



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.

CERTIFICATE PH18255907

Project: THOMAS CREEK

This report is for 31 Soil samples submitted to our lab in Burnie, TAS, Australia on
5-OCT-2018.

The following have access to data associated with this certificate:

PETER REID

ANDY RUST

SAMPLE PREPARATION

ALS CODE	DESCRIPTION
WEI-21	Received Sample Weight
LEV-01	Waste Disposal Levy
PUL-311	Pulverize 250g soil to 85% < 75um
BAG-01	Bulk Master for Storage
SPL-21	Split sample - riffle splitter
LOG-22	Sample login - Rcd w/o BarCode
PUL-QC	Pulverizing QC Test

ANALYTICAL PROCEDURES

ALS CODE	DESCRIPTION
ME-MS61	48 element four acid ICP-MS
Au-ICP21	Au 30g FA ICP-AES Finish ICP-AES

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Plus Appendix Pages
Finalized Date: 30-OCT-2018
Account: ACCELE

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: Samples (use the IDs provided in the issue) were damaged upon receipt, rebagged and client informed.

Signature:

Cameron Brosnan, Laboratory Manager, Perth



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CERTIFICATE OF ANALYSIS PH18255907

Sample Description	Method Analyte Units LOD	WEI-21 Recvd Wt. kg 0.02	PUL-QC Pass75um % 0.01	Au-ICP21 Au ppm 0.001	ME-MS61 Ag ppm 0.01	ME-MS61 Al % 0.01	ME-MS61 As ppm 0.2	ME-MS61 Ba ppm 10	ME-MS61 Be ppm 0.05	ME-MS61 Bi ppm 0.01	ME-MS61 Ca % 0.01	ME-MS61 Cd ppm 0.02	ME-MS61 Ce ppm 0.01	ME-MS61 Co ppm 0.1	ME-MS61 Cr ppm 1	ME-MS61 Cs ppm 0.05
TC65		0.18	96.0	0.026	0.06	6.79	16.9	150	1.79	2.05	0.11	<0.02	8.14	3.6	298	1.18
TC66		0.29		0.006	0.01	10.30	11.5	100	0.86	0.18	0.05	<0.02	18.80	4.7	359	1.91
TC67		0.24		0.013	0.01	9.59	6.0	410	0.66	0.77	0.04	<0.02	12.50	4.8	230	1.64
TC68		0.31		<0.001	0.02	6.43	13.1	540	1.02	0.38	0.26	<0.02	88.0	11.2	354	1.19
TC69		0.27		0.002	0.02	9.22	14.4	990	0.93	0.70	0.12	<0.02	61.8	5.1	46	2.17
TC70		0.32		0.001	0.01	6.62	2.3	320	0.61	0.12	0.08	<0.02	43.5	1.7	69	2.05
