



Australian Laboratory Services Pty. Ltd.

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ALS Perth is a NATA Accredited Testing Laboratory. Corporate Accreditation  
No: 825, Corporate Site No: 23001.

## QC CERTIFICATE AD17255506

Project: SC17-07

This report is for 255 Soil samples submitted to our lab in Adelaide, SA, Australia on 23-NOV-2017.

The following have access to data associated with this certificate:

KIM GREY

GAVIN OTTO

CATH WETHERBY

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 \*\*\*\*\*

Comments: Total sample weighed in some instances as indicated in Wt. Sample column.

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Plus Appendix Pages

Finalized Date: 28-DEC-2017

Account: TODRIV

## SAMPLE PREPARATION

ALS CODE	DESCRIPTION
WEI-21	Received Sample Weight
LOG-22	Sample login - Rcd w/o BarCode
LEV-01	Waste Disposal Levy
PUL-31	Pulverize split to 85% <75 um
PUL-QC	Pulverizing QC Test
LOG-24	Pulp Login - Rcd w/o Barcode

## ANALYTICAL PROCEDURES

ALS CODE	DESCRIPTION	INSTRUMENT
ME-MS91	ICP-MS Analysis - Sodium Peroxide Fusion	ICP-MS
Au-ICP22	Au 50g FA ICP-AES finish	ICP-AES
ME-ICP89	Peroxide Fusion by ICP-AES	ICP-AES

Signature:

Cameron Brosnan, Laboratory Manager, Perth



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## QC CERTIFICATE OF ANALYSIS AD17255506

Sample Description	Method Analyte Units LOR	Au-ICP22 Au ppm	ME-ICP89 Al2O3 %	ME-ICP89 As %	ME-ICP89 CaO %	ME-ICP89 Co %	ME-ICP89 Cr2O3 %	ME-ICP89 Cu %	ME-ICP89 Fe2O3 %	ME-ICP89 K2O %	ME-ICP89 Li %	ME-ICP89 MgO %	ME-ICP89 MnO %	ME-ICP89 Ni %	ME-ICP89 Pb %	ME-ICP89 S %
		0.001	0.02	0.01	0.01	0.005	0.01	0.01	0.01	0.01	0.001	0.01	0.01	0.005	0.01	0.01
STANDARDS																
AMIS0282		0.184														
AMIS0282		0.194														
AMIS0282		0.190														
Target Range - Lower Bound		0.178														
Upper Bound		0.202														
AMIS0339			23.6	0.02	0.64	<0.005	0.09	0.02	2.27	1.58	2.36	0.40	0.31	<0.005	<0.01	0.03
AMIS0339			22.9	0.01	0.63	<0.005	0.07	0.02	2.13	1.54	2.31	0.40	0.32	<0.005	<0.01	0.01
AMIS0339			22.4	0.01	0.66	<0.005	0.08	0.02	2.17	1.46	2.20	0.40	0.31	<0.005	<0.01	0.01
AMIS0339			22.7	0.01	0.67	<0.005	0.07	0.02	2.19	1.51	2.26	0.38	0.31	<0.005	<0.01	0.02
Target Range - Lower Bound			21.3	<0.01	0.60	<0.005	0.05	<0.01	2.04	1.37	2.10	0.38	0.30	<0.005	<0.01	<0.01
Upper Bound			24.8	0.02	0.72	0.010	0.09	0.04	2.39	1.61	2.44	0.46	0.36	0.010	0.02	0.04
AMIS0339																
AMIS0339			21.6	<0.01	0.67	<0.005	0.09	0.02	2.13	1.48	2.14	0.40	0.30	<0.005	0.01	0.02
AMIS0339			23.3	<0.01	0.67	<0.005	0.09	0.02	2.25	1.54	2.43	0.40	0.33	<0.005	<0.01	0.01
AMIS0339			23.1	<0.01	0.70	<0.005	0.06	0.03	2.24	1.43	2.30	0.41	0.34	<0.005	0.01	0.02
AMIS0339			23.4	<0.01	0.71	<0.005	0.09	0.02	2.30	1.57	2.38	0.42	0.34	<0.005	<0.01	0.02
AMIS0339			24.2	0.06	0.62	<0.005	0.09	0.03	2.43	1.60	2.42	0.45	0.28	0.005	<0.01	0.01
AMIS0339																
AMIS0339																
AMIS0339			22.4	0.01	0.64	<0.005	0.09	0.02	2.22	1.50	2.19	0.43	0.31	<0.005	<0.01	0.01
AMIS0339			23.0	<0.01	0.66	<0.005	0.09	0.02	2.24	1.51	2.30	0.40	0.33	<0.005	<0.01	0.18
Target Range - Lower Bound			21.3	<0.01	0.60	<0.005	0.05	<0.01	2.04	1.37	2.10	0.38	0.30	<0.005	<0.01	<0.01
Upper Bound			24.8	0.02	0.72	0.010	0.09	0.04	2.39	1.61	2.44	0.46	0.36	0.010	0.02	0.04
AMIS0354		0.699														
AMIS0354		0.667														
AMIS0354		0.717														
Target Range - Lower Bound		0.666														
Upper Bound		0.754														
LEA-16		0.519														
LEA-16		0.500														
LEA-16		0.517														
LEA-16		0.511														
Target Range - Lower Bound		0.470														
Upper Bound		0.532														

Comments: Total sample weighed in some instances as indicated in Wt. Sample column.

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



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**QC CERTIFICATE OF ANALYSIS AD17255506**

Sample Description	Method Analyte Units LOR	ME-ICP89 SiO2 %	ME-ICP89 TiO2 %	ME-ICP89 Zn %	ME-MS91 Cs ppm	ME-MS91 Nb ppm	ME-MS91 Rb ppm	ME-MS91 Sn ppm	ME-MS91 Ta ppm	ME-MS91 Th ppm	ME-MS91 U ppm
		0.2	0.02	0.01	0.2	5	0.5	5	0.5	0.5	0.5
STANDARDS											
AMIS0282											
AMIS0282											
AMIS0282											
Target Range - Lower Bound											
Upper Bound											
AMIS0339		66.3	0.04	0.01							
AMIS0339		64.6	0.04	0.01							
AMIS0339		65.7	0.04	0.01							
AMIS0339		63.5	0.04	<0.01							
Target Range - Lower Bound		59.0	<0.02	<0.01							
Upper Bound		69.0	0.08	0.02							
AMIS0339					300	115	1500	189	351	2.0	6.1
AMIS0339		61.8	0.04	0.02	271	109	1420	159	339	2.1	6.1
AMIS0339		67.4	0.04	<0.01	292	105	1430	167	349	1.9	5.6
AMIS0339		66.1	0.04	0.01	268	107	1415	158	357	1.8	5.4
AMIS0339		68.0	0.04	0.01	289	110	1435	157	345	2.0	5.5
AMIS0339		63.3	0.04	<0.01	295	111	1435	178	331	1.8	6.5
AMIS0339					273	108	1400	154	331	2.2	6.2
AMIS0339					273	106	1445	167	345	2.2	5.9
AMIS0339		65.0	0.04	0.01	271	106	1385	157	330	2.0	5.7
AMIS0339		65.5	0.04	<0.01	267	102	1445	157	333	1.9	5.7
Target Range - Lower Bound		59.0	<0.02	<0.01	247	87	1235	147	299	0.9	4.6
Upper Bound		69.0	0.08	0.02	302	117	1510	191	367	3.1	7.2
AMIS0354											
AMIS0354											
AMIS0354											
Target Range - Lower Bound											
Upper Bound											
LEA-16											
LEA-16											
LEA-16											
LEA-16											
Target Range - Lower Bound											
Upper Bound											

Comments: Total sample weighed in some instances as indicated in Wt. Sample column.

