



Australian Laboratory Services Pty. Ltd.

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Finalized Date: 4-SEP-2017
Account: TODRIV

QC CERTIFICATE AD17178520

P.O. No.: TRR17-008

This report is for 203 Percussion samples submitted to our lab in Adelaide, SA,
Australia on 24-AUG-2017.

The following have access to data associated with this certificate:

PAUL BURTON
CATH WETHERBY

KIM GREY

GAVIN OTTO

SAMPLE PREPARATION

ALS CODE	DESCRIPTION
WEI-21	Received Sample Weight
LOG-22	Sample login - Rcd w/o BarCode
PUL-QC	Pulverizing QC Test
LOG-24	Pulp Login - Rcd w/o Barcode
LEV-01	Waste Disposal Levy
PUL-23	Pulv Sample - Split/Retain
BAG-01	Bulk Master for Storage
SPL-21	Split sample - riffle splitter

ANALYTICAL PROCEDURES

ALS CODE	DESCRIPTION	INSTRUMENT
Au-ICP22	Au 50g FA ICP-AES finish	ICP-AES
ME-ICP61	33 element four acid ICP-AES	ICP-AES

To: TODD RIVER METALS
ATTN: CATH WETHERBY
LEVEL 1
282 ROKEBY ROAD
SUBIACO WA 6008

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 *****

Signature:

Cameron Brosnan, Laboratory Manager, Perth



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QC CERTIFICATE OF ANALYSIS AD17178520

Sample Description	Method Analyte Units LOR	ME-ICP61 Ag ppm	ME-ICP61 Al %	ME-ICP61 As ppm	ME-ICP61 Ba ppm	ME-ICP61 Be ppm	ME-ICP61 Bi ppm	ME-ICP61 Ca %	ME-ICP61 Cd ppm	ME-ICP61 Co ppm	ME-ICP61 Cr ppm	ME-ICP61 Cu ppm	ME-ICP61 Fe %	ME-ICP61 Ga ppm	ME-ICP61 K %	ME-ICP61 La ppm
		0.5	0.01	5	10	0.5	2	0.01	0.5	1	1	1	0.01	10	0.01	10
STANDARDS																
AMIS0282																
AMIS0282																
AMIS0282																
Target Range - Lower Bound																
Upper Bound																
AMIS0354																
AMIS0354																
Target Range - Lower Bound																
Upper Bound																
GBM908-10		2.9	7.44	52	1150	1.5	3	3.98	1.9	27	145	3750	5.79	20	2.20	50
GBM908-10		2.9	7.15	52	1120	1.4	<2	3.83	1.7	26	146	3640	5.60	20	2.17	50
GBM908-10		3.0	7.17	55	1150	1.4	<2	3.84	1.5	28	141	3680	5.63	20	2.11	50
GBM908-10		3.0	7.44	59	1180	1.5	<2	3.99	1.7	29	147	3870	5.82	20	2.18	50
Target Range - Lower Bound		1.9	6.40	44	980	<0.5	<2	3.36	0.6	22	125	3370	4.98	<10	1.87	20
Upper Bound		4.2	7.84	70	1220	2.5	5	4.12	2.8	30	155	3890	6.10	40	2.31	70
GLG912-5																
GLG912-5																
GLG912-5																
Target Range - Lower Bound																
Upper Bound																
LEA-16																
LEA-16																
Target Range - Lower Bound																
Upper Bound																
MRGeo08		4.6	7.98	34	1130	3.4	<2	2.77	2.3	20	93	648	4.14	20	3.27	40
MRGeo08		4.2	7.72	33	1110	3.2	2	2.67	2.0	20	87	632	3.97	20	3.20	30
MRGeo08		4.3	7.55	30	1100	3.2	2	2.59	2.0	20	88	615	3.89	20	3.05	30
MRGeo08		4.6	7.85	33	1150	3.3	<2	2.71	1.8	21	91	646	4.07	20	3.20	40
Target Range - Lower Bound		3.2	6.64	21	980	2.2	<2	2.35	1.1	17	81	586	3.55	<10	2.79	<10
Upper Bound		5.7	8.14	45	1210	4.5	5	2.90	3.4	23	102	676	4.37	40	3.43	60
OGGeo08		20.3	7.08	122	910	2.9	13	2.25	19.5	99	81	8700	5.51	10	3.08	30
OGGeo08		20.4	7.13	122	860	2.9	10	2.27	19.3	100	83	8760	5.57	20	3.08	30
OGGeo08		20.6	6.82	123	590	3.0	14	2.25	19.3	99	83	8850	5.53	20	2.93	30
Target Range - Lower Bound		17.7	6.07	102	750	1.8	6	1.98	16.2	86	78	7800	4.81	<10	2.59	<10
Upper Bound		22.7	7.44	136	930	4.1	15	2.44	21.0	108	98	8980	5.91	40	3.19	60