TC71		0.57		0.025	0.07	9.21	5.1	1400	0.64	0.25	0.07	<0.02	184.5	2.5	138	1.11
TC72		0.58		0.070	0.30	9.31	8.3	560	0.84	0.24	0.09	<0.02	11.50	43.4	90	2.35
TC73		0.41		0.006	0.02	7.70	5.3	260	0.84	0.12	0.09	<0.02	71.9	19.4	67	2.56
TC74		0.32		0.007	0.02	4.52	2.5	470	0.37	0.09	0.17	0.02	24.1	2.4	61	1.48
TC75		0.41		0.025	0.03	4.54	2.2	710	0.46	0.10	0.09	0.02	30.8	2.8	80	1.90
TC76		0.23		0.001	0.01	7.74	10.9	620	1.27	0.11	0.06	<0.02	231	0.3	32	5.62
TC77		0.39		0.002	0.03	7.58	4.6	610	0.79	0.54	0.06	<0.02	149.5	0.6	125	5.42
TC78		0.17		0.004	0.01	0.45	0.8	50	0.10	0.04	0.10	0.02	8.78	0.7	20	0.22
TC79		0.24		0.002	0.02	0.88	1.2	50	0.19	0.06	0.08	0.03	12.35	0.7	24	0.58
TC80		0.24		0.012	0.03	5.15	2.0	1200	0.36	0.16	0.09	<0.02	43.7	1.3	53	2.22
TC81		0.29		0.017	0.01	11.05	46.2	50	1.17	0.24	0.35	<0.02	14.45	36.7	28	1.24
TC82		0.39		0.003	0.03	7.85	21.2	160	0.77	0.29	0.08	0.02	40.7	14.5	102	4.85
TC83		0.26		0.005	0.02	8.03	26.7	490	0.96	0.32	0.38	0.03	140.0	56.4	272	1.56
TC84		0.49		0.006	0.03	5.73	39.9	630	0.78	0.31	0.17	0.07	157.5	22.4	98	0.96
TC85		0.30		0.002	0.01	9.30	22.4	90	0.51	0.20	0.02	<0.02	5.57	17.0	190	1.05
TC86		0.27		0.004	0.01	6.48	9.6	110	0.27	0.32	0.04	0.02	18.30	5.6	82	1.75
TC87		0.34		0.009	0.08	3.36	4.4	550	0.33	0.14	0.18	<0.02	54.5	3.0	55	1.27
TC88		0.29		0.002	0.05	4.66	18.3	90	0.37	0.29	0.05	<0.02	24.5	3.8	380	4.26
TC89		0.33		0.003	0.04	6.87	26.6	490	0.36	0.66	0.59	<0.02	15.35	8.6	183	1.85
TC90		0.32		0.003	0.05	6.49	17.9	590	0.35	0.71	0.61	<0.02	7.41	16.3	209	0.91
TC91		0.15		0.005	0.03	0.63	1.5	120	0.13	0.04	0.11	0.03	7.53	0.7	24	0.21
TC92		0.15		NSS	0.03	0.44	1.5	50	0.06	0.06	0.18	0.04	2.73	0.8	11	0.11
TC93		0.13		NSS	0.01	0.24	0.8	20	<0.05	0.04	0.04	0.03	1.33	0.5	6	<0.05
TC94		0.17		NSS	0.01	0.10	0.6	10	<0.05	0.02	0.05	0.04	0.78	0.1	2	<0.05
TC229		0.14		0.001	0.01	7.27	18.5	200	0.42	0.30	0.09	<0.02	12.85	13.5	156	2.14

