



Australian Laboratory Services Pty. Ltd.
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To: **RIO TINTO EXPLORATION PTY LTD**
EXPLORATION OFFICE
PO BOX 175
BELMONT WA 6104

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Plus Appendix Pages
Finalized Date: 12-NOV-2019
Account: RIOTINAJ

QC CERTIFICATE MI19270666

Project: EB80024031

P.O. No.: EB80024031

This report is for 4 Water samples submitted to our lab in Mount Isa, QLD, Australia on 28-OCT-2019.

The following have access to data associated with this certificate:

MARK HARTLEY
CAROLINE LUDEMANN

ROB HEARN
MIKE WHITBREAD

ANDREW JAUNZEMS

SAMPLE PREPARATION

ALS CODE	DESCRIPTION
WEI-21	Received Sample Weight
LEV-01	Waste Disposal Levy
SND-01	Send samples to external laboratory

ANALYTICAL PROCEDURES

ALS CODE	DESCRIPTION	
ME-MS14L	Super-Trace Analysis of Water	
MS14L-ANPH	Anions by ion chromatography	ICP-MS

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:

Saa Traxler, General Manager, North Vancouver



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QC CERTIFICATE OF ANALYSIS MI19270666

Sample Description	Method Analyte Units LOD	ME-MS14L Ag ug/L 0.005	ME-MS14L Al ug/L 3	ME-MS14L As ug/L 0.05	ME-MS14L Au ug/L 0.002	ME-MS14L B ug/L 3	ME-MS14L Ba ug/L 0.05	ME-MS14L Be ug/L 0.005	ME-MS14L Bi ug/L 0.01	ME-MS14L Ca mg/L 0.02	ME-MS14L Cd ug/L 0.005	ME-MS14L Ce ug/L 0.005	ME-MS14L Co ug/L 0.005	ME-MS14L Cr ug/L 0.5	ME-MS14L Cs ug/L 0.005	ME-MS14L Cu ug/L 0.1
STANDARDS																
NIST 1640a		7.97	51	8.22	<0.002	329	150.0	3.14	<0.01	5.61	4.04	<0.005	20.3	40.2	0.023	85.6
Target Range - Lower Bound		7.21	44	7.16	<0.002	268	135.5	2.72	<0.01	5.03	3.56	<0.005	18.05	35.7	<0.005	76.5
Upper Bound		8.82	61	8.86	0.004	334	165.5	3.33	0.02	6.20	4.36	0.010	22.1	44.7	0.010	93.7
SM1494-002		0.074	2900	297	0.004	6	3000	51.6	49.8	4.04	52.5	0.006	10.20	602	<0.005	312
Target Range - Lower Bound		0.022	2700	270	0.003	<3	2700	45.0	45.0	3.58	45.0	<0.005	9.00	540	<0.005	270
Upper Bound		0.046	3300	330	0.011	9	3300	55.0	55.0	4.42	55.0	0.018	11.00	661	0.015	330
WaterSTD-2		103.5	8	0.54	18.25	4	501	50.3	50.0	0.08	50.5	499	50.6	5.1	49.5	50.3
Target Range - Lower Bound		90.0	<3	<0.05	18.00	<3	450	45.0	45.0	<0.02	45.0	450	45.0	<0.5	45.0	44.9
Upper Bound		110.0	11	0.10	22.0	6	550	55.0	55.0	0.04	55.0	550	55.0	1.0	55.0	55.1
BLANKS																
BLANK		<0.005	<3	<0.05	<0.002	<3	<5.00	<0.005	<0.01	<0.02	0.005	<0.005	<0.005	<0.5	<0.005	<0.1
Target Range - Lower Bound		<0.005	<3	<0.05	<0.002	<3	<0.05	<0.005	<0.01	<0.02	<0.005	<0.005	<0.005	<0.5	<0.005	<0.1
Upper Bound		0.010	6	0.10	0.004	6	0.10	0.010	0.02	0.04	0.010	0.010	0.010	1.0	0.010	0.2
DUPLICATES																
10329998		<0.005	<3	1.42	0.002	79	87.0	<0.005	<0.01	112.0	0.006	0.006	12.80	<0.5	0.591	0.1
DUP		<0.005	<3	1.67	<0.002	84	86.0	<0.005	<0.01	111.5	<0.005	<0.005	12.35	<0.5	0.587	0.1
Target Range - Lower Bound		<0.005	<3	1.42	<0.002	74	82.1	<0.005	<0.01	106.0	<0.005	<0.005	11.95	<0.5	0.555	<0.1
Upper Bound		0.010	6	1.67	0.004	89	90.9	0.010	0.02	117.5	0.010	0.010	13.20	1.0	0.623	0.2



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QC CERTIFICATE OF ANALYSIS MI19270666

