



Australian Laboratory Services Pty. Ltd.

32 Shand Street
Stafford
Brisbane QLD 4053
Phone: +61 (7) 3243 7222 Fax: +61 (7) 3243 7218
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Accreditation No: 825, Corporate Site No: 818.

CERTIFICATE MI17111790

Project: MRM

P.O. No.: MRXDOB

This report is for 49 Soil samples submitted to our lab in Mount Isa, QLD, Australia
on 6-JUN-2017.

The following have access to data associated with this certificate:

MRM GEOLOGY

To: **MCARTHUR RIVER MINING PTY LTD**
ATTN: MRM GEOLOGY
PO BOX 36821
WINNELLE NT 0821

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 *****

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Plus Appendix Pages
Finalized Date: 20-JUN-2017
Account: MCARIV

SAMPLE PREPARATION

ALS CODE	DESCRIPTION
WEI-21	Received Sample Weight
PUL-32	Pulverize 1000g to 85% < 75 um
PUL-QC	Pulverizing QC Test
LOG-22	Sample login - Rcd w/o BarCode
LEV-01	Waste Disposal Levy
SPL-21	Split sample - riffle splitter
BAG-01	Bulk Master for Storage

ANALYTICAL PROCEDURES

ALS CODE	DESCRIPTION	INSTRUMENT
ME-ICP61	33 element four acid ICP-AES	ICP-AES

Signature:

Shaun Kenny, Brisbane Laboratory Manager



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CERTIFICATE OF ANALYSIS MI17111790

Sample Description	Method Analyte Units LOR	WEI-21 Recvd Wt. kg 0.02	PUL-QC Pass75um % 0.01	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
44803		1.33		<0.5	3.89	<5	250	1.0	2	0.14	<0.5	6	30	13	2.21	10
44804		1.13		<0.5	4.98	8	280	1.3	3	0.14	<0.5	8	36	14	2.90	10
44805		0.96		<0.5	5.43	9	400	1.4	3	0.23	<0.5	11	39	16	3.12	10
44806		1.14		<0.5	5.53	8	400	1.4	4	0.28	<0.5	11	42	17	3.20	10
44807		1.11		<0.5	5.19	8	430	1.4	5	0.23	<0.5	14	39	16	3.02	10
44808		1.62		<0.5	3.90	12	430	1.1	2	0.07	<0.5	9	31	14	2.98	10
44809		1.97		<0.5	3.68	8	370	1.2	3	0.06	<0.5	9	27	12	3.07	10
44810		1.93		<0.5	3.93	12	400	1.2	3	0.05	<0.5	8	26	12	3.43	10
44811		1.18		<0.5	4.68	31	640	1.8	2	0.21	<0.5	11	31	12	8.10	10
44812		1.76		<0.5	5.27	20	490	2.0	3	0.21	<0.5	9	36	12	8.31	10
44813		1.04		<0.5	5.49	13	430	1.9	3	0.35	<0.5	9	36	17	6.15	10
44819		1.61		<0.5	3.25	18	270	1.3	4	0.15	<0.5	6	33	13	4.04	10
44820		1.42		<0.5	3.67	15	310	1.7	<2	0.28	<0.5	9	59	20	3.00	10
44821		1.51		<0.5	5.02	23	450	1.8	3	0.18	<0.5	9	45	12	5.35	10
44822		1.49		<0.5	5.31	15	440	1.8	<2	0.12	<0.5	8	44	14	6.35	10
44823		1.71		<0.5	4.62	11	460	1.5	2	0.18	<0.5	10	36	15	3.93	10
44824		1.22		<0.5	4.64	11	460	1.5	3	0.16	<0.5	9	37	15	3.72	10
44825		1.38		<0.5	3.92	8	310	1.3	4	0.07	<0.5	8	35	12	2.69	10
44826		1.70		<0.5	5.93	10	310	1.9	2	0.09	<0.5	8	40	14	3.24	10
44827		1.80		<0.5	2.80	5	380	1.0	2	0.06	<0.5	9	29	10	1.89	<10
44828		1.52		<0.5	3.16	<5	370	1.1	4	0.06	<0.5	8	33	11	2.05	10
44829		1.15	97.0	<0.5	3.25	6	350	1.2	4	0.10	<0.5	11	34	12	2.13	10
44830		0.94		<0.5	3.51	9	360	1.3	3	0.12	<0.5	9	35	11	2.36	10
44831		1.62	91.9	<0.5	3.66	8	340	1.3	<2	0.08	<0.5	10	43	12	2.65	10
44832		1.84		<0.5	3.59	6	430	1.3	3	0.05	<0.5	10	48	12	3.03	10
44833		1.68		<0.5	2.67	5	270	0.9	2	0.06	<0.5	6	27	10	1.73	<10
44834		1.56		<0.5	3.47	7	400	1.3	2	0.08	<0.5	6	36	12	2.39	10
44835		1.33		<0.5	5.47	17	580	1.7	2	0.16	0.5	10	34	23	4.33	10
44836		1.09		<0.5	4.35	12	400	1.5	3	0.12	<0.5	8	30	20	3.72	10
44837		1.22		<0.5	4.12	10	370	1.5	2	0.08	<0.5	7	31	11	4.77	10
44838		1.17		<0.5	4.02	15	360	1.9	<2	0.30	<0.5	9	39	15	4.19	10
44839		0.94		<0.5	3.83	11	290	1.6	2	0.17	<0.5	8	38	14	2.04	10
44845		0.90		<0.5	3.67	16	250	1.9	<2	0.91	<0.5	8	24	14	3.56	10
44846		1.05		<0.5	5.31	17	450	2.1	2	0.15	<0.5	11	56	17	3.96	10
44847		1.92		<0.5	4.66	28	380	1.7	2	0.13	<0.5	7	32	14	7.12	10
44848		2.13		<0.5	4.21	17	460	1.4	3	0.12	<0.5	5	26	14	4.63	10
44849		1.04		<0.5	4.59	25	420	1.5	3	0.14	0.5	9	31	15	3.88	10
44851		1.23		<0.5	4.15	8	370	1.3	<2	0.12	<0.5	9	37	15	2.56	10
44852		1.07		<0.5	6.88	7	410	1.9	<2	0.23	<0.5	14	55	20	4.08	10
44856		1.10		<0.5	4.04	18	360	1.4	2	0.12	<0.5	8	37	11	4.99	10