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CERTIFICATE OF ANALYSIS PH18255907

Sample Description	Method Analyte Units LOD	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61
		Cu	Fe	Ga	Ge	Hf	In	K	La	Li	Mg	Mn	Mo	Na	Nb
		ppm	%	ppm	ppm	ppm	ppm	%	ppm	ppm	%	ppm	ppm	%	ppm
		0.2	0.01	0.05	0.05	0.1	0.005	0.01	0.5	0.2	0.01	5	0.05	0.01	0.1
TC65		129.5	9.24	19.85	0.11	4.2	0.125	1.01	4.0	6.6	0.90	38	44.4	0.30	6.3
TC66		383	6.40	20.6	0.68	4.9	0.045	0.85	17.3	16.5	0.33	106	1.28	0.03	9.7
TC67		259	5.53	20.6	0.67	5.4	0.122	2.15	6.0	23.2	1.41	213	1.72	0.05	8.9
TC68		31.8	10.05	21.4	0.31	5.3	0.075	1.83	44.4	23.9	2.05	552	1.61	0.66	9.5
TC69		121.0	7.06	24.7	0.31	7.2	0.128	2.97	35.3	31.9	1.70	689	3.35	0.14	12.3
TC70		19.4	0.66	10.30	<0.05	4.3	0.018	1.34	23.9	9.0	0.20	60	2.22	1.27	8.8
TC71		165.5	1.21	13.65	0.21	4.7	0.040	4.14	96.9	8.5	0.50	106	1.29	2.04	12.0
TC72		298	3.24	21.3	0.22	5.2	0.051	2.74	5.7	40.6	2.30	578	0.61	0.75	8.1
TC73		93.8	2.64	17.10	0.18	3.6	0.022	1.90	33.9	21.8	1.35	199	1.14	0.59	8.8
TC74		26.5	1.41	8.26	<0.05	5.0	0.014	1.48	13.7	6.0	0.19	102	2.43	1.24	7.3
TC75		67.8	0.94	8.69	<0.05	5.3	0.017	1.88	16.7	7.5	0.30	93	2.78	0.93	7.9
TC76		6.9	0.67	21.7	0.20	4.0	0.045	2.58	120.0	24.9	1.12	39	0.50	0.06	3.3
TC77		7.6	0.79	14.25	0.19	4.2	0.030	2.72	83.0	10.2	0.78	89	0.50	0.09	5.4
TC78		6.1	0.79	1.03	<0.05	2.3	<0.005	0.12	4.8	2.5	0.13	92	1.65	0.07	3.2
TC79		12.9	0.68	2.02	<0.05	2.6	0.008	0.15	6.8	2.8	0.11	78	2.14	0.09	4.6
TC80		29.2	0.64	7.61	0.08	4.0	0.014	2.09	24.1	3.7	0.21	86	9.72	0.63	6.8
TC81		775	19.85	31.7	1.39	2.8	0.170	0.52	5.8	35.8	0.83	205	0.52	0.02	6.4
TC82		125.5	8.80	16.60	0.31	2.4	0.102	1.45	18.8	28.2	0.45	80	1.13	0.09	8.4
TC83		879	14.40	23.0	0.63	1.2	0.208	1.86	56.5	82.4	1.99	457	9.88	0.15	4.2
TC84		456	17.25	19.25	0.56	1.5	0.088	1.38	75.5	47.8	1.20	207	0.80	0.04	2.8
TC85		137.0	21.2	20.8	0.77	3.1	0.056	0.40	2.1	45.2	1.12	169	0.48	0.03	7.5
TC86		51.7	7.62	16.90	0.14	3.5	0.043	0.39	9.5	13.0	0.39	77	1.11	0.05	11.2
TC87		45.3	1.22	7.09	0.08	3.6	0.018	1.46	30.5	11.6	0.26	88	0.59	0.63	5.2
TC88		47.0	3.26	9.82	0.12	1.4	0.034	0.85	12.6	17.1	0.20	51	0.55	0.05	6.5
TC89		85.4	11.35	20.7	0.40	2.6	0.242	1.61	8.5	27.7	0.73	222	3.09	0.31	8.5
TC90		95.1	13.15	16.95	0.43	1.9	0.281	1.67	4.2	27.5	0.98	337	1.61	0.17	5.0
TC91		6.3	0.73	1.42	<0.05	2.6	0.006	0.25	3.9	4.0	0.12	72	1.40	0.09	4.1
TC92		6.4	0.57	1.16	<0.05	0.6	0.012	0.10	1.5	1.7	0.18	28	0.67	0.07	1.3
TC93		4.2	0.37	0.58	<0.05	0.1	0.009	0.06	0.8	0.8	0.18	13	0.22	0.05	0.5
TC94		2.0	0.10	0.24	<0.05	0.1	<0.005	0.02	0.5	0.3	0.17	5	0.29	0.05	0.2
TC229		103.5	16.85	17.05	0.72	3.1	0.058	0.87	6.6	30.0	0.80	157	0.96	0.07	7.4

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CERTIFICATE OF ANALYSIS PH18255907