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QC CERTIFICATE OF ANALYSIS AD17178520

Sample Description	Method Analyte Units LOR	ME-ICP61 Mg %	ME-ICP61 Mn ppm	ME-ICP61 Mo ppm	ME-ICP61 Na %	ME-ICP61 Ni ppm	ME-ICP61 P ppm	ME-ICP61 Pb ppm	ME-ICP61 S %	ME-ICP61 Sb ppm	ME-ICP61 Sc ppm	ME-ICP61 Sr ppm	ME-ICP61 Th ppm	ME-ICP61 Ti %	ME-ICP61 Tl ppm	ME-ICP61 U ppm
		0.01	5	1	0.01	1	10	2	0.01	5	1	1	20	0.01	10	10
STANDARDS																
AMIS0282																
AMIS0282																
AMIS0282																
Target Range - Lower Bound																
Upper Bound																
AMIS0354																
AMIS0354																
Target Range - Lower Bound																
Upper Bound																
GBM908-10		1.94	832	61	2.26	2420	1060	2160	0.39	<5	18	309	20	0.69	10	<10
GBM908-10		1.86	772	61	2.19	2260	1000	2120	0.37	7	18	300	20	0.67	<10	<10
GBM908-10		1.86	816	65	2.19	2320	990	2150	0.38	<5	18	297	20	0.67	10	<10
GBM908-10		1.93	846	63	2.27	2420	1020	2230	0.39	<5	19	308	20	0.70	<10	<10
Target Range - Lower Bound		1.61	715	57	1.93	2030	880	1860	0.33	<5	14	260	<20	0.59	<10	<10
Upper Bound		1.99	885	72	2.38	2480	1100	2280	0.43	12	20	320	60	0.74	20	20
GLG912-5																
GLG912-5																
GLG912-5																
Target Range - Lower Bound																
Upper Bound																
LEA-16																
LEA-16																
Target Range - Lower Bound																
Upper Bound																
MRGeo08		1.43	570	15	2.06	740	1100	1130	0.32	<5	12	323	30	0.52	<10	<10
MRGeo08		1.37	534	13	2.00	695	1060	1100	0.30	8	12	313	20	0.50	<10	10
MRGeo08		1.34	553	13	1.95	695	1020	1080	0.30	8	12	302	20	0.49	<10	<10
MRGeo08		1.41	579	13	2.03	726	1040	1140	0.32	<5	12	317	20	0.51	<10	<10
Target Range - Lower Bound		1.17	497	12	1.76	621	930	969	0.27	<5	10	276	<20	0.44	<10	<10
Upper Bound		1.45	619	18	2.18	761	1160	1190	0.35	15	15	340	60	0.56	20	30
OGGeo08		1.31	495	953	1.88	8870	890	7580	2.87	30	10	261	20	0.41	<10	10
OGGeo08		1.32	496	959	1.89	8930	870	7630	2.88	34	10	263	20	0.41	<10	<10
OGGeo08		1.28	523	915	1.88	9130	840	7640	2.89	24	10	257	20	0.41	10	10
Target Range - Lower Bound		1.11	447	841	1.62	8000	760	6510	2.51	16	8	223	<20	0.35	<10	<10
Upper Bound		1.38	557	1030	2.00	9770	950	7970	3.09	38	13	275	60	0.45	20	30



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QC CERTIFICATE OF ANALYSIS AD17178520

Sample Description	Method Analyte Units LOR	ME-ICP61 V ppm 1	ME-ICP61 W ppm 10	ME-ICP61 Zn ppm 2	Au-ICP22 Au ppm 0.001
STANDARDS					
AMIS0282					0.182
AMIS0282					0.199
AMIS0282					0.196
Target Range - Lower Bound					0.178
Upper Bound					0.202
AMIS0354					0.741
AMIS0354					0.733
Target Range - Lower Bound					0.666
Upper Bound					0.754
GBM908-10		146	<10	1110	
GBM908-10		140	<10	1080	
GBM908-10		142	10	1080	
GBM908-10		148	<10	1125	
Target Range - Lower Bound		123	<10	939	
Upper Bound		153	20	1155	
GLG912-5					0.217
GLG912-5					0.232
GLG912-5					0.223
Target Range - Lower Bound					0.210
Upper Bound					0.239
LEA-16					0.502
LEA-16					0.501
Target Range - Lower Bound					0.470
Upper Bound					0.532
MRGeo08		111	<10	820	
MRGeo08		109	<10	816	
MRGeo08		108	<10	787	
MRGeo08		112	<10	818	
Target Range - Lower Bound		97	<10	722	
Upper Bound		121	30	886	
OGGeo08		89	<10	7300	
OGGeo08		89	<10	7300	
OGGeo08		90	<10	7400	
Target Range - Lower Bound		77	<10	6500	
Upper Bound		97	20	7950	