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CERTIFICATE OF ANALYSIS MI17111790

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
		K	La	Mg	Mn	Mo	Na	Ni	P	Pb	S	Sb	Sc	Sr	Th
		%	ppm	%	ppm	ppm	%	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm
		0.01	10	0.01	5	1	0.01	1	10	2	0.01	5	1	1	20
44803		1.00	20	0.23	256	<1	0.04	11	170	28	0.01	<5	6	56	<20
44804		1.09	20	0.28	290	<1	0.05	14	170	22	0.01	<5	8	64	<20
44805		1.19	30	0.40	605	<1	0.05	15	160	44	0.01	<5	9	68	<20
44806		1.15	30	0.43	700	<1	0.04	17	150	32	0.01	<5	9	70	<20
44807		1.43	30	0.36	1120	<1	0.05	17	170	69	0.01	<5	9	65	<20
44808		2.12	20	0.14	3270	1	0.03	20	180	370	0.01	<5	6	38	<20
44809		2.31	20	0.13	3170	<1	0.03	14	170	264	0.01	<5	5	30	<20
44810		2.62	20	0.12	3680	1	0.03	16	170	159	0.01	<5	5	26	<20
44811		2.15	30	0.42	12300	1	0.02	19	240	96	0.01	<5	7	36	<20
44812		2.33	30	0.42	9970	<1	0.02	18	230	64	0.01	<5	8	39	<20
44813		2.80	30	0.37	7000	1	0.03	13	390	71	0.02	<5	8	42	<20
44819		1.62	20	0.31	3600	<1	0.03	13	200	315	0.01	<5	5	27	<20
44820		2.67	20	0.53	4150	1	0.03	20	260	40	0.02	<5	7	23	<20
44821		3.60	30	0.39	7310	1	0.03	20	250	33	0.01	<5	8	26	<20
44822		2.98	30	0.29	7690	1	0.03	17	230	34	0.01	<5	8	37	<20
44823		2.53	30	0.23	4980	1	0.03	14	220	60	0.01	<5	7	42	<20
44824		2.58	30	0.19	4330	1	0.03	14	200	204	0.01	<5	7	43	<20
44825		1.56	20	0.17	1935	1	0.03	16	190	99	0.01	<5	6	36	<20
44826		2.08	30	0.27	1010	1	0.04	14	210	45	0.01	<5	10	46	<20
44827		1.59	20	0.13	1855	<1	0.03	12	140	65	0.01	<5	5	33	<20
44828		1.85	20	0.14	1710	<1	0.04	13	170	50	0.01	<5	5	34	<20
44829		2.09	30	0.16	1910	<1	0.03	16	190	50	0.01	<5	5	35	<20
44830		2.23	30	0.17	2420	1	0.03	17	230	76	0.01	<5	5	34	<20
44831		1.73	20	0.20	1165	<1	0.04	14	270	41	0.01	<5	6	40	<20
44832		1.91	30	0.19	1935	1	0.03	15	250	69	0.01	<5	5	38	<20
44833		1.59	20	0.13	1155	<1	0.03	8	190	46	0.01	<5	4	32	<20
44834		2.07	20	0.15	2050	1	0.04	12	180	140	0.01	<5	5	33	<20
44835		3.61	30	0.19	7260	1	0.03	20	240	486	0.01	<5	8	34	<20