Sample Description	Method Analyte Units LOD	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61
		P	Pb	Rb	Re	S	Sb	Sc	Se	Sn	Sr	Ta	Te	Th	Ti	Tl
		ppm 10	ppm 0.5	ppm 0.1	ppm 0.002	% 0.01	ppm 0.05	ppm 0.1	ppm 1	ppm 0.2	ppm 0.2	ppm 0.05	ppm 0.05	ppm 0.01	% 0.005	ppm 0.02
TC65		170	7.2	77.8	<0.002	0.05	3.38	39.4	3	16.4	27.6	0.63	2.43	15.95	0.308	0.15
TC66		370	11.8	73.5	<0.002	0.03	1.68	21.3	2	3.1	14.3	0.74	0.16	24.0	0.383	0.16
TC67		170	14.5	134.0	<0.002	0.03	1.63	19.6	2	4.3	15.8	0.75	0.31	17.40	0.377	0.30
TC68		220	30.7	101.0	<0.002	0.02	1.54	17.8	<1	2.7	55.8	0.81	0.19	15.05	0.345	0.25
TC69		260	12.4	168.0	<0.002	0.03	2.42	11.0	1	4.8	62.7	1.24	0.23	15.05	0.448	0.39
TC70		50	3.7	76.8	<0.002	0.03	0.58	11.7	<1	4.3	49.1	0.71	<0.05	5.28	0.443	0.19
TC71		190	3.1	199.0	<0.002	0.05	0.80	9.8	1	4.3	143.5	0.68	0.13	10.95	0.416	0.51
TC72		120	11.5	175.5	<0.002	0.22	1.86	24.2	1	1.9	88.1	0.73	0.08	12.20	0.452	0.50
TC73		110	5.2	145.5	<0.002	0.05	0.67	23.1	<1	2.0	89.8	0.62	<0.05	8.97	0.451	0.31
TC74		140	4.4	66.4	<0.002	0.07	0.94	9.7	1	2.3	66.8	0.62	<0.05	4.95	0.381	0.17
TC75		90	3.7	73.8	<0.002	0.07	0.94	12.4	<1	2.9	60.5	0.64	<0.05	5.33	0.384	0.18
TC76		140	2.6	79.6	<0.002	0.04	1.22	11.3	<1	0.5	110.0	0.29	<0.05	13.20	0.178	0.47
TC77		100	2.3	83.2	<0.002	0.06	0.87	33.3	1	0.8	31.2	0.45	0.09	10.70	0.275	0.25
TC78		80	3.6	4.1	<0.002	0.20	0.48	3.1	1	0.5	19.6	0.25	<0.05	1.72	0.164	0.02
TC79		100	5.2	7.4	<0.002	0.18	0.55	4.5	1	0.7	18.3	0.38	<0.05	2.63	0.233	0.03
TC80		100	5.2	64.1	0.002	0.08	0.67	12.2	1	1.5	52.9	0.50	<0.05	5.18	0.315	0.17
TC81		1550	5.8	29.6	<0.002	0.05	16.00	30.0	4	3.6	48.3	0.44	0.05	47.5	0.457	0.10
TC82		420	5.2	82.7	<0.002	0.03	16.15	16.4	2	2.6	22.8	0.71	<0.05	10.35	0.385	0.24
TC83		1750	3.2	86.0	0.008	0.05	3.95	36.8	4	1.7	86.2	0.30	<0.05	30.0	0.260	0.22
TC84		1230	43.4	40.7	<0.002	0.05	5.74	17.7	4	4.0	75.9	0.23	<0.05	58.6	0.246	0.11
TC85		520	5.2	25.1	<0.002	0.05	4.11	27.6	4	2.1	8.5	0.45	0.05	29.5	0.302	0.10
TC86		190	5.2	24.6	<0.002	0.04	3.69	18.9	2	2.4	16.3	0.74	<0.05	8.12	0.548	0.08
TC87		130	4.1	52.7	<0.002	0.06	52.4	8.8	1	2.6	64.9	0.46	<0.05	5.16	0.302	0.13
TC88		140	6.1	54.0	<0.002	0.07	10.10	20.5	1	3.9	17.0	0.48	<0.05	4.81	0.485	0.13
TC89		130	13.6	60.4	<0.002	0.06	2.58	15.6	3	3.4	72.1	0.72	<0.05	5.79	0.595	0.21
TC90		160	18.2	58.4	<0.002	0.06	2.31	15.9	3	2.2	92.2	0.44	<0.05	4.48	0.432	0.15
TC91		90	3.9	8.5	<0.002	0.19	0.67	3.9	1	0.9	23.1	0.33	<0.05	2.77	0.216	0.02
TC92		80	3.7	3.5	<0.002	0.36	0.22	1.6	2	0.2	32.9	0.11	<0.05	0.94	0.069	0.02
TC93		60	1.8	1.8	<0.002	0.15	0.13	0.6	2	<0.2	16.8	<0.05	<0.05	0.44	0.026	<0.02
TC94		50	1.5	0.6	<0.002	0.20	<0.05	0.3	2	<0.2	27.5	<0.05	<0.05	0.27	0.011	<0.02
TC229		240	5.9	49.1	<0.002	0.04	3.92	18.0	4	1.7	22.6	0.53	0.06	18.95	0.390	0.13