Sample Description	Method Analyte Units LOD	ME-MS14L Fe mg/L 0.003	ME-MS14L Ga ug/L 0.05	ME-MS14L Hf ug/L 0.005	ME-MS14L Hg ug/L 0.05	ME-MS14L In ug/L 0.01	ME-MS14L K mg/L 0.01	ME-MS14L La ug/L 0.005	ME-MS14L Li ug/L 0.1	ME-MS14L Mg mg/L 0.005	ME-MS14L Mn ug/L 0.05	ME-MS14L Mo ug/L 0.05	ME-MS14L Na mg/L 0.01	ME-MS14L Nb ug/L 0.005	ME-MS14L Ni ug/L 0.2	ME-MS14L P mg/L 0.005
STANDARDS																
NIST 1640a		0.038	<0.05	<0.005	<0.05	<0.01	0.58	0.008	0.3	1.065	39.0	40.7	3.22	<0.005	24.6	0.013
Target Range - Lower Bound		0.029	<0.05	<0.005	<0.05		0.51	<0.005	0.2	0.940	36.0	40.7	2.78	<0.005	22.4	<0.005
Upper Bound		0.045	0.10	0.010	0.10		0.65	0.010	0.6	1.160	44.1	49.8	3.42	0.010	27.8	0.010
SM1494-002		3.02	<0.05	0.052	<0.05	0.15	7.19	0.015	<0.2	3.07	298	10.25	7.60	0.007	10.0	4.26
Target Range - Lower Bound		2.70	<0.05	<0.005	<0.05		6.74	0.006	<0.1	2.70	270	8.95	6.74	<0.005	8.8	3.60
Upper Bound		3.30	0.10	0.010	0.10		8.26	0.028	0.4	3.31	330	11.05	8.26	0.010	11.2	4.41
WaterSTD-2		0.535	539	100.0	100.0	5.06	0.01	484	481	0.156	496	0.96	0.10	46.4	53.3	0.011
Target Range - Lower Bound		0.447	450	90.0	90.0	4.17	<0.01	450	450	<0.005	450	<0.05	<0.01	45.0	44.8	<0.005
Upper Bound		0.553	550	110.0	110.0	5.11	0.02	550	550	0.010	550	0.10	0.02	55.0	55.2	0.010
BLANKS																
BLANK		<0.003	<0.05	<0.005	<0.05	<0.01	<0.01	<0.005	<0.2	<0.005	<0.05	<0.05	<0.01	<0.005	<0.2	<0.005
Target Range - Lower Bound		<0.003	<0.05	<0.005	<0.05		<0.01	<0.005	<0.1	<0.005	<0.05	<0.05	<0.01	<0.005	<0.2	<0.005
Upper Bound		0.006	0.10	0.010	0.10		0.02	0.010	0.2	0.010	0.10	0.10	0.02	0.010	0.4	0.010
DUPLICATES																
10329998		0.134	<0.05	<0.005	<0.05	<0.01	6.16	0.006	19.9	43.7	837	0.47	23.0	<0.005	3.8	0.017
DUP		0.133	<0.05	<0.005	<0.05	<0.01	6.07	<0.005	21.0	43.5	839	0.47	22.9	<0.005	3.5	0.016
Target Range - Lower Bound		0.124	<0.05	<0.005	<0.05	<0.01	5.80	<0.005	19.3	41.4	796	0.40	21.8	<0.005	3.3	0.011
Upper Bound		0.143	0.10	0.010	0.10	0.02	6.43	0.010	21.6	45.8	880	0.54	24.1	0.010	4.0	0.022



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QC CERTIFICATE OF ANALYSIS MI19270666