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## QC CERTIFICATE OF ANALYSIS AD17255506

Sample Description	Method Analyte Units LOR	Au-ICP22 Au ppm 0.001	ME-ICP89 Al2O3 % 0.02	ME-ICP89 As % 0.01	ME-ICP89 CaO % 0.01	ME-ICP89 Co % 0.005	ME-ICP89 Cr2O3 % 0.01	ME-ICP89 Cu % 0.01	ME-ICP89 Fe2O3 % 0.01	ME-ICP89 K2O % 0.01	ME-ICP89 Li % 0.001	ME-ICP89 MgO % 0.01	ME-ICP89 MnO % 0.01	ME-ICP89 Ni % 0.005	ME-ICP89 Pb % 0.01	ME-ICP89 S % 0.01
STANDARDS																
NCSDC86304		19.70	0.02	0.07	<0.005	0.01	<0.01	0.31	5.01	1.125	0.05	0.26	<0.005	<0.01	<0.01	
NCSDC86304		18.90	0.01	0.08	<0.005	0.01	<0.01	0.33	4.89	1.065	0.02	0.26	<0.005	0.01	0.01	
Target Range - Lower Bound		17.65	<0.01	0.05	<0.005	<0.01	<0.01	0.27	4.42	0.980	<0.01	0.23	<0.005	<0.01	<0.01	
Upper Bound		20.6	0.02	0.09	0.010	0.02	0.02	0.33	5.16	1.140	0.05	0.29	0.010	0.02	0.02	
NCSDC86304		19.95	0.01	0.06	<0.005	0.02	<0.01	0.31	5.07	1.120	0.04	0.26	<0.005	<0.01	<0.01	
NCSDC86304		19.95	0.02	0.07	<0.005	0.02	<0.01	0.40	4.97	1.125	0.05	0.24	<0.005	<0.01	<0.01	
NCSDC86304		19.65	<0.01	0.08	<0.005	0.01	<0.01	0.27	4.85	1.100	0.03	0.26	<0.005	<0.01	<0.01	
NCSDC86304		19.85	<0.01	0.07	<0.005	0.01	<0.01	0.30	4.85	1.080	0.03	0.27	<0.005	<0.01	<0.01	
NCSDC86304		19.25	<0.01	0.06	<0.005	0.01	0.01	0.44	4.67	1.085	0.05	0.25	<0.005	0.01	<0.01	
NCSDC86304		19.45	<0.01	0.04	<0.005	<0.01	0.01	0.36	4.67	1.095	0.05	0.25	<0.005	0.01	0.01	
NCSDC86304		19.35	<0.01	0.06	<0.005	0.01	<0.01	0.30	4.78	1.070	0.03	0.26	<0.005	<0.01	0.01	
NCSDC86304																
NCSDC86304		19.00	<0.01	0.07	<0.005	0.02	<0.01	0.31	4.72	1.055	0.05	0.25	<0.005	0.01	<0.01	
NCSDC86304		19.20	0.01	0.06	<0.005	0.01	<0.01	0.34	4.94	1.120	0.04	0.25	<0.005	<0.01	<0.01	
Target Range - Lower Bound		17.65	<0.01	0.05	<0.005	<0.01	<0.01	0.27	4.42	0.980	<0.01	0.23	<0.005	<0.01	<0.01	
Upper Bound		20.6	0.02	0.09	0.010	0.02	0.02	0.33	5.16	1.140	0.05	0.29	0.010	0.02	0.02	
OREAS 603	5.25															
OREAS 603	5.24															
OREAS 603	4.93															
Target Range - Lower Bound	4.87															
Upper Bound	5.49															
OREAS-45e	0.053															
OREAS-45e	0.056															
OREAS-45e	0.057															
OREAS-45e	0.050															
OREAS-45e	0.055															
OREAS-45e	0.051															
Target Range - Lower Bound	0.049															
Upper Bound	0.057															
REE-1		6.89	0.02	3.25	<0.005	0.06	0.01	5.96	3.96	0.023	1.41	0.21	<0.005	0.12	0.03	
Target Range - Lower Bound		6.25	<0.01	2.97	<0.005	0.02	<0.01	5.49	3.43		1.36	0.18	<0.005	0.09	<0.01	
Upper Bound		7.31	0.03	3.47	0.010	0.06	0.03	6.40	4.01		1.61	0.23	0.013	0.14	0.05	

Comments: Total sample weighed in some instances as indicated in Wt. Sample column.

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**QC CERTIFICATE OF ANALYSIS AD17255506**

Sample Description	Method Analyte Units LOR	ME-ICP89 SiO2 %	ME-ICP89 TiO2 %	ME-ICP89 Zn %	ME-MS91 Cs ppm	ME-MS91 Nb ppm	ME-MS91 Rb ppm	ME-MS91 Sn ppm	ME-MS91 Ta ppm	ME-MS91 Th ppm	ME-MS91 U ppm
		0.2	0.02	0.01	0.2	5	0.5	5	0.5	0.5	0.5
STANDARDS											
NCSDC86304		66.3	0.03	0.01							
NCSDC86304		64.2	0.03	0.01							
Target Range - Lower Bound		59.6	<0.02	<0.01							
Upper Bound		69.7	0.07	0.04							
NCSDC86304					1820	65	7150	137	80.9	3.0	3.9
NCSDC86304		67.6	0.03	0.01	1500	52	6390	110	79.1	2.5	3.3
NCSDC86304		67.2	0.03	0.01	1815	64	7460	108	88.4	2.9	4.1
NCSDC86304		66.7	0.03	0.01	1795	55	6820	101	85.9	2.6	3.3
NCSDC86304		66.3	0.03	0.01	1675	52	7190	103	85.1	2.3	3.0
NCSDC86304		63.1	0.03	0.01	1845	58	7210	105	82.3	2.6	4.1
NCSDC86304		64.0	0.03	0.01	1835	54	7430	119	88.3	2.5	3.4
NCSDC86304		68.2	0.03	0.02	1945	53	7540	109	76.7	2.0	2.8
NCSDC86304					1635	58	6600	106	84.3	2.9	4.3
NCSDC86304					1620	52	6820	106	84.0	2.7	3.1
NCSDC86304		65.7	0.03	0.01	1695	53	6970	106	83.3	2.6	3.4
NCSDC86304		65.9	0.03	0.01	1745	58	6900	129	83.3	2.3	4.0
Target Range - Lower Bound		59.6	<0.02	<0.01	1500	40	6120	82	75.7	1.4	2.0
Upper Bound		69.7	0.07	0.04	1835	66	7480	112	93.7	3.6	4.4
OREAS 603											
OREAS 603											
OREAS 603											
Target Range - Lower Bound											
Upper Bound											
OREAS-45e											
OREAS-45e											
OREAS-45e											
OREAS-45e											
OREAS-45e											
OREAS-45e											
Target Range - Lower Bound											
Upper Bound											
REE-1		67.8	0.64	0.20							
Target Range - Lower Bound		61.9	0.57	0.16							
Upper Bound		72.3	0.71	0.21							

