

1512-0001



CLIENT: Macquarie Gold (Challenger Mines)					ANALYTES REQUIRED <i>Complete & tick as required</i>													
CONTACT: Brett Hampel/Ramon Atayde					Alkalinity, BOD, CN, Ec, pH	Hardness, SAR	TSS, Turbidity	Al, As, B, Cd, Ca, Cr, Co, Cu	Fe, Pb, Mg, Mn, Hg, Mo, Ni, F	K, Se, Na, S, Zn	Oil & Grease	Cl, F						
ADDRESS: 65 Golden Gully Road adelong NSW 2729 ABN:																		
TELEPHONE: 0407 729 788		E-mail: bwh.business@bigpond.com																
SAMPLE IDENTIFICATION	NATURE OF SAMPLE	DATE SAMPLED	TIME SAMPLED	CONTAINER TYPE	NUMBER OF CONTAINERS													
#1 Sediment pond	water	26-11-15	9.20	Plastic/glass	2/1													
#1 Sediment pond	water	26-11-15	9.20	Plastic/glass	2/1													
#3 Goodwin dam spillway	water	26-11-15	9.30	glass	1													
#3 Goodwin dam spillway	water	26-11-15	9.30	plastic	1													
#4 sample point Goodwin dam	water	26-11-15	9.40	glass	1													
#4 sample point Goodwin dam	water	26-11-15	9.40	plastic	1													
#6 sample point wully	water	26-11-15	9.45	glass	1													

Please supply a brown glass O&G bottle if Oil and grease is required as well as a 1L plastic

RELINQUISHED BY:	NAME	SIGNATURE	ORGANISATION	DATE	TII
	Melanie Maher	<i>Melanie Maher</i>	Challenger mine		
Mode of Transport <small>Include Consignment Note # if applicable</small>	Pack & send.				
RECEIVED BY:					

www.csu.edu.au

CRICOS Provider Numbers for Charles Sturt University are 00006F (NSW), 01947G (VIC) and 02960B (ACT). ABN: 63 878 708 551

Macquarie Gold Ltd
c/- 'Willowie' Delegate Road
Bombala NSW 2632
Attention: Mike Walcott

Tuesday, December 15, 2015



NATA Accredited Laboratory
Number: 9597

*This document is issued in accordance with
NATA's accreditation requirements. Accredited
for compliance with ISO/IEC 17025. This
document shall not be reproduced, except in full.*

LABORATORY ANALYSIS REPORT

Report Number: 1512-0001

Page 1 of 7

For all enquiries related to this report please quote document number: 1512-0001

Facility:	Order #	Job Work Order 143
Sample Type	Collected By	Date Received
Water	M Maher	01-December-2015

<u>EAL ID</u>	<u>Client ID.</u> Date/Time sample taken	<u>Test</u>	<u>Result (units)</u>	<u>Method Reference</u>	<u>Limit of Reporting</u>
15Dec-0001	#1 Sediment Pond 26.11.15 9.20am	Alkalinity, Total as CaCO3	61 mg/L	APHA 2320 B	2
		Aluminium (acid extractable)	8.4 mg/L	APHA 3030 E/3120 B	0.3
		Arsenic (acid extractable)	<0.02 mg/L	APHA 3030 E/3120 B	0.02
		Biochemical Oxygen Demand	<2 mg/L	APHA 5210 B/4500-O G	2
		Boron (acid extractable)	0.09 mg/L	* APHA 3030 E/3120 B	0.02
		Cadmium (acid extractable)	<0.002 mg/L	APHA 3030 E/3120 B	0.002
		Calcium (acid extractable)	16.3 mg/L	APHA 3030 E/3120 B	0.03
		Chloride	2.2 mg/L	APHA 4110 B	0.1
		Chromium (acid extractable)	0.008 mg/L	APHA 3030 E/3120 B	0.002
		Cobalt (acid extractable)	<0.003 mg/L	* APHA 3030 E/3120 B	0.003
		Copper (acid extractable)	0.017 mg/L	APHA 3030 E/3120 B	0.002
		Cyanide	0.007 mg/L	* APHA 4500-CN E	0.002
		Conductivity	200 µS/cm	APHA 2510 B	1
		Fluoride	0.2 mg/L	APHA 4110 B	0.1
		Total Hardness as CaCO3	78 mg/L	APHA 2340 B	2
		Iron (acid extractable)	6.73 mg/L	APHA 3030 E/3120 B	0.01
		Lead (acid extractable)	<0.01 mg/L	APHA 3030 E/3120 B	0.01
		Magnesium (acid extractable)	9.12 mg/L	APHA 3030 E/3120 B	0.02
		Manganese (acid extractable)	0.034 mg/L	APHA 3030 E/3120 B	0.001
		Mercury	<0.0001 mg/L	Analysis by Ecowise, Melbourne (acc no: 992)	
		Molybdenum (acid extractable)	<0.01 mg/L	* APHA 3030 E/3120 B	0.01
		Nickel (acid extractable)	<0.01 mg/L	APHA 3030 E/3120 B	0.01