44836		3.09	30	0.17	5620	<1	0.03	16	200	97	0.01	<5	6	25	<20
44837		2.49	20	0.20	6740	<1	0.03	17	180	26	0.01	<5	6	26	<20
44838		2.55	20	0.71	5640	<1	0.03	19	250	36	0.02	<5	7	23	<20
44839		3.12	20	0.40	1980	<1	0.04	15	190	24	0.02	<5	7	21	<20
44845		2.02	20	1.32	3230	1	0.03	10	300	44	0.03	<5	6	25	<20
44846		4.34	30	0.43	4980	1	0.04	26	230	53	0.01	<5	9	23	<20
44847		2.83	30	0.34	10550	<1	0.03	18	210	36	0.01	<5	7	26	<20
44848		2.92	20	0.33	7740	1	0.03	21	220	42	0.01	<5	5	25	<20
44849		3.04	20	0.15	4450	1	0.03	26	250	317	0.01	<5	7	32	<20
44851		1.84	30	0.18	1545	<1	0.04	35	200	113	0.01	<5	7	52	<20
44852		1.46	30	0.45	1175	1	0.05	25	240	52	0.01	6	12	77	<20
44856		2.92	20	0.24	6550	1	0.03	18	190	45	0.01	<5	6	22	<20



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CERTIFICATE OF ANALYSIS MI17111790

Sample Description	Method Analyte Units LOR	ME-ICP61	ME-ICP61	ME-ICP61	ME-ICP61	ME-ICP61
		Ti	U	V	W	Zn
		ppm 10	ppm 10	ppm 1	ppm 10	ppm 2
44803		<10	<10	61	<10	46
44804		<10	<10	79	<10	41
44805		<10	<10	85	<10	54
44806		<10	<10	86	<10	59
44807		<10	<10	83	<10	62
44808		10	<10	52	<10	363
44809		<10	<10	41	<10	286
44810		<10	<10	36	<10	40
44811		<10	<10	50	<10	65
44812		<10	<10	57	<10	37
44813		<10	<10	56	<10	60
44819		<10	<10	39	<10	43
44820		<10	<10	40	<10	54
44821		<10	<10	40	<10	35
44822		<10	<10	58	<10	42
44823		<10	<10	56	<10	59
44824		<10	<10	58	<10	282
44825		<10	<10	45	<10	48
44826		<10	<10	61	<10	41
44827		<10	<10	33	<10	32
44828		<10	<10	35	<10	34
44829		<10	<10	33	<10	39
44830		10	<10	35	<10	94
44831		<10	<10	52	<10	51
44832		<10	<10	50	<10	44
44833		<10	<10	28	<10	37
44834		<10	<10	36	<10	47
44835		<10	<10	53	<10	730
44836		<10	<10	36	<10	46
44837		<10	<10	37	<10	21
44838		<10	<10	34	<10	45
44839		<10	<10	32	<10	30
44845		<10	<10	32	<10	57
44846		<10	<10	46	<10	35
44847		<10	<10	36	<10	30
44848		<10	<10	31	<10	42
44849		10	<10	44	<10	342
44851		<10	<10	57	<10	283
44852		<10	<10	105	<10	72
44856		<10	<10	35	<10	24