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STANDARDS																
REE-1																
REE-1			6.93	0.02	3.26	<0.005	0.05	0.01	5.96	4.00	0.022	1.37	0.21	<0.005	0.12	0.03
REE-1			6.85	0.02	3.22	<0.005	0.06	0.01	5.98	3.78	0.023	1.43	0.20	<0.005	0.12	0.04
REE-1			6.75	0.01	3.33	<0.005	0.05	0.01	5.87	3.87	0.023	1.39	0.22	<0.005	0.12	0.04
REE-1			6.93	0.03	3.43	<0.005	0.05	0.01	6.10	3.76	0.021	1.53	0.22	<0.005	0.12	0.03
REE-1			6.67	0.03	3.16	<0.005	0.06	0.01	5.82	3.76	0.023	1.42	0.21	<0.005	0.11	0.02
REE-1			7.14	0.02	3.27	<0.005	0.04	0.02	6.23	3.95	0.024	1.46	0.21	<0.005	0.13	0.03
REE-1			6.90	0.02	3.41	<0.005	0.05	0.01	6.15	3.91	0.022	1.51	0.22	<0.005	0.13	0.03
REE-1																
REE-1			6.99	0.02	3.22	<0.005	0.06	0.01	6.16	3.90	0.023	1.49	0.21	<0.005	0.12	0.03
REE-1			6.71	<0.01	3.15	<0.005	0.04	0.01	5.93	3.84	0.023	1.39	0.21	<0.005	0.12	0.04
REE-1																
Target Range - Lower Bound			6.25	<0.01	2.97	<0.005	0.02	<0.01	5.49	3.43		1.36	0.18	<0.005	0.09	<0.01
Upper Bound			7.31	0.03	3.47	0.010	0.06	0.03	6.40	4.01		1.61	0.23	0.013	0.14	0.05
RTS-3a			9.95	0.01	3.05	0.014	0.04	0.24	28.7	0.58	0.003	3.82	0.20	<0.005	0.02	9.86
RTS-3a			9.70	0.02	2.97	0.013	0.03	0.24	28.4	0.58	0.005	3.90	0.20	0.005	0.02	10.10
RTS-3a			9.88	0.01	3.11	0.012	0.01	0.24	29.5	0.57	0.007	3.89	0.19	0.009	0.03	9.95
Target Range - Lower Bound			8.93	<0.01	2.76	<0.005	<0.01	0.21	27.1	0.50		3.80	0.18	<0.005	<0.01	8.86
Upper Bound			10.40	0.03	3.23	0.025	0.05	0.26	31.5	0.61		4.44	0.23	0.016	0.04	10.30
RTS-3a																
RTS-3a			9.66	0.02	3.18	0.010	0.04	0.24	28.4	0.55	0.006	3.81	0.20	0.006	0.01	10.00
RTS-3a			9.72	<0.01	2.98	0.015	0.03	0.23	28.6	0.66	0.002	3.91	0.19	<0.005	0.02	10.00
RTS-3a			10.00	<0.01	3.18	0.016	0.01	0.25	29.9	0.55	0.002	4.08	0.22	0.005	0.03	10.30
RTS-3a			10.15	0.01	3.12	0.014	0.01	0.25	29.9	0.58	0.004	4.01	0.21	0.006	0.03	10.10
RTS-3a			9.73	0.05	2.76	0.012	0.03	0.22	27.2	0.72	0.004	3.58	0.15	<0.005	0.01	8.90
RTS-3a			9.67	0.01	3.04	0.015	0.03	0.24	29.2	0.55	0.002	4.10	0.19	0.005	0.03	10.30
RTS-3a			9.43	<0.01	3.05	0.015	0.04	0.23	28.5	0.59	0.002	4.08	0.20	0.005	0.02	9.78
RTS-3a			10.35	<0.01	3.19	0.014	0.04	0.26	31.2	0.60	0.002	4.14	0.23	0.010	0.03	10.15
Target Range - Lower Bound			8.93	<0.01	2.76	<0.005	<0.01	0.21	27.1	0.50		3.80	0.18	<0.005	<0.01	8.86
Upper Bound			10.40	0.03	3.23	0.025	0.05	0.26	31.5	0.61		4.44	0.23	0.016	0.04	10.30

Comments: Total sample weighed in some instances as indicated in Wt. Sample column.

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



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**QC CERTIFICATE OF ANALYSIS AD17255506**

Sample Description	Method Analyte Units LOR	ME-ICP89	ME-ICP89	ME-ICP89	ME-MS91	ME-MS91	ME-MS91	ME-MS91	ME-MS91	ME-MS91
		SiO2	TiO2	Zn	Cs	Nb	Rb	Sn	Ta	Th
		%	%	%	ppm	ppm	ppm	ppm	ppm	ppm
		0.2	0.02	0.01	0.2	5	0.5	5	0.5	0.5
STANDARDS										
REE-1					1.1	>2500	996	532	220	763
REE-1		68.7	0.65	0.20	1.3	>2500	1005	532	210	745
REE-1		67.6	0.63	0.19	2.2	>2500	1075	502	226	757
REE-1		69.1	0.66	0.20	1.5	>2500	1130	533	242	743
REE-1		67.0	0.65	0.20	1.2	>2500	1110	510	234	728
REE-1		66.3	0.65	0.20	1.2	>2500	1055	472	223	785
REE-1		68.2	0.64	0.19	1.3	>2500	1120	527	237	783
REE-1		71.7	0.67	0.20	1.3	>2500	1050	498	196.5	715
REE-1					2.8	>2500	997	509	241	768
REE-1					8.5	>2500	1085	532	237	772
REE-1		70.4	0.63	0.20	2.3	>2500	1065	513	227	762
REE-1		67.6	0.65	0.19	1.5	>2500	1030	497	227	758
Target Range - Lower Bound		61.9	0.57	0.16	0.6	3640	942	443	207	647
Upper Bound		72.3	0.71	0.21	1.5	>2500	1150	553	255	791
RTS-3a		40.4	0.63	0.31						
RTS-3a		39.1	0.62	0.31						
RTS-3a		40.4	0.64	0.30						
Target Range - Lower Bound		36.0	0.58	0.26						
Upper Bound		42.2	0.72	0.32						
RTS-3a					3.3	9	14.8	265	1.0	0.9
RTS-3a		40.0	0.62	0.31	1.8	7	16.8	256	0.9	1.0
RTS-3a		40.0	0.61	0.29	0.7	6	12.8	235	<0.5	1.0
RTS-3a		40.9	0.63	0.31	0.5	5	13.7	262	<0.5	0.9
RTS-3a		40.6	0.63	0.31	9.4	8	20.9	282	1.2	1.0
RTS-3a		35.9	0.55	0.27	1.9	18	26.2	259	<0.5	1.0
RTS-3a		41.3	0.63	0.30	0.6	34	13.5	259	1.9	0.8
RTS-3a		39.8	0.62	0.31	0.2	18	13.4	259	<0.5	1.0
RTS-3a		42.1	0.70	0.32	1.1	6	16.3	287	<0.5	1.0
Target Range - Lower Bound		36.0	0.58	0.26	0.6	<5	13.4	233	<0.5	<0.5
Upper Bound		42.2	0.72	0.32	1.6	10	17.4	295	1.2	2.1

Comments: Total sample weighed in some instances as indicated in Wt. Sample column.