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QC CERTIFICATE OF ANALYSIS AD17178520

Sample Description	Method Analyte Units LOR	ME-ICP61 Ag ppm 0.5	ME-ICP61 Al % 0.01	ME-ICP61 As ppm 5	ME-ICP61 Ba ppm 10	ME-ICP61 Be ppm 0.5	ME-ICP61 Bi ppm 2	ME-ICP61 Ca % 0.01	ME-ICP61 Cd ppm 0.5	ME-ICP61 Co ppm 1	ME-ICP61 Cr ppm 1	ME-ICP61 Cu ppm 1	ME-ICP61 Fe % 0.01	ME-ICP61 Ga ppm 10	ME-ICP61 K % 0.01	ME-ICP61 La ppm 10
STANDARDS																
OREAS 601		50.3	6.49	326	970	2.0	22	1.37	8.0	6	43	1020	2.50	20	2.15	30
OREAS 601		47.8	6.15	307	1450	1.9	21	1.30	7.5	5	45	963	2.41	20	2.04	30
OREAS 601		49.9	6.29	327	890	2.0	19	1.35	7.9	6	43	1005	2.45	20	2.06	30
Target Range - Lower Bound		43.8	5.66	271	780	1.0	16	1.17	6.5	3	37	938	2.22	<10	1.88	<10
Upper Bound		54.6	6.94	343	980	3.2	26	1.45	9.3	7	47	1080	2.74	40	2.32	50
OREAS-45e																
OREAS-45e																
OREAS-45e																
OREAS-45e																
Target Range - Lower Bound																
Upper Bound																
BLANKS																
BLANK																
BLANK																
BLANK																
BLANK																
BLANK																
Target Range - Lower Bound																
Upper Bound																
BLANK		<0.5	<0.01	<5	<10	<0.5	<2	<0.01	<0.5	<1	<1	<1	<0.01	<10	<0.01	<10
BLANK		<0.5	<0.01	<5	<10	<0.5	<2	<0.01	<0.5	<1	<1	<1	<0.01	<10	<0.01	<10
BLANK		<0.5	<0.01	<5	<10	<0.5	<2	<0.01	<0.5	<1	1	<1	<0.01	<10	<0.01	<10
BLANK		<0.5	<0.01	<5	<10	<0.5	2	<0.01	<0.5	<1	<1	<1	<0.01	<10	<0.01	<10
BLANK		<0.5	<0.01	<5	<10	<0.5	<2	<0.01	<0.5	2	<1	2	<0.01	<10	<0.01	<10
BLANK		<0.5	<0.01	<5	<10	<0.5	<2	<0.01	<0.5	<1	2	<1	<0.01	<10	<0.01	<10
BLANK		<0.5	<0.01	<5	<10	<0.5	<2	<0.01	<0.5	<1	<1	1	<0.01	<10	<0.01	<10
Target Range - Lower Bound		<0.5	<0.01	<5	<10	<0.5	<2	<0.01	<0.5	<1	<1	<1	<0.01	<10	<0.01	<10
Upper Bound		1.0	0.02	10	20	1.0	4	0.02	1.0	2	2	2	0.02	20	0.02	20



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Sample Description	Method Analyte Units LOR	ME-ICP61	ME-ICP61	ME-ICP61	ME-ICP61	ME-ICP61	ME-ICP61	ME-ICP61	ME-ICP61	ME-ICP61	ME-ICP61	ME-ICP61	ME-ICP61	ME-ICP61	ME-ICP61
		Mg %	Mn ppm	Mo ppm	Na %	Ni ppm	P ppm	Pb ppm	S %	Sb ppm	Sc ppm	Sr ppm	Th ppm	Ti %	Tl ppm
		0.01	5	1	0.01	1	10	2	0.01	5	1	1	20	0.01	10
STANDARDS															
OREAS 601		0.38	468	2	1.48	27	480	357	1.10	38	5	235	<20	0.19	<10
OREAS 601		0.37	523	4	1.40	21	460	326	1.05	39	5	227	<20	0.18	<10
OREAS 601		0.38	490	4	1.44	24	430	346	1.08	30	5	228	<20	0.18	<10
Target Range - Lower Bound		0.34	427	2	1.30	21	410	294	0.95	19	3	206	<20	0.15	<10
Upper Bound		0.44	533	6	1.61	28	530	364	1.19	42	7	254	50	0.21	20
OREAS-45e															
OREAS-45e															
OREAS-45e															
OREAS-45e															
Target Range - Lower Bound															
Upper Bound															
BLANKS															
BLANK															
BLANK															
BLANK															
BLANK															
BLANK															
Target Range - Lower Bound															
Upper Bound															
BLANK		<0.01	<5	<1	<0.01	<1	<10	<2	<0.01	<5	<1	<1	<20	<0.01	<10
BLANK		<0.01	<5	<1	<0.01	<1	<10	2	<0.01	<5	<1	<1	<20	<0.01	<10
BLANK		<0.01	<5	<1	<0.01	<1	<10	<2	<0.01	<5	<1	<1	<20	<0.01	10
BLANK		<0.01	<5	<1	<0.01	1	<10	<2	<0.01	<5	<1	<1	<20	<0.01	<10
BLANK		<0.01	<5	2	<0.01	2	<10	<2	<0.01	<5	<1	<1	<20	<0.01	<10
BLANK		<0.01	<5	<1	<0.01	<1	<10	<2	<0.01	<5	<1	<1	<20	<0.01	<10
BLANK		<0.01	<5	<1	<0.01	1	<10	<2	<0.01	<5	<1	<1	<20	<0.01	<10
Target Range - Lower Bound		<0.01	<5	<1	<0.01	<1	<10	<2	<0.01	<5	<1	<1	<20	<0.01	<10
Upper Bound		0.02	10	2	0.02	2	20	4	0.02	10	2	2	40	0.02	20