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Sample Description	Method Analyte Units LOD	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61
		U	V	W	Y	Zn	Zr
		ppm 0.1	ppm 1	ppm 0.1	ppm 0.1	ppm 2	ppm 0.5
TC65		7.3	253	18.9	12.4	9	138.0
TC66		7.6	224	2.3	9.1	27	165.0
TC67		7.2	199	6.5	8.9	25	178.0
TC68		5.9	170	1.9	14.5	47	177.0
TC69		9.8	173	5.5	16.8	52	248
TC70		3.7	100	8.3	9.5	6	155.5
TC71		5.3	119	5.9	29.7	11	166.5
TC72		5.7	338	2.4	8.9	73	171.5
TC73		3.3	332	1.8	19.0	27	124.0
TC74		3.0	81	2.2	6.7	14	190.5
TC75		3.2	94	3.3	8.1	15	197.0
TC76		3.2	53	5.2	22.1	15	144.0
TC77		2.9	259	8.5	15.9	10	146.5
TC78		1.0	21	1.2	2.5	24	85.8
TC79		1.3	31	1.5	4.2	28	95.6
TC80		2.6	81	6.2	10.3	16	148.0
TC81		7.9	725	12.9	14.7	50	95.8
TC82		2.2	323	9.3	10.7	32	80.8
TC83		3.2	446	10.9	24.3	71	32.1
TC84		4.4	672	18.4	29.0	38	47.9
TC85		4.0	301	3.7	10.5	20	107.0
TC86		2.5	251	6.9	8.1	11	127.0
TC87		2.0	76	3.7	6.8	8	138.0
TC88		2.7	158	15.8	12.2	20	44.8
TC89		2.4	283	8.0	6.8	29	94.1
TC90		1.8	250	7.2	5.3	36	69.1
TC91		1.3	25	1.8	3.5	25	98.6
TC92		0.4	16	1.6	1.2	28	24.6
TC93		0.2	8	0.2	0.5	30	5.6
TC94		0.2	2	0.1	0.3	16	2.9
TC229		3.4	288	4.6	7.5	13	103.5

Comments: Samples (use the IDs provided in the issue) were damaged upon receipt, rebagged and client informed.

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



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

Project: THOMAS CREEK

Page: Appendix 1
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Finalized Date: 30-OCT-2018
Account: ACCELE

CERTIFICATE OF ANALYSIS PH18255907

CERTIFICATE COMMENTS

ANALYTICAL COMMENTS

Applies to Method: NSS is non-sufficient sample.
ALL METHODS

Applies to Method: REE's may not be totally soluble in this method.
ME-MS61

ACCREDITATION COMMENTS

Applies to Method: NATA Accreditation covers the performance of this service but does not cover the performance of ALS Perth Sample Preparation. Corporate Accreditation No: 825, Corporate Site No: 23001. The Technical Signatory is Wendy Wong, Senior QC Chemist
Au-ICP21 ME-MS61

LABORATORY ADDRESSES

Applies to Method: Processed at ALS Perth located at 31 Denninup Way, Malaga, Australia. Processed at ALS Perth Sample Preparation at 79 Distinction Road, Wangara, WA, Australia

Au-ICP21	BAG-01	LEV-01	LOG-22
ME-MS61	PUL-31I	PUL-QC	SPL-21
WEI-21			