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## QC CERTIFICATE OF ANALYSIS AD17255506

Sample Description	Method Analyte Units LOR	Au-ICP22 ppm 0.001	ME-ICP89 Al2O3 % 0.02	ME-ICP89 As % 0.01	ME-ICP89 CaO % 0.01	ME-ICP89 Co % 0.005	ME-ICP89 Cr2O3 % 0.01	ME-ICP89 Cu % 0.01	ME-ICP89 Fe2O3 % 0.01	ME-ICP89 K2O % 0.01	ME-ICP89 Li % 0.001	ME-ICP89 MgO % 0.01	ME-ICP89 MnO % 0.01	ME-ICP89 Ni % 0.005	ME-ICP89 Pb % 0.01	ME-ICP89 S % 0.01
BLANKS																
BLANK		0.001														
BLANK		0.001														
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			0.08	<0.01	0.03	<0.005	<0.01	<0.01	<0.01	0.01	0.001	0.03	<0.01	<0.005	<0.01	<0.01
BLANK			0.02	0.01	0.01	<0.005	0.04	<0.01	0.21	<0.01	0.001	<0.01	<0.01	<0.005	<0.01	<0.01
Target Range - Lower Bound		<0.02			<0.01				<0.01	<0.01		<0.01				<0.01
Upper Bound		0.04			0.02				0.02	0.02		0.02				0.02
BLANK			0.06	<0.01	0.01	<0.005	0.01	<0.01	0.01	<0.01	0.001	0.03	<0.01	<0.005	<0.01	<0.01
BLANK			0.06	<0.01	0.11	<0.005	0.01	<0.01	<0.01	<0.01	0.001	0.07	<0.01	<0.005	<0.01	0.01
BLANK			0.04	<0.01	0.01	<0.005	0.01	<0.01	<0.01	0.01	0.001	0.02	<0.01	<0.005	<0.01	<0.01
BLANK			0.04	<0.01	0.04	<0.005	<0.01	0.01	0.04	<0.01	0.001	0.03	0.01	<0.005	0.01	0.02
BLANK			0.04	<0.01	0.07	<0.005	<0.01	0.01	<0.01	0.02	0.001	0.05	0.01	<0.005	0.01	0.01
BLANK			0.09	0.01	0.01	<0.005	<0.01	0.01	0.13	0.06	0.002	0.05	<0.01	<0.005	<0.01	<0.01
BLANK			0.02	<0.01	<0.01	<0.005	0.01	<0.01	0.04	0.01	<0.001	0.02	<0.01	<0.005	0.01	<0.01
BLANK																
BLANK																
BLANK			0.06	<0.01	0.03	<0.005	0.02	<0.01	0.14	0.07	0.001	0.03	<0.01	<0.005	<0.01	<0.01
BLANK			0.02	<0.01	<0.01	<0.005	<0.01	<0.01	<0.01	<0.01	0.001	0.02	<0.01	<0.005	<0.01	0.01
Target Range - Lower Bound		<0.02			<0.01				<0.01	<0.01		<0.01				<0.01
Upper Bound		0.04			0.02				0.02	0.02		0.02				0.02
DUPLICATES																
SC17383			11.90	<0.01	0.01	<0.005	0.01	<0.01	1.76	6.49	0.003	0.28	0.01	<0.005	0.01	<0.01
DUP			12.35	0.01	0.04	<0.005	0.03	<0.01	1.90	6.78	0.004	0.30	0.01	<0.005	0.01	<0.01
Target Range - Lower Bound			11.65	<0.01	<0.01	<0.005	<0.01	<0.01	1.75	6.38	0.002	0.27	<0.01	<0.005	<0.01	<0.01
Upper Bound			12.60	0.02	0.04	0.010	0.03	0.02	1.91	6.89	0.005	0.31	0.02	0.010	0.02	0.02

Comments: Total sample weighed in some instances as indicated in Wt. Sample column.

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





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**QC CERTIFICATE OF ANALYSIS AD17255506**

Sample Description	Method Analyte Units LOR	ME-ICP89 SiO2 %	ME-ICP89 TiO2 %	ME-ICP89 Zn %	ME-MS91 Cs ppm	ME-MS91 Nb ppm	ME-MS91 Rb ppm	ME-MS91 Sn ppm	ME-MS91 Ta ppm	ME-MS91 Th ppm	ME-MS91 U ppm
		0.2	0.02	0.01	0.2	5	0.5	5	0.5	0.5	0.5
BLANKS											
BLANK											
BLANK											
BLANK											
BLANK											
BLANK											
BLANK											
BLANK											
Target Range - Lower Bound											
Upper Bound											
BLANK		0.4	<0.02	<0.01							
BLANK		<0.2	<0.02	0.01							
Target Range - Lower Bound		<0.2	<0.02								
Upper Bound		0.4	0.04								
BLANK					0.2	7	<0.5	<5	<0.5	<0.5	<0.5
BLANK		0.4	<0.02	<0.01	0.3	8	0.5	<5	<0.5	<0.5	<0.5
BLANK		0.4	<0.02	<0.01	<0.2	<5	0.8	<5	<0.5	<0.5	<0.5
BLANK		0.6	<0.02	<0.01	0.2	19	0.7	<5	0.6	0.6	<0.5
BLANK		0.2	<0.02	<0.01	0.5	17	1.2	<5	0.6	<0.5	0.5
BLANK		<0.2	<0.02	0.05	<0.2	<5	<0.5	<5	<0.5	<0.5	<0.5
BLANK		0.2	<0.02	<0.01	<0.2	9	<0.5	9	<0.5	<0.5	0.5
BLANK		<0.2	<0.02	0.01	<0.2	5	1.2	<5	<0.5	<0.5	<0.5
BLANK					<0.2	17	1.3	<5	1.0	<0.5	1.5
BLANK					0.2	7	2.2	<5	<0.5	<0.5	0.7
BLANK		0.9	<0.02	<0.01	0.2	<5	2.1	<5	<0.5	<0.5	<0.5
BLANK		0.2	<0.02	<0.01	1.7	<5	2.9	<5	<0.5	<0.5	<0.5
Target Range - Lower Bound		<0.2	<0.02		<0.2	<5	<0.5	<5	<0.5	<0.5	<0.5
Upper Bound		0.4	0.04		0.4	10	1.0	10	1.0	1.0	1.0
DUPLICATES											
SC17383		77.2	0.25	<0.01	10.0	17	336	138	4.3	57.3	10.4
DUP		79.6	0.26	0.01	11.5	17	341	159	6.5	58.8	11.3
Target Range - Lower Bound		75.3	0.23	<0.01	10.4	12	325	147	4.4	54.2	9.7
Upper Bound		81.5	0.28	0.02	11.9	24	361	173	6.0	61.0	11.7

Comments: Total sample weighed in some instances as indicated in Wt. Sample column.