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STANDARDS					
OREAS 601		26	10	1400	
OREAS 601		25	10	1330	
OREAS 601		26	<10	1365	
Target Range - Lower Bound		22	<10	1195	
Upper Bound		29	30	1465	
OREAS-45e					0.055
OREAS-45e					0.053
OREAS-45e					0.053
OREAS-45e					0.050
Target Range - Lower Bound					0.049
Upper Bound					0.057
BLANKS					
BLANK					<0.001
BLANK					<0.001
BLANK					<0.001
BLANK					<0.001
BLANK					<0.001
Target Range - Lower Bound					<0.001
Upper Bound					0.002
BLANK		<1	<10	<2	
BLANK		<1	<10	<2	
BLANK		<1	<10	<2	
BLANK		<1	<10	<2	
BLANK		<1	<10	4	
BLANK		<1	<10	<2	
BLANK		<1	<10	<2	
Target Range - Lower Bound		<1	<10	<2	
Upper Bound		2	20	4	



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Sample Description	Method Analyte Units LOR	ME-ICP61 Ag ppm 0.5	ME-ICP61 Al % 0.01	ME-ICP61 As ppm 5	ME-ICP61 Ba ppm 10	ME-ICP61 Be ppm 0.5	ME-ICP61 Bi ppm 2	ME-ICP61 Ca % 0.01	ME-ICP61 Cd ppm 0.5	ME-ICP61 Co ppm 1	ME-ICP61 Cr ppm 1	ME-ICP61 Cu ppm 1	ME-ICP61 Fe % 0.01	ME-ICP61 Ga ppm 10	ME-ICP61 K % 0.01	ME-ICP61 La ppm 10
DUPLICATES																
W17694 DUP																
Target Range - Lower Bound																
Upper Bound																
W17705 DUP		<0.5	2.03	<5	30	<0.5	<2	9.48	0.6	85	1080	174	8.53	10	0.17	<10
Target Range - Lower Bound		<0.5	2.17	<5	30	<0.5	5	10.05	<0.5	91	1140	181	9.02	10	0.18	10
Upper Bound		<0.5	1.99	<5	20	<0.5	<2	9.27	<0.5	83	1055	170	8.33	<10	0.16	<10
Target Range - Lower Bound		1.0	2.22	10	40	1.0	4	10.25	1.0	93	1165	185	9.22	20	0.19	20
W17723 DUP		<0.5	2.25	<5	70	<0.5	<2	8.91	0.5	85	1160	162	9.51	10	0.30	10
Target Range - Lower Bound		<0.5	2.37	<5	70	<0.5	<2	9.31	0.6	91	1200	176	10.00	10	0.31	10
Upper Bound		<0.5	2.18	<5	60	<0.5	<2	8.64	<0.5	83	1120	162	9.26	<10	0.28	<10
Target Range - Lower Bound		1.0	2.44	10	80	1.0	4	9.58	1.0	93	1240	176	10.25	20	0.33	20
W17732 DUP																
Target Range - Lower Bound																
Upper Bound																
W17743 DUP		<0.5	4.92	<5	250	2.1	3	2.34	0.5	73	574	134	8.74	10	0.57	10
Target Range - Lower Bound		<0.5	5.01	<5	260	2.1	<2	2.38	0.5	72	577	136	8.85	10	0.58	10
Upper Bound		<0.5	4.71	<5	230	1.5	<2	2.23	<0.5	68	546	129	8.35	<10	0.54	<10
Target Range - Lower Bound		1.0	5.22	10	280	2.7	4	2.49	1.0	77	605	141	9.24	20	0.61	20
W17763 DUP		<0.5	1.58	<5	50	<0.5	<2	7.60	0.5	88	611	244	8.47	<10	0.18	<10
Target Range - Lower Bound		<0.5	1.59	<5	50	<0.5	<2	7.72	<0.5	87	609	247	8.53	<10	0.18	<10
Upper Bound		<0.5	1.50	<5	40	<0.5	<2	7.27	<0.5	82	579	236	8.07	<10	0.16	<10
Target Range - Lower Bound		1.0	1.67	10	60	1.0	4	8.05	1.0	93	642	255	8.94	20	0.20	20
W17767 DUP																
Target Range - Lower Bound																
Upper Bound																
W17778 DUP		<0.5	1.93	<5	80	0.5	<2	9.81	<0.5	79	649	218	7.70	10	0.37	10
Target Range - Lower Bound		<0.5	1.79	7	70	0.5	<2	9.20	<0.5	71	631	201	7.18	<10	0.34	10
Upper Bound		<0.5	1.76	<5	60	<0.5	<2	9.02	<0.5	70	607	201	7.06	<10	0.33	<10
Target Range - Lower Bound		1.0	1.96	10	90	1.0	4	9.99	1.0	80	673	218	7.82	20	0.38	20