Sample Description	Method Analyte Units LOD	ME-MS14L Pb ug/L 0.05	ME-MS14L Pd ug/L 0.005	ME-MS14L Pt ug/L 0.005	ME-MS14L Rb ug/L 0.01	ME-MS14L Re ug/L 0.002	ME-MS14L S mg/L 0.2	ME-MS14L Sb ug/L 0.01	ME-MS14L Sc ug/L 0.01	ME-MS14L Se ug/L 0.05	ME-MS14L Si mg/L 0.03	ME-MS14L Sn ug/L 0.05	ME-MS14L Sr ug/L 0.05	ME-MS14L Ta ug/L 0.01	ME-MS14L Te ug/L 0.01	ME-MS14L Th ug/L 0.005
STANDARDS																
NIST 1640a		11.65	<0.005	<0.005	1.19	<0.002	1.6	5.09	<0.05	21.9	5.32	0.24	122.5	<0.01	0.11	<0.005
Target Range - Lower Bound		10.75	<0.005	<0.005	1.07	<0.002	1.0	4.55	<0.01	17.90	4.66	<0.05	112.5	<0.01	<0.01	<0.005
Upper Bound		13.25	0.010	0.010	1.33	0.004	2.0	5.58	0.02	22.0	5.76	0.10	137.5	0.02	0.02	0.010
SM1494-002		49.3	0.011	<0.005	0.05	0.004	<0.2	10.60	<0.05	49.3	<0.03	11.00	50.1	0.06	1.18	298
Target Range - Lower Bound		45.0	<0.005	<0.005	0.10	<0.002	<0.2	8.99	0.04	45.0	<0.03	8.95	45.0	<0.01	0.04	270
Upper Bound		55.1	0.010	0.010	0.16	0.004	0.6	11.00	0.08	55.1	0.06	11.05	55.1	0.02	0.08	330
WaterSTD-2		50.5	19.95	20.6	49.6	4.77	9.8	0.08	51.9	531	10.70	454	50.8	0.05	40.8	501
Target Range - Lower Bound		45.0	18.00	18.00	44.5	4.50	8.8	<0.01	45.0	450	8.97	450	45.0	<0.01	45.0	450
Upper Bound		55.1	22.0	22.0	54.5	5.50	11.2	0.02	55.0	550	11.05	550	55.1	0.05	55.0	550
BLANKS																
BLANK		<0.05	<0.005	<0.005	<0.01	<0.002	<0.2	<0.01	<0.05	<0.05	<0.03	<0.05	<0.05	<0.01	<0.01	<0.005
Target Range - Lower Bound		<0.05	<0.005	<0.005	<0.01	<0.002	<0.2	<0.01	<0.01	<0.05	<0.03	<0.05	<0.05	<0.01	<0.01	<0.005
Upper Bound		0.10	0.010	0.010	0.02	0.004	0.4	0.02	0.02	0.10	0.06	0.10	0.10	0.02	0.02	0.010
DUPLICATES																
10329998		<0.05	<0.005	<0.005	18.35	<0.002	4.4	0.07	0.26	0.71	13.45	<0.05	319	<0.01	0.01	<0.005
DUP		<0.05	<0.005	<0.005	18.05	0.002	4.4	0.05	0.33	0.40	13.05	<0.05	317	<0.01	0.01	<0.005
Target Range - Lower Bound		<0.05	<0.005	<0.005	17.30	<0.002	4.0	0.05	0.27	0.48	12.55	<0.05	302	<0.01	<0.01	<0.005
Upper Bound		0.10	0.010	0.010	19.10	0.004	4.8	0.07	0.32	0.63	13.95	0.10	334	0.02	0.02	0.010



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QC CERTIFICATE OF ANALYSIS MI19270666

Sample Description	Method Analyte Units LOD	ME-MS14L Ti ug/L 0.2	ME-MS14L Ti ug/L 0.002	ME-MS14L U ug/L 0.002	ME-MS14L V ug/L 0.05	ME-MS14L W ug/L 0.01	ME-MS14L Y ug/L 0.005	ME-MS14L Zn ug/L 0.5	ME-MS14L Zr ug/L 0.02
STANDARDS									
NIST 1640a		<5.0	1.550	23.9	15.20	0.03	0.091	53.4	<0.02
Target Range - Lower Bound		<0.2	1.445	22.6	13.40	<0.01	<0.005	49.2	<0.02
Upper Bound		0.4	1.770	27.7	16.45	0.02	0.010	61.2	0.04
SM1494-002		50.0	0.021	51.7	303	41.6	0.011	12.7	0.11
Target Range - Lower Bound		44.8	<0.002	45.0	270	45.0	<0.005	8.5	0.03
Upper Bound		55.2	0.008	55.0	330	55.0	0.016	11.5	0.11
WaterSTD-2		<5.0	499	492	50.9	0.45	50.2	55.6	0.27
Target Range - Lower Bound		<0.2	437	450	45.0	<0.01	45.0	44.5	<0.02
Upper Bound		0.4	535	550	55.1	0.02	55.0	55.5	0.04
BLANKS									
BLANK		<5.0	<0.002	<0.002	<0.05	<0.01	<0.005	<0.5	<0.02
Target Range - Lower Bound		<0.2	<0.002	<0.002	<0.05	<0.01	<0.005	<0.5	<0.02
Upper Bound		0.4	0.004	0.004	0.10	0.02	0.010	1.0	0.04
DUPLICATES									
10329998		<0.2	0.247	2.66	0.10	0.04	<0.005	510	0.02
DUP		<5.0	0.228	2.75	0.12	0.04	0.006	500	0.02
Target Range - Lower Bound		2.3	0.224	2.57	<0.05	0.03	<0.005	479	<0.02
Upper Bound		2.9	0.251	2.84	0.17	0.05	0.010	531	0.04



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QC CERTIFICATE OF ANALYSIS MI19270666

	CERTIFICATE COMMENTS
	LABORATORY ADDRESSES
Applies to Method:	Processed at ALS Mount Isa located at Unit 4, 16 Enterprise Rd, Mount Isa, QLD, Australia. SND-01 WEI-21
Applies to Method:	Processed at ALS Vancouver located at 2103 Dollarton Hwy, North Vancouver, BC, Canada. ME-MS14L
Applies to Method:	Processed at ALSE Vancouver, Burnaby, BC, Canada. MS14L-ANPH