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## QC CERTIFICATE OF ANALYSIS AD17255506

Sample Description	Method Analyte Units LOR	Au-ICP22 Au ppm 0.001	ME-ICP89 Al2O3 % 0.02	ME-ICP89 As % 0.01	ME-ICP89 CaO % 0.01	ME-ICP89 Co % 0.005	ME-ICP89 Cr2O3 % 0.01	ME-ICP89 Cu % 0.01	ME-ICP89 Fe2O3 % 0.01	ME-ICP89 K2O % 0.01	ME-ICP89 Li % 0.001	ME-ICP89 MgO % 0.01	ME-ICP89 MnO % 0.01	ME-ICP89 Ni % 0.005	ME-ICP89 Pb % 0.01	ME-ICP89 S % 0.01
DUPLICATES																
SC17398 DUP																
Target Range - Lower Bound																
Upper Bound																
SC17402 DUP		10.35	<0.01	0.04	<0.005	0.02	<0.01	1.69	5.54	0.005	0.23	0.01	<0.005	0.01	<0.01	
Target Range - Lower Bound		10.75	<0.01	0.04	<0.005	0.02	<0.01	1.79	5.71	0.004	0.23	0.01	<0.005	0.01	<0.01	
Upper Bound		10.15	<0.01	0.03	<0.005	<0.01	<0.01	1.66	5.40	0.003	0.21	<0.01	<0.005	<0.01	<0.01	
		10.95	0.02	0.05	0.010	0.03	0.02	1.82	5.85	0.006	0.25	0.02	0.010	0.02	0.02	
SC17406 DUP		0.001														
Target Range - Lower Bound		<0.001														
Upper Bound		0.002														
SC17427 DUP		0.001														
Target Range - Lower Bound		<0.001														
Upper Bound		0.002														
SC17431 DUP		14.55	0.01	0.03	<0.005	0.02	<0.01	2.44	7.08	0.005	0.55	0.01	<0.005	<0.01	0.01	
Target Range - Lower Bound		14.60	0.01	0.03	<0.005	0.02	<0.01	2.44	7.07	0.005	0.54	0.01	<0.005	<0.01	<0.01	
Upper Bound		14.00	<0.01	0.02	<0.005	<0.01	<0.01	2.34	6.80	0.004	0.51	<0.01	<0.005	<0.01	<0.01	
		15.15	0.02	0.04	0.010	0.03	0.02	2.54	7.35	0.006	0.58	0.02	0.010	0.02	0.02	
SC17447 DUP		0.001														
Target Range - Lower Bound		<0.001														
Upper Bound		0.002														
SC17449 DUP		11.45	<0.01	0.06	<0.005	0.02	<0.01	1.84	5.84	0.004	0.27	<0.01	<0.005	0.01	<0.01	
Target Range - Lower Bound		11.30	<0.01	0.04	<0.005	0.02	<0.01	1.82	5.70	0.004	0.27	<0.01	<0.005	<0.01	<0.01	
Upper Bound		10.95	<0.01	0.04	<0.005	<0.01	<0.01	1.75	5.54	0.003	0.25	<0.01	<0.005	<0.01	<0.01	
		11.80	0.02	0.06	0.010	0.03	0.02	1.91	6.00	0.005	0.29	0.02	0.010	0.02	0.02	
SC17503 DUP		15.75	<0.01	0.06	<0.005	0.02	<0.01	3.07	5.22	0.003	0.45	0.01	<0.005	0.01	0.16	
Target Range - Lower Bound		15.30	0.01	0.08	<0.005	0.03	<0.01	3.00	5.29	0.003	0.43	0.01	<0.005	0.01	0.01	
Upper Bound		14.90	<0.01	0.06	<0.005	<0.01	<0.01	2.91	5.05	0.002	0.41	<0.01	<0.005	<0.01	0.07	
		16.15	0.02	0.08	0.010	0.04	0.02	3.16	5.46	0.004	0.47	0.02	0.010	0.02	0.10	

Comments: Total sample weighed in some instances as indicated in Wt. Sample column.

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## QC CERTIFICATE OF ANALYSIS AD17255506

Sample Description	Method Analyte Units LOR	ME-ICP89 SiO2 %	ME-ICP89 TiO2 %	ME-ICP89 Zn %	ME-MS91 Cs ppm	ME-MS91 Nb ppm	ME-MS91 Rb ppm	ME-MS91 Sn ppm	ME-MS91 Ta ppm	ME-MS91 Th ppm	ME-MS91 U ppm
		0.2	0.02	0.01	0.2	5	0.5	5	0.5	0.5	0.5
DUPLICATES											
SC17398					12.5	21	404	23	1.9	38.7	6.6
DUP					11.8	21	363	28	2.1	40.4	6.2
Target Range - Lower Bound					11.3	15	364	19	1.4	37.1	5.6
Upper Bound					13.0	27	403	32	2.6	42.0	7.2
SC17402		81.1	0.26	<0.01	16.6	22	302	477	13.3	34.8	7.1
DUP		82.4	0.27	<0.01	18.0	23	307	471	12.0	34.2	7.3
Target Range - Lower Bound		78.5	0.24	<0.01	16.2	16	289	445	11.5	32.3	6.3
Upper Bound		85.0	0.29	0.02	18.4	29	320	503	13.8	36.7	8.1
SC17406											
DUP											
Target Range - Lower Bound											
Upper Bound											
SC17427											
DUP											
Target Range - Lower Bound											
Upper Bound											
SC17431		73.8	0.30	<0.01	33.4	21	414	39	5.8	29.9	6.2
DUP		74.4	0.30	<0.01	25.4	20	371	37	2.6	33.7	7.1
Target Range - Lower Bound		71.1	0.27	<0.01	27.8	17	364	29	3.3	30.9	5.8
Upper Bound		77.1	0.33	0.02	31.1	29	403	43	4.7	35.3	7.5
SC17447											
DUP											
Target Range - Lower Bound											
Upper Bound											
SC17449		78.5	0.32	<0.01	13.5	21	344	72	3.8	80.5	14.2
DUP		77.4	0.31	<0.01	13.0	21	342	89	3.8	80.3	14.0
Target Range - Lower Bound		74.8	0.28	<0.01	12.4	15	325	71	3.1	75.9	12.9
Upper Bound		81.1	0.35	0.02	14.1	27	361	90	4.5	84.9	15.3
SC17503		70.6	0.39	<0.01	9.5	25	303	15	2.8	76.8	11.5
DUP		68.2	0.41	<0.01	9.4	24	306	13	3.5	76.4	11.3
Target Range - Lower Bound		66.6	0.37	<0.01	8.8	18	289	8	2.5	72.3	10.3
Upper Bound		72.2	0.44	0.02	10.1	31	320	20	3.8	80.9	12.5

Comments: Total sample weighed in some instances as indicated in Wt. Sample column.

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## QC CERTIFICATE OF ANALYSIS AD17255506