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QC CERTIFICATE OF ANALYSIS AD17178520

Sample Description	Method Analyte Units LOR	ME-ICP61 Mg %	ME-ICP61 Mn ppm	ME-ICP61 Mo ppm	ME-ICP61 Na %	ME-ICP61 Ni ppm	ME-ICP61 P ppm	ME-ICP61 Pb ppm	ME-ICP61 S %	ME-ICP61 Sb ppm	ME-ICP61 Sc ppm	ME-ICP61 Sr ppm	ME-ICP61 Th ppm	ME-ICP61 Ti %	ME-ICP61 Tl ppm	ME-ICP61 U ppm
		0.01	5	1	0.01	1	10	2	0.01	5	1	1	20	0.01	10	10
W17694 DUP		DUPLICATES														
Target Range - Lower Bound																
Upper Bound																
W17705 DUP		10.50	1460	2	0.32	252	80	3	0.64	<5	57	59	<20	0.27	<10	<10
Target Range - Lower Bound		11.05	1540	2	0.33	273	60	6	0.67	<5	61	63	<20	0.29	<10	<10
Upper Bound		10.25	1420	<1	0.30	248	60	<2	0.61	<5	55	57	<20	0.26	<10	<10
		11.30	1580	3	0.35	277	80	7	0.70	10	63	65	40	0.30	20	20
W17723 DUP		11.10	1580	3	0.36	283	130	6	0.23	<5	53	73	<20	0.26	<10	<10
Target Range - Lower Bound		11.70	1650	2	0.37	299	150	<2	0.24	<5	56	77	<20	0.27	<10	<10
Upper Bound		10.80	1530	<1	0.34	275	120	<2	0.21	<5	51	70	<20	0.24	<10	<10
		12.00	1700	4	0.39	307	160	6	0.26	10	58	80	40	0.29	20	20
W17732 DUP																
Target Range - Lower Bound																
Upper Bound																
W17743 DUP		5.16	1470	<1	1.35	162	50	<2	0.01	<5	53	180	<20	0.36	<10	<10
Target Range - Lower Bound		5.23	1470	<1	1.37	161	40	2	0.01	<5	53	184	<20	0.35	<10	<10
Upper Bound		4.93	1390	<1	1.28	152	30	<2	<0.01	<5	49	172	<20	0.33	<10	<10
		5.46	1550	2	1.44	171	60	4	0.02	10	57	192	40	0.38	20	20
W17763 DUP		10.10	1510	<1	0.29	171	20	<2	0.01	<5	69	35	<20	0.20	10	<10
Target Range - Lower Bound		10.20	1520	1	0.29	172	20	7	0.01	<5	69	36	<20	0.20	<10	<10
Upper Bound		9.63	1435	<1	0.27	162	<10	<2	<0.01	<5	65	33	<20	0.18	<10	<10
		10.65	1595	2	0.31	181	30	7	0.02	10	73	38	40	0.22	20	20
W17767 DUP																
Target Range - Lower Bound																
Upper Bound																
W17778 DUP		10.25	1460	1	0.43	149	70	6	0.41	<5	67	37	<20	0.22	<10	<10
Target Range - Lower Bound		9.56	1360	2	0.40	138	70	6	0.39	<5	63	35	<20	0.21	<10	<10
Upper Bound		9.40	1335	<1	0.38	135	60	4	0.37	<5	61	33	<20	0.19	<10	<10
		10.40	1485	2	0.45	152	80	8	0.43	10	69	39	40	0.24	20	20



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QC CERTIFICATE OF ANALYSIS AD17178520

