.0	0.32	0.028	99.95	<0.001					11.39
341886		1.025	<0.005	<0.005	34.1	0.17	0.030	100.05	0.001					11.52
341887		0.631	<0.005	<0.005	29.2	0.18	0.022	102.90	<0.001					21.43
341888		0.538	0.006	<0.005	32.0	0.22	0.024	100.00	<0.001					14.25
341889		0.611	<0.005	<0.005	33.7	0.11	0.020	99.94	<0.001					14.74
341890		0.474	<0.005	<0.005	36.6	0.07	0.009	99.98	<0.001					16.09
341891		0.190	<0.005	<0.005	38.8	0.09	0.003	99.95	<0.001					12.47
341892		0.369	<0.005	<0.005	40.2	0.03	0.006	99.96	0.001					11.44
341893		0.318	<0.005	<0.005	39.1	0.06	0.005	99.99	<0.001					11.83

Comments: OA-GRA05g represents moisture on raw sample (prior to drying and sample prep).

LOI 105 by ME-GRA05 represents moisture (re-absorbed) on pulverised sample. LOI 300, LOI 350, LOI 350 and LOI 1000 represent LOI at various temps based on redried sample (105

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Sample Description	Method Analyte Units LOD	WEI-21	PUL-QC	OA-GRA05g	WEI-22g	WEI-23g	ME-XRF12n	ME-XRF12n	ME-XRF12n	ME-XRF12n	ME-XRF12n	ME-XRF12n	ME-XRF12n	ME-XRF12n	ME-XRF12n	
		Recvd Wt. kg	Pass75um %	Moisture %	Dry Wt. g	Wet Wt. g	Al2O3 %	CaO %	Co %	Cr2O3 %	Cu %	Fe2O3 %	K2O %	MgO %	MnO %	Na2O %
		0.02	0.01	0.01	0.01	0.1	0.01	0.01	0.001	0.005	0.001	0.01	0.01	0.01	0.005	0.01
341894		0.47					1.94	0.03	0.016	1.285	<0.001	12.54	0.02	32.9	0.114	0.03
341895		0.46					8.15	5.64	0.010	0.791	<0.001	9.00	0.04	27.2	0.389	0.04
341896		<0.02					3.09	0.39	0.050	0.945	0.003	18.43	0.01	18.90	0.289	0.03
341750		0.56														
341809		0.57														
321810		0.57														

Comments: OA-GRA05g represents moisture on raw sample (prior to drying and sample prep).
 LOI 105 by ME-GRA05 represents moisture (re-absorbed) on pulverised sample. LOI 300, LOI 350, LOI 350 and LOI 1000 represent LOI at various temps based on redried sample (105

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CERTIFICATE OF ANALYSIS BR19135534

Sample Description	Method Analyte Units LOD	ME-XRF12n	ME-XRF12n	ME-GRA05	ME-GRA05	ME-GRA05	ME-GRA05	ME-GRA05						
		Ni %	P2O5 %	Pb %	SiO2 %	TiO2 %	Zn %	Total %	Sc %	LOI 105 %	LOI 300 %	LOI 350 %	LOI 650 %	LOI 1000 %
		0.005	0.005	0.005	0.05	0.01	0.001	0.01	0.001	0.01	0.01	0.01	0.01	0.01
341894		0.387	<0.005	<0.005	39.2	0.03	0.005	100.00	0.001					11.35
341895		0.245	0.005	<0.005	38.5	0.12	0.005	100.00	<0.001					9.75
341896		2.97	<0.005	<0.005	43.9	0.04	0.030	99.98	0.002					10.02
341750														
341809														
321810														

Comments: OA-GRA05g represents moisture on raw sample (prior to drying and sample prep).
 LOI 105 by ME-GRA05 represents moisture (re-absorbed) on pulverised sample. LOI 300, LOI 350, LOI 350 and LOI 1000 represent LOI at various temps based on redried sample (105

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CERTIFICATE OF ANALYSIS BR19135534

CERTIFICATE COMMENTS

ACCREDITATION COMMENTS

Applies to Method:

NATA Accreditation covers the performance of this service but does not cover the performance of ALS Brisbane Sample Preparation. Corporate Accreditation No: 825, Corporate Site No: 818. The Technical Signatory is James Lo, XRF Supervising Chemist
ME-GRA05 ME-XRF12n

LABORATORY ADDRESSES

Applies to Method:

Processed at ALS Brisbane located at 32 Shand Street, Stafford, Brisbane, QLD, Australia. Processed at ALS Brisbane Sample Preparation at 116 Delta Street, Geebung, QLD 4034, Australia

BAG-01	CRU-21	LEV-01	LOG-22
ME-GRA05	ME-XRF12n	OA-GRA05g	PUL-32
PUL-QC	TRA-21	WEI-21	WEI-22g
WEI-23g			