Sample Description	Method Analyte Units LOR	Au-ICP22 ppm	ME-ICP89 Al2O3 %	ME-ICP89 As %	ME-ICP89 CaO %	ME-ICP89 Co %	ME-ICP89 Cr2O3 %	ME-ICP89 Cu %	ME-ICP89 Fe2O3 %	ME-ICP89 K2O %	ME-ICP89 Li %	ME-ICP89 MgO %	ME-ICP89 MnO %	ME-ICP89 Ni %	ME-ICP89 Pb %	ME-ICP89 S %
		0.001	0.02	0.01	0.01	0.005	0.01	0.01	0.01	0.01	0.001	0.01	0.01	0.005	0.01	0.01
SC17517 DUP		0.001 0.002														
Target Range - Lower Bound		<0.001														
Upper Bound		0.002														
SC17521 DUP			11.25 10.85	0.01 <0.01	0.07 0.07	<0.005 <0.005	0.01 0.01	<0.01 <0.01	2.98 2.80	3.10 3.10	0.004 0.004	0.22 0.20	0.01 0.01	<0.005 <0.005	<0.01 <0.01	0.02 0.03
Target Range - Lower Bound			10.60	<0.01	0.06	<0.005	<0.01	<0.01	2.77	2.97	0.003	0.19	<0.01	<0.005	<0.01	<0.01
Upper Bound			11.50	0.02	0.08	0.010	0.02	0.02	3.01	3.23	0.005	0.23	0.02	0.010	0.02	0.04
SC17546 DUP		0.001 0.001														
Target Range - Lower Bound		<0.001														
Upper Bound		0.002														
SC17547 DUP			10.15 9.86	<0.01 <0.01	0.06 0.04	<0.005 <0.005	0.01 0.01	<0.01 <0.01	1.99 1.89	4.18 3.96	0.003 0.003	0.23 0.23	0.01 0.01	<0.005 <0.005	<0.01 <0.01	<0.01 <0.01
Target Range - Lower Bound			9.61	<0.01	0.04	<0.005	<0.01	<0.01	1.86	3.91	0.002	0.21	<0.01	<0.005	<0.01	<0.01
Upper Bound			10.40	0.02	0.06	0.010	0.02	0.02	2.02	4.23	0.004	0.25	0.02	0.010	0.02	0.02
SC17566 DUP			13.15 12.40	0.01 0.02	<0.01 0.03	<0.005 <0.005	0.01 0.01	<0.01 <0.01	2.26 2.14	7.28 7.12	0.004 0.004	0.36 0.35	0.01 0.01	<0.005 <0.005	<0.01 <0.01	<0.01 <0.01
Target Range - Lower Bound			12.30	<0.01	<0.01	<0.005	<0.01	<0.01	2.11	6.92	0.003	0.33	<0.01	<0.005	<0.01	<0.01
Upper Bound			13.25	0.02	0.03	0.010	0.02	0.02	2.29	7.48	0.005	0.38	0.02	0.010	0.02	0.02
SC17579 DUP		0.001 0.001														
Target Range - Lower Bound		<0.001														
Upper Bound		0.002														
SC17581 DUP			12.40 12.45	0.01 0.02	0.03 0.01	<0.005 <0.005	0.01 0.01	<0.01 <0.01	2.20 2.24	6.48 6.52	0.011 0.012	0.38 0.38	0.01 0.01	<0.005 <0.005	<0.01 0.01	0.02 <0.01
Target Range - Lower Bound			11.95	<0.01	<0.01	<0.005	<0.01	<0.01	2.13	6.25	0.010	0.36	<0.01	<0.005	<0.01	<0.01
Upper Bound			12.90	0.02	0.03	0.010	0.02	0.02	2.31	6.75	0.013	0.40	0.02	0.010	0.02	0.02
SC17599 DUP			9.60 9.60	<0.01 <0.01	0.06 0.08	<0.005 <0.005	<0.01 <0.01	0.01 0.01	2.56 2.60	3.12 3.17	0.004 0.004	0.35 0.35	0.03 0.03	<0.005 <0.005	0.01 0.01	<0.01 0.02
Target Range - Lower Bound			9.22	<0.01	0.06	<0.005	<0.01	<0.01	2.47	3.02	0.003	0.33	0.02	<0.005	<0.01	<0.01
Upper Bound			9.98	0.02	0.08	0.010	0.02	0.02	2.69	3.27	0.005	0.37	0.04	0.010	0.02	0.02

Comments: Total sample weighed in some instances as indicated in Wt. Sample column.

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



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## QC CERTIFICATE OF ANALYSIS AD17255506

Sample Description	Method Analyte Units LOR	ME-ICP89 SiO2 %	ME-ICP89 TiO2 %	ME-ICP89 Zn %	ME-MS91 Cs ppm	ME-MS91 Nb ppm	ME-MS91 Rb ppm	ME-MS91 Sn ppm	ME-MS91 Ta ppm	ME-MS91 Th ppm	ME-MS91 U ppm
		0.2	0.02	0.01	0.2	5	0.5	5	0.5	0.5	0.5
SC17517 DUP Target Range - Lower Bound Upper Bound		DUPLICATES									
SC17521 DUP Target Range - Lower Bound Upper Bound		79.2 75.9 74.4 80.7	0.39 0.40 0.36 0.43	<0.01 <0.01 <0.01 0.02	10.8 9.1 9.3 10.6	25 23 18 30	272 254 249 277	37 38 31 44	3.4 4.6 3.3 4.7	24.9 27.0 24.2 27.7	5.8 5.9 5.1 6.6
SC17546 DUP Target Range - Lower Bound Upper Bound											
SC17547 DUP Target Range - Lower Bound Upper Bound		76.6 75.3 72.9 79.0	0.31 0.29 0.27 0.33	<0.01 <0.01 <0.01 0.02	11.2 10.3 10.0 11.5	26 26 20 32	252 248 237 263	327 324 304 347	9.7 9.3 8.5 10.5	38.3 37.8 35.6 40.5	7.2 6.9 6.2 7.9
SC17566 DUP Target Range - Lower Bound Upper Bound		74.4 70.0 69.3 75.1	0.37 0.36 0.33 0.40	<0.01 <0.01 <0.01 0.02	15.9 18.1 16.0 18.1	23 24 17 30	371 382 357 396	213 197 190 220	4.8 5.1 4.2 5.7	74.3 70.8 68.4 76.7	8.4 8.1 7.3 9.2
SC17579 DUP Target Range - Lower Bound Upper Bound											
SC17581 DUP Target Range - Lower Bound Upper Bound		77.2 77.0 74.0 80.2	0.30 0.30 0.27 0.33	<0.01 <0.01 <0.01 0.02	122.5 126.5 118.0 131.0	33 31 25 39	471 471 447 495	346 355 328 373	24.7 28.8 24.9 28.6	41.8 42.9 39.7 45.0	7.6 8.0 6.9 8.7
SC17599 DUP Target Range - Lower Bound Upper Bound		83.4 82.4 79.6 86.2	0.37 0.37 0.34 0.40	<0.01 <0.01 <0.01 0.02	17.7 18.8 17.1 19.4	14 15 9 20	203 205 193.5 215	110 159 123 146	9.8 8.4 8.1 10.1	18.8 19.4 17.6 20.6	5.4 5.8 4.8 6.4

Comments: Total sample weighed in some instances as indicated in Wt. Sample column.

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



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## QC CERTIFICATE OF ANALYSIS AD17255506