Sample Description	Method Analyte Units LOR	ME-ICP61 V ppm 1	ME-ICP61 W ppm 10	ME-ICP61 Zn ppm 2	Au-ICP22 Au ppm 0.001
DUPLICATES					
W17694 DUP					0.002 0.001
Target Range - Lower Bound					<0.001
Upper Bound					0.002
W17705 DUP		194 207	<10 <10	68 72	
Target Range - Lower Bound		189	<10	65	
Upper Bound		212	20	76	
W17723 DUP		194 203	<10 <10	111 117	
Target Range - Lower Bound		188	<10	106	
Upper Bound		209	20	122	
W17732 DUP					<0.001 <0.001
Target Range - Lower Bound					<0.001
Upper Bound					0.002
W17743 DUP		159 162	<10 <10	174 177	
Target Range - Lower Bound		151	<10	165	
Upper Bound		170	20	186	
W17763 DUP		227 227	<10 <10	81 82	
Target Range - Lower Bound		215	<10	75	
Upper Bound		239	20	88	
W17767 DUP					0.003 0.002
Target Range - Lower Bound					<0.001
Upper Bound					0.004
W17778 DUP		215 203	<10 <10	78 71	
Target Range - Lower Bound		198	<10	69	
Upper Bound		220	20	80	



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QC CERTIFICATE OF ANALYSIS AD17178520

Sample Description	Method Analyte Units LOR	ME-ICP61 Ag ppm 0.5	ME-ICP61 Al % 0.01	ME-ICP61 As ppm 5	ME-ICP61 Ba ppm 10	ME-ICP61 Be ppm 0.5	ME-ICP61 Bi ppm 2	ME-ICP61 Ca % 0.01	ME-ICP61 Cd ppm 0.5	ME-ICP61 Co ppm 1	ME-ICP61 Cr ppm 1	ME-ICP61 Cu ppm 1	ME-ICP61 Fe % 0.01	ME-ICP61 Ga ppm 10	ME-ICP61 K % 0.01	ME-ICP61 La ppm 10
DUPLICATES																
W17798		<0.5	1.12	<5	10	<0.5	<2	10.60	<0.5	85	1070	205	7.61	<10	0.06	<10
DUP		<0.5	1.15	<5	20	<0.5	<2	10.90	0.7	86	1100	211	7.89	<10	0.06	<10
Target Range - Lower Bound		<0.5	1.07	<5	<10	<0.5	<2	10.20	<0.5	80	1030	200	7.35	<10	0.05	<10
Upper Bound		1.0	1.20	10	20	1.0	4	11.30	1.0	91	1140	216	8.15	20	0.07	20
W17813		<0.5	2.63	<5	150	<0.5	<2	7.61	0.7	68	211	134	9.62	10	0.39	10
DUP		<0.5	2.69	<5	150	<0.5	<2	7.76	0.7	68	216	136	9.92	10	0.40	10
Target Range - Lower Bound		<0.5	2.52	<5	130	<0.5	<2	7.29	<0.5	64	202	129	9.27	<10	0.37	<10
Upper Bound		1.0	2.80	10	170	1.0	4	8.08	1.0	72	225	141	10.25	20	0.42	20
W17837		<0.5	4.26	<5	80	<0.5	4	6.17	<0.5	64	596	100	11.80	10	0.44	10
DUP		<0.5	4.22	<5	80	<0.5	<2	5.98	0.6	64	595	104	11.60	10	0.43	<10
Target Range - Lower Bound		<0.5	4.02	<5	70	<0.5	<2	5.76	<0.5	60	565	97	11.10	<10	0.40	<10
Upper Bound		1.0	4.46	10	90	1.0	4	6.39	1.0	68	626	107	12.30	20	0.47	20
W17861																
DUP																
Target Range - Lower Bound																
Upper Bound																
W17864		<0.5	6.57	<5	190	<0.5	<2	6.23	0.7	56	398	123	11.65	20	0.92	10
DUP		<0.5	6.80	<5	210	<0.5	2	6.63	0.7	61	425	132	12.45	10	0.99	10
Target Range - Lower Bound		<0.5	6.34	<5	180	<0.5	<2	6.10	<0.5	55	390	122	11.45	<10	0.90	<10
Upper Bound		1.0	7.03	10	220	1.0	4	6.76	1.0	62	433	133	12.65	20	1.01	20
W17892		<0.5	2.48	<5	20	0.6	<2	8.75	<0.5	81	1110	163	8.42	10	0.14	10
DUP		<0.5	2.35	<5	20	0.5	<2	8.24	<0.5	75	1030	159	7.94	10	0.14	10
Target Range - Lower Bound		<0.5	2.28	<5	<10	<0.5	<2	8.06	<0.5	73	1015	154	7.76	<10	0.12	<10
Upper Bound		1.0	2.55	10	30	1.0	4	8.93	1.0	83	1125	168	8.60	20	0.16	20
W17912																
DUP																
Target Range - Lower Bound																
Upper Bound																
W17915		<0.5	8.42	<5	130	<0.5	<2	8.08	<0.5	53	194	110	10.40	20	0.64	<10
DUP		<0.5	8.12	<5	130	<0.5	3	7.95	<0.5	54	187	107	10.30	20	0.63	<10
Target Range - Lower Bound		<0.5	7.85	<5	110	<0.5	<2	7.60	<0.5	50	180	104	9.82	<10	0.59	<10
Upper Bound		1.0	8.69	10	150	1.0	4	8.43	1.0	57	201	113	10.90	30	0.68	20