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Sample Description	Method Analyte Units LOR	WEI-21 Recvd Wt. kg	PUL-QC Pass75um %	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
		0.02	0.01	0.5	0.01	5	10	0.5	2	0.01	0.5	1	1	1	0.01	10
44857		0.95		<0.5	5.06	20	420	1.8	2	0.10	<0.5	9	50	12	3.61	10
44858		1.00		<0.5	4.20	9	300	2.0	3	5.96	<0.5	7	41	11	2.66	10
44859		1.15	93.2	<0.5	3.25	22	360	1.5	4	0.36	0.5	10	22	17	7.23	10
44860		0.98		<0.5	5.51	20	280	3.1	<2	0.66	<0.5	10	46	15	2.76	10
44861		0.77		<0.5	3.79	19	310	2.1	3	0.35	<0.5	15	24	17	3.96	10
44862		0.70		<0.5	3.94	18	370	1.8	2	0.23	<0.5	11	54	25	4.14	10
44863		1.12		<0.5	4.86	15	360	2.1	3	0.08	<0.5	10	45	17	3.83	10
44865		1.11		<0.5	4.10	30	400	1.7	<2	0.67	<0.5	11	27	17	6.00	10
44866		1.28		0.6	3.13	39	310	1.5	4	1.51	0.6	9	15	23	9.00	<10



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		K	La	Mg	Mn	Mo	Na	Ni	P	Pb	S	Sb	Sc	Sr	Th
		%	ppm	%	ppm	ppm	%	ppm	ppm	ppm	%	ppm	ppm	ppm	%
		0.01	10	0.01	5	1	0.01	1	10	2	0.01	5	1	1	20
44857		4.02	30	0.25	4160	1	0.03	26	220	102	0.01	5	8	23	<20
44858		2.74	30	2.95	2050	<1	0.02	15	340	29	0.02	5	8	26	<20
44859		1.37	20	0.93	9490	1	0.02	13	460	84	0.02	<5	5	30	<20
44860		4.13	30	0.83	1935	<1	0.03	13	230	25	0.01	<5	11	19	<20
44861		2.30	20	0.69	4360	1	0.03	13	280	119	0.02	<5	6	24	<20
44862		2.79	20	0.25	5110	1	0.03	22	270	283	0.02	<5	7	27	<20
44863		3.13	30	0.32	4160	1	0.03	22	200	37	0.01	<5	8	30	<20
44865		2.33	20	1.48	7670	1	0.02	13	400	72	0.02	5	7	25	<20
44866		1.36	20	1.74	11350	2	0.03	12	1730	64	0.03	<5	5	33	<20

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		Ti	U	V	W	Zn
		ppm	ppm	ppm	ppm	ppm
		10	10	1	10	2
44857		<10	<10	40	<10	35
44858		10	<10	47	<10	32
44859		<10	<10	31	<10	85
44860		<10	<10	51	<10	27
44861		<10	<10	32	<10	48
44862		<10	<10	43	<10	56
44863		<10	<10	52	<10	24
44865		<10	<10	36	<10	56
44866		<10	<10	30	<10	89



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CERTIFICATE OF ANALYSIS MI17111790

CERTIFICATE COMMENTS

ACCREDITATION COMMENTS

Applies to Method:

NATA Accredited. Corporate Accreditation No: 825, Corporate Site No: 818. The Technical Signatory is Samantha Profke, ICPAES Supervising Chemist
ME-ICP61

LABORATORY ADDRESSES

Applies to Method:

Processed at ALS Mount Isa located at Unit 4, 16 Enterprise Rd, Mount Isa, QLD, Australia.

BAG-01

LEV-01

LOG-22

PUL-32

PUL-QC

SPL-21

WEI-21

Applies to Method:

Processed at ALS Brisbane located at 32 Shand Street, Stafford, Brisbane, QLD, Australia. NATA Accreditation does not cover the performance of
ALS Brisbane Sample Preparation which is processed at 116 Delta Street, Geebung, QLD 4034, Australia
ME-ICP61