Sample Description	Method Analyte Units LOR	Au-ICP22 Au ppm 0.001	ME-ICP89 Al2O3 % 0.02	ME-ICP89 As % 0.01	ME-ICP89 CaO % 0.01	ME-ICP89 Co % 0.005	ME-ICP89 Cr2O3 % 0.01	ME-ICP89 Cu % 0.01	ME-ICP89 Fe2O3 % 0.01	ME-ICP89 K2O % 0.01	ME-ICP89 Li % 0.001	ME-ICP89 MgO % 0.01	ME-ICP89 MnO % 0.01	ME-ICP89 Ni % 0.005	ME-ICP89 Pb % 0.01	ME-ICP89 S % 0.01
DUPLICATES																
SC17614			11.35	<0.01	0.07	<0.005	<0.01	0.01	2.10	4.88	0.004	0.27	0.03	<0.005	0.01	0.01
DUP			11.35	<0.01	0.04	<0.005	<0.01	0.01	2.14	4.91	0.004	0.27	0.03	<0.005	0.01	0.01
Target Range - Lower Bound			10.90	<0.01	0.04	<0.005	<0.01	<0.01	2.03	4.70	0.003	0.25	0.02	<0.005	<0.01	<0.01
Upper Bound			11.80	0.02	0.07	0.010	0.02	0.02	2.21	5.09	0.005	0.29	0.04	0.010	0.02	0.02
SC17632			15.40	<0.01	0.03	<0.005	<0.01	0.01	2.50	6.46	0.007	0.51	0.03	<0.005	0.01	<0.01
DUP			15.15	<0.01	0.03	<0.005	<0.01	0.01	2.44	6.44	0.007	0.51	0.01	<0.005	0.01	0.01
Target Range - Lower Bound			14.70	<0.01	0.02	<0.005	<0.01	<0.01	2.37	6.20	0.006	0.48	<0.01	<0.005	<0.01	<0.01
Upper Bound			15.85	0.02	0.04	0.010	0.02	0.02	2.57	6.70	0.008	0.54	0.03	0.010	0.02	0.02
SC17647			13.45	0.07	0.03	<0.005	0.06	0.01	2.44	6.44	0.006	0.41	<0.01	<0.005	<0.01	<0.01
DUP			13.00	<0.01	0.04	<0.005	<0.01	0.01	2.16	6.17	0.003	0.40	0.01	<0.005	0.02	<0.01
Target Range - Lower Bound			12.70	0.03	0.02	<0.005	0.02	<0.01	2.20	6.06	0.003	0.38	<0.01	<0.005	<0.01	<0.01
Upper Bound			13.75	0.05	0.05	0.010	0.05	0.02	2.40	6.55	0.006	0.43	0.02	0.010	0.02	0.02
SC17656		<0.001														
DUP		0.001														
Target Range - Lower Bound		<0.001														
Upper Bound		0.002														
SC17665			13.05	<0.01	0.03	<0.005	<0.01	<0.01	3.07	5.37	0.003	0.54	0.02	<0.005	<0.01	0.04
DUP			12.90	<0.01	0.03	<0.005	0.01	<0.01	3.13	5.37	0.004	0.53	0.02	<0.005	<0.01	<0.01
Target Range - Lower Bound			12.90	0.03	0.03	<0.005	<0.01	<0.01	3.08	4.92	0.004	0.52	<0.01	<0.005	<0.01	<0.01
Upper Bound			13.95	0.05	0.05	0.010	0.02	0.02	3.34	5.33	0.007	0.58	0.02	0.010	0.02	0.03
SC17681			11.90	<0.01	0.07	<0.005	<0.01	<0.01	2.95	4.04	0.011	0.47	0.02	<0.005	0.01	0.01
DUP			11.65	<0.01	0.08	<0.005	0.03	<0.01	3.13	4.18	0.011	0.47	0.02	0.007	<0.01	0.01
Target Range - Lower Bound			11.70	0.02	0.06	<0.005	<0.01	<0.01	3.00	3.86	0.011	0.46	<0.01	<0.005	<0.01	<0.01
Upper Bound			12.65	0.04	0.09	0.010	0.02	0.02	3.25	4.18	0.013	0.51	0.02	0.010	0.02	0.02
ORIGINAL			20.5	0.01	<0.01	<0.005	0.01	<0.01	0.67	0.71	0.030	0.02	0.14	<0.005	0.01	<0.01
DUP			20.4	<0.01	0.06	<0.005	0.01	<0.01	0.67	0.76	0.031	0.02	0.14	<0.005	<0.01	<0.01
Target Range - Lower Bound			19.65	<0.01	0.02	<0.005	<0.01	<0.01	0.63	0.70	0.028	<0.01	0.12	<0.005	<0.01	<0.01
Upper Bound			21.2	0.02	0.05	0.010	0.02	0.02	0.71	0.77	0.033	0.03	0.16	0.010	0.02	0.02
ORIGINAL			22.0	0.01	<0.01	<0.005	0.01	<0.01	0.79	1.96	0.040	0.05	0.08	<0.005	0.01	<0.01
DUP			22.5	<0.01	0.01	<0.005	0.01	<0.01	0.74	1.96	0.040	0.05	0.08	<0.005	0.01	0.01
Target Range - Lower Bound			21.4	<0.01	<0.01	<0.005	<0.01	<0.01	0.73	1.88	0.038	0.04	0.07	<0.005	<0.01	<0.01
Upper Bound			23.1	0.02	0.02	0.010	0.02	0.02	0.80	2.04	0.043	0.06	0.09	0.010	0.02	0.02

Comments: Total sample weighed in some instances as indicated in Wt. Sample column.

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



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## QC CERTIFICATE OF ANALYSIS AD17255506

Sample Description	Method Analyte Units LOR	ME-ICP89 SiO2 %	ME-ICP89 TiO2 %	ME-ICP89 Zn %	ME-MS91 Cs ppm	ME-MS91 Nb ppm	ME-MS91 Rb ppm	ME-MS91 Sn ppm	ME-MS91 Ta ppm	ME-MS91 Th ppm	ME-MS91 U ppm
		0.2	0.02	0.01	0.2	5	0.5	5	0.5	0.5	0.5
DUPLICATES											
SC17614		80.6	0.37	<0.01	18.6	21	277	48	4.0	36.9	6.0
DUP		80.9	0.37	<0.01	18.7	22	282	38	3.7	37.1	6.1
Target Range - Lower Bound		77.5	0.34	<0.01	17.5	15	265	36	3.2	34.7	5.2
Upper Bound		84.0	0.40	0.02	19.8	28	294	50	4.5	39.4	6.9
SC17632		73.6	0.30	<0.01	55.2	21	415	199	6.0	32.3	6.7
DUP		72.3	0.29	<0.01	54.1	22	403	195	6.4	32.0	6.8
Target Range - Lower Bound		70.0	0.26	<0.01	51.7	15	388	182	5.4	30.0	5.9
Upper Bound		75.9	0.33	0.02	57.6	28	430	212	7.0	34.3	7.6
SC17647		74.2	0.24	<0.01	21.3	30	377	103	5.5	32.9	9.6
DUP		75.5	0.26	<0.01	20.4	19	374	106	4.9	30.6	6.3
Target Range - Lower Bound		71.8	0.22	<0.01	19.6	18	356	94	4.4	29.7	7.1
Upper Bound		77.9	0.28	0.02	22.1	31	395	115	6.0	33.8	8.8
SC17656											
DUP											
Target Range - Lower Bound											
Upper Bound											
SC17665		75.1	0.35	<0.01	20.3	16	300	71	5.4	33.2	8.1
DUP		73.6	0.35	<0.01	21.2	22	299	73	5.3	33.1	8.3
Target Range - Lower Bound		71.1	0.31	<0.01	16.4	18	243	70	5.2	31.5	7.7
Upper Bound		77.1	0.38	0.02	18.6	31	269	88	6.8	35.9	9.6
SC17681		70.0	0.39	<0.01	46.8	30	320	353	11.0	18.1	5.1
DUP		68.2	0.39	<0.01	47.3	31	335	349	11.5	18.3	5.5
Target Range - Lower Bound		66.7	0.35	<0.01	43.8	27	291	338	10.7	17.1	4.8
Upper Bound		72.3	0.42	0.02	48.8	41	323	384	12.9	20.0	6.4
ORIGINAL		74.4	<0.02	0.01	41.0	40	257	72	13.7	1.2	3.6
DUP		73.8	<0.02	0.02	41.0	31	257	59	20.0	1.1	3.6
Target Range - Lower Bound		71.1	<0.02	<0.01	38.8	29	244	57	15.5	0.6	2.9
Upper Bound		77.1	0.04	0.02	43.3	42	270	74	18.2	1.7	4.3
ORIGINAL		70.4	0.02	0.01	104.0	76	566	130	27.9	5.0	3.5
DUP		71.7	0.02	0.01	103.5	51	553	135	30.5	4.5	3.5
Target Range - Lower Bound		68.2	<0.02	<0.01	98.4	55	531	121	27.2	4.0	2.8
Upper Bound		73.9	0.04	0.02	109.0	72	588	144	31.2	5.5	4.2

Comments: Total sample weighed in some instances as indicated in Wt. Sample column.