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Sample Description	Method Analyte Units LOR	ME-ICP61 Mg %	ME-ICP61 Mn ppm	ME-ICP61 Mo ppm	ME-ICP61 Na %	ME-ICP61 Ni ppm	ME-ICP61 P ppm	ME-ICP61 Pb ppm	ME-ICP61 S %	ME-ICP61 Sb ppm	ME-ICP61 Sc ppm	ME-ICP61 Sr ppm	ME-ICP61 Th ppm	ME-ICP61 Ti %	ME-ICP61 Tl ppm	ME-ICP61 U ppm
		0.01	5	1	0.01	1	10	2	0.01	5	1	1	20	0.01	10	10
DUPLICATES																
W17798		11.75	1450	2	0.16	240	30	<2	0.29	<5	64	29	<20	0.17	<10	<10
DUP		12.15	1490	3	0.17	249	40	6	0.30	<5	66	31	<20	0.18	10	<10
Target Range - Lower Bound		11.35	1390	<1	0.15	231	20	<2	0.27	<5	61	28	<20	0.16	<10	<10
Upper Bound		12.55	1550	4	0.18	258	50	6	0.32	10	69	33	40	0.19	20	20
W17813		8.31	1800	<1	0.60	102	220	5	0.04	<5	71	40	<20	0.29	<10	<10
DUP		8.51	1860	1	0.61	104	220	9	0.04	<5	73	41	<20	0.30	<10	<10
Target Range - Lower Bound		7.98	1735	<1	0.56	97	200	5	0.03	<5	67	37	<20	0.27	<10	<10
Upper Bound		8.84	1925	2	0.65	109	240	9	0.05	10	77	44	40	0.32	20	20
W17837		8.52	1660	<1	0.39	188	500	<2	0.03	6	54	57	<20	0.32	10	<10
DUP		8.33	1640	<1	0.38	187	470	3	0.03	<5	53	57	<20	0.30	<10	<10
Target Range - Lower Bound		7.99	1565	<1	0.36	177	450	<2	0.02	<5	50	53	<20	0.28	<10	<10
Upper Bound		8.86	1740	2	0.41	198	520	4	0.04	10	57	61	40	0.34	20	20
W17861																
DUP																
Target Range - Lower Bound																
Upper Bound																
W17864		5.63	2060	1	0.49	116	880	2	0.22	<5	46	384	<20	0.61	<10	<10
DUP		5.94	2220	1	0.53	125	930	<2	0.23	<5	43	418	<20	0.64	<10	<10
Target Range - Lower Bound		5.49	2030	<1	0.47	113	850	<2	0.20	<5	41	380	<20	0.58	<10	<10
Upper Bound		6.08	2250	2	0.55	128	960	4	0.25	10	48	422	40	0.67	20	20
W17892		10.20	1445	1	0.34	272	170	2	0.38	6	58	26	<20	0.28	<10	<10
DUP		9.63	1365	<1	0.33	256	150	4	0.36	<5	54	23	<20	0.27	<10	<10
Target Range - Lower Bound		9.41	1330	<1	0.31	250	140	<2	0.34	<5	52	22	<20	0.25	<10	<10
Upper Bound		10.40	1480	2	0.36	278	180	4	0.40	10	60	27	40	0.30	20	20
W17912																
DUP																
Target Range - Lower Bound																
Upper Bound																
W17915		5.30	1470	<1	0.81	62	860	4	0.24	<5	56	580	<20	0.91	<10	<10
DUP		5.16	1440	1	0.80	63	790	5	0.25	5	50	571	<20	0.90	<10	<10
Target Range - Lower Bound		4.96	1375	<1	0.75	58	770	<2	0.22	<5	49	546	<20	0.85	<10	<10
Upper Bound		5.50	1535	2	0.86	67	880	7	0.27	10	57	605	40	0.96	20	20



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QC CERTIFICATE OF ANALYSIS AD17178520

Sample Description	Method Analyte Units LOR	ME-ICP61 V ppm 1	ME-ICP61 W ppm 10	ME-ICP61 Zn ppm 2	Au-ICP22 Au ppm 0.001
DUPLICATES					
W17798		187	<10	67	
DUP		192	<10	69	
Target Range - Lower Bound		179	<10	63	
Upper Bound		200	20	73	
W17813		244	<10	153	
DUP		250	<10	159	
Target Range - Lower Bound		234	<10	146	
Upper Bound		260	20	166	
W17837		189	<10	105	
DUP		189	<10	103	
Target Range - Lower Bound		179	<10	97	
Upper Bound		199	20	111	
W17861				0.002	
DUP				0.002	
Target Range - Lower Bound				<0.001	
Upper Bound				0.003	
W17864		291	<10	148	
DUP		308	<10	159	
Target Range - Lower Bound		284	<10	144	
Upper Bound		315	20	163	
W17892		180	<10	116	
DUP		170	<10	111	
Target Range - Lower Bound		165	<10	106	
Upper Bound		185	20	121	
W17912				0.001	
DUP				0.001	
Target Range - Lower Bound				<0.001	
Upper Bound				0.002	
W17915		419	<10	103	
DUP		414	<10	103	
Target Range - Lower Bound		395	<10	96	
Upper Bound		438	20	110	



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QC CERTIFICATE OF ANALYSIS AD17178520

Sample Description	Method Analyte Units LOR	ME-ICP61 Ag ppm 0.5	ME-ICP61 Al % 0.01	ME-ICP61 As ppm 5	ME-ICP61 Ba ppm 10	ME-ICP61 Be ppm 0.5	ME-ICP61 Bi ppm 2	ME-ICP61 Ca % 0.01	ME-ICP61 Cd ppm 0.5	ME-ICP61 Co ppm 1	ME-ICP61 Cr ppm 1	ME-ICP61 Cu ppm 1	ME-ICP61 Fe % 0.01	ME-ICP61 Ga ppm 10	ME-ICP61 K % 0.01	ME-ICP61 La ppm 10
DUPLICATES																
W17935		<0.5	8.10	<5	220	0.6	<2	6.18	0.5	58	324	102	10.85	20	1.01	10
DUP		<0.5	8.05	<5	220	0.6	<2	6.12	<0.5	59	326	102	10.75	20	0.99	10
Target Range - Lower Bound		<0.5	7.66	<5	200	<0.5	<2	5.83	<0.5	55	308	97	10.25	<10	0.94	<10
Upper Bound		1.0	8.49	10	240	1.0	4	6.47	1.0	62	342	107	11.35	30	1.06	20
W17950		3.1	7.44	61	1180	1.5	<2	3.99	1.8	27	153	3840	5.80	20	2.17	50
DUP		3.0	7.14	57	1130	1.4	<2	3.80	1.4	27	140	3670	5.57	20	2.09	50
Target Range - Lower Bound		2.4	6.92	51	1090	0.9	<2	3.69	1.0	25	138	3620	5.39	<10	2.01	40
Upper Bound		3.7	7.66	67	1220	2.0	4	4.10	2.2	29	155	3890	5.98	30	2.25	60
W17955																
DUP																
Target Range - Lower Bound																
Upper Bound																
ORIGINAL																
DUP																
Target Range - Lower Bound																
Upper Bound																
ORIGINAL																
DUP																
Target Range - Lower Bound																
Upper Bound																
ORIGINAL																
DUP																
Target Range - Lower Bound																
Upper Bound																



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QC CERTIFICATE OF ANALYSIS AD17178520

Sample Description	Method Analyte Units LOR	ME-ICP61 V ppm 1	ME-ICP61 W ppm 10	ME-ICP61 Zn ppm 2	Au-ICP22 Au ppm 0.001
DUPLICATES					
W17935		344	<10	121	
DUP		341	<10	120	
Target Range - Lower Bound		324	<10	112	
Upper Bound		361	20	129	
W17950		147	10	1125	
DUP		141	<10	1070	
Target Range - Lower Bound		136	<10	1040	
Upper Bound		152	20	1155	
W17955					0.004
DUP					0.004
Target Range - Lower Bound					0.003
Upper Bound					0.005
ORIGINAL					0.001
DUP					<0.001
Target Range - Lower Bound					<0.001
Upper Bound					0.002
ORIGINAL					<0.001
DUP					<0.001
Target Range - Lower Bound					<0.001
Upper Bound					0.002
ORIGINAL					0.012
DUP					0.013
Target Range - Lower Bound					0.011
Upper Bound					0.014



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CERTIFICATE COMMENTS

ACCREDITATION COMMENTS

Applies to Method:

NATA Accredited. Corporate Accreditation No: 825, Corporate Site No: 23001. The Technical Signatory is Wendy Wong, Senior QC Chemist.
Au-ICP22 ME-ICP61

LABORATORY ADDRESSES

Applies to Method:

Processed at ALS Perth located at 31 Denninup Way, Malaga, Australia. NATA Accreditation does not cover the performance of ALS Perth Sample Preparation which is processed at 79 Distinction Road, Wangara, WA, Australia
Au-ICP22 ME-ICP61

Applies to Method:

Processed at ALS Adelaide located at Unit 1, 1 Burma Road, Pooraka, Adelaide, SA, Australia.
BAG-01 LEV-01 LOG-22
PUL-23 PUL-QC SPL-21

LOG-24
WEI-21