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## QC CERTIFICATE OF ANALYSIS AD17255506

Sample Description	Method Analyte Units LOR	Au-ICP22 Au ppm	ME-ICP89 Al2O3 %	ME-ICP89 As %	ME-ICP89 CaO %	ME-ICP89 Co %	ME-ICP89 Cr2O3 %	ME-ICP89 Cu %	ME-ICP89 Fe2O3 %	ME-ICP89 K2O %	ME-ICP89 Li %	ME-ICP89 MgO %	ME-ICP89 MnO %	ME-ICP89 Ni %	ME-ICP89 Pb %	ME-ICP89 S %
		0.001	0.02	0.01	0.01	0.005	0.01	0.01	0.01	0.01	0.001	0.01	0.01	0.005	0.01	0.01
ORIGINAL		0.001														
DUP		0.004														
Target Range - Lower Bound		<0.001														
Upper Bound		0.004														
ORIGINAL		0.001														
DUP		<0.001														
Target Range - Lower Bound		<0.001														
Upper Bound		0.002														
ORIGINAL		0.002														
DUP		<0.001														
Target Range - Lower Bound		<0.001														
Upper Bound		0.002														
ORIGINAL		0.072														
DUP		0.077														
Target Range - Lower Bound		0.070														
Upper Bound		0.079														
ORIGINAL		16.15	0.01	0.20	<0.005	<0.01	0.01	1.72	0.81	1.485	0.02	0.19	<0.005	<0.01	<0.01	
DUP		14.85	<0.01	0.20	<0.005	<0.01	0.01	1.66	0.80	1.345	0.02	0.18	<0.005	<0.01	<0.01	
Target Range - Lower Bound		14.90	<0.01	0.18	<0.005	<0.01	<0.01	1.62	0.76	1.360	<0.01	0.17	<0.005	<0.01	<0.01	
Upper Bound		16.10	0.02	0.22	0.010	0.02	0.02	1.76	0.85	1.470	0.03	0.20	0.010	0.02	0.02	
ORIGINAL		16.20	0.01	0.06	<0.005	0.01	<0.01	1.66	1.49	0.898	0.02	0.06	<0.005	0.01	<0.01	
DUP		16.35	0.02	0.07	<0.005	<0.01	<0.01	1.57	1.46	0.899	0.01	0.06	<0.005	0.01	<0.01	
Target Range - Lower Bound		15.65	<0.01	0.05	<0.005	<0.01	<0.01	1.54	1.41	0.864	<0.01	0.05	<0.005	<0.01	<0.01	
Upper Bound		16.90	0.02	0.08	0.010	0.02	0.02	1.69	1.54	0.933	0.02	0.07	0.010	0.02	0.02	
ORIGINAL		0.002														
DUP		0.001														
Target Range - Lower Bound		<0.001														
Upper Bound		0.002														
ORIGINAL		0.009														
DUP		0.009														
Target Range - Lower Bound		0.008														
Upper Bound		0.010														

Comments: Total sample weighed in some instances as indicated in Wt. Sample column.

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**QC CERTIFICATE OF ANALYSIS AD17255506**

Sample Description	Method Analyte Units LOR	ME-ICP89 SiO2 %	ME-ICP89 TiO2 %	ME-ICP89 Zn %	ME-MS91 Cs ppm	ME-MS91 Nb ppm	ME-MS91 Rb ppm	ME-MS91 Sn ppm	ME-MS91 Ta ppm	ME-MS91 Th ppm	ME-MS91 U ppm
		0.2	0.02	0.01	0.2	5	0.5	5	0.5	0.5	0.5
ORIGINAL DUP Target Range - Lower Bound Upper Bound		DUPLICATES									
ORIGINAL 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		76.6 68.5 69.6 75.5	<0.02 <0.02 <0.02 0.04	0.03 <0.01 <0.01 0.03							
ORIGINAL DUP Target Range - Lower Bound Upper Bound		74.0 77.0 72.5 78.5	<0.02 <0.02 <0.02 0.04	0.01 <0.01 <0.01 0.02							
ORIGINAL DUP Target Range - Lower Bound Upper Bound											
ORIGINAL DUP Target Range - Lower Bound Upper Bound											

Comments: Total sample weighed in some instances as indicated in Wt. Sample column.

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**QC CERTIFICATE OF ANALYSIS AD17255506**

Sample Description	Method Analyte Units LOR	Au-ICP22 Au ppm 0.001	ME-ICP89 Al2O3 % 0.02	ME-ICP89 As % 0.01	ME-ICP89 CaO % 0.01	ME-ICP89 Co % 0.005	ME-ICP89 Cr2O3 % 0.01	ME-ICP89 Cu % 0.01	ME-ICP89 Fe2O3 % 0.01	ME-ICP89 K2O % 0.01	ME-ICP89 Li % 0.001	ME-ICP89 MgO % 0.01	ME-ICP89 MnO % 0.01	ME-ICP89 Ni % 0.005	ME-ICP89 Pb % 0.01	ME-ICP89 S % 0.01
DUPLICATES																
ORIGINAL		0.001														
DUP		<0.001														
Target Range - Lower Bound		<0.001														
Upper Bound		0.002														
ORIGINAL		0.002														
DUP		0.002														
Target Range - Lower Bound		<0.001														
Upper Bound		0.003														
ORIGINAL		0.003														
DUP		0.005														
Target Range - Lower Bound		0.003														
Upper Bound		0.005														
ORIGINAL		0.004														
DUP		0.003														
Target Range - Lower Bound		0.002														
Upper Bound		0.005														
ORIGINAL		0.003														
DUP		0.004														
Target Range - Lower Bound		0.002														
Upper Bound		0.005														

Comments: Total sample weighed in some instances as indicated in Wt. Sample column.

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



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No: 825, Corporate Site No: 23001.

Project: SC17-07

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Plus Appendix Pages  
Finalized Date: 28-DEC-2017  
Account: TODRIV

**QC CERTIFICATE OF ANALYSIS AD17255506**

Sample Description	Method	ME-ICP89	ME-ICP89	ME-ICP89	ME-MS91	ME-MS91	ME-MS91	ME-MS91	ME-MS91	ME-MS91	ME-MS91
	Analyte	SiO2	TiO2	Zn	Cs	Nb	Rb	Sn	Ta	Th	U
	Units	%	%	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm
	LOR	0.2	0.02	0.01	0.2	5	0.5	5	0.5	0.5	0.5
ORIGINAL DUP Target Range - Lower Bound Upper Bound	DUPLICATES										
ORIGINAL 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											
ORIGINAL DUP Target Range - Lower Bound Upper Bound											

Comments: Total sample weighed in some instances as indicated in Wt. Sample column.

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



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Page: Appendix 1  
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Finalized Date: 28-DEC-2017  
Account: TODRIV

**QC CERTIFICATE OF ANALYSIS AD17255506**

	CERTIFICATE COMMENTS
	<b>ANALYTICAL COMMENTS</b>
Applies to Method:	NSS is non-sufficient sample. ALL METHODS
	<b>ACCREDITATION COMMENTS</b>
Applies to Method:	NATA Accredited. Corporate Accreditation No: 825, Corporate Site No: 23001. The Technical Signatory is Wendy Wong, Senior QC Chemist. Au-ICP22
	<b>LABORATORY ADDRESSES</b>
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-ICP89 ME-MS91
Applies to Method:	Processed at ALS Adelaide located at Unit 1, 1 Burma Road, Pooraka, Adelaide, SA, Australia. LEV-01 LOG-22 LOG-24 PUL-31 PUL-QC WEI-21