Macquarie Gold Ltd
c/- 'Willowie' Delegate Road
Bombala NSW 2632
Attention: Mike Walcott

Tuesday, December 15, 2015



NATA Accredited Laboratory
Number: 9597

*This document is issued in accordance with
NATA's accreditation requirements. Accredited
for compliance with ISO/IEC 17025. This
document shall not be reproduced, except in full.*

LABORATORY ANALYSIS REPORT

Report Number: 1512-0001

Page 2 of 7

For all enquiries related to this report please quote document number: 1512-0001

Facility:	Order #	Job Work Order 143
Sample Type	Collected By	Date Received
Water	M Maher	01-December-2015

<u>EAL ID</u>	<u>Client ID.</u> Date/Time sample taken	<u>Test</u>	<u>Result (units)</u>	<u>Method Reference</u>	<u>Limit of Reporting</u>
15Dec-0001	#1 Sediment Pond 26.11.15 9.20am	Oil & Grease	5 mg/L	APHA 5520 D	1
		Phosphorus	0.08 mg/L	APHA 3030 E/3120 B	0.02
		pH	7.2 pH units	APHA 4500-H+ B	
		Potassium (acid extractable)	3.0 mg/L	APHA 3030 E/3120 B	0.2
		Sodium Adsorption Ratio	<1 Ratio	LTM-W-039	
		Selenium (acid extractable)	<0.02 mg/L	APHA 3030 E/3120 B	0.02
		Sodium (acid extractable)	10.1 mg/L	APHA 3030 E/3120 B	0.05
		Sulphur (acid extractable)	13.9 mg/L	* APHA 3030 E/3120 B	0.06
		Total Suspended Solids	32 mg/L	APHA 2540 D	2
		Turbidity	86 NTU	APHA 2130 B	1
		Zinc (acid extractable)	0.014 mg/L	APHA 3030 E/3120 B	0.002
15Dec-0002	#3 Goodwin Dam Spillway 26.11.15 9.30am	Alkalinity, Total as CaCO ₃	114 mg/L	APHA 2320 B	2
		Aluminium (acid extractable)	0.57 mg/L	APHA 3030 E/3120 B	0.03
		Arsenic (acid extractable)	<0.02 mg/L	APHA 3030 E/3120 B	0.02
		Biochemical Oxygen Demand	<2 mg/L	APHA 5210 B/4500-O G	2
		Boron (acid extractable)	<0.02 mg/L	* APHA 3030 E/3120 B	0.02
		Cadmium (acid extractable)	<0.002 mg/L	APHA 3030 E/3120 B	0.002
		Calcium (acid extractable)	43.7 mg/L	APHA 3030 E/3120 B	0.03
		Chloride	6.2 mg/L	APHA 4110 B	0.1
		Chromium (acid extractable)	0.005 mg/L	APHA 3030 E/3120 B	0.002
		Cobalt (acid extractable)	<0.003 mg/L	* APHA 3030 E/3120 B	0.003

Macquarie Gold Ltd
c/- 'Willowie' Delegate Road
Bombala NSW 2632
Attention: Mike Walcott

Tuesday, December 15, 2015



NATA Accredited Laboratory
Number: 9597

*This document is issued in accordance with
NATA's accreditation requirements. Accredited
for compliance with ISO/IEC 17025. This
document shall not be reproduced, except in full.*

LABORATORY ANALYSIS REPORT

Report Number: 1512-0001

Page 3 of 7

For all enquiries related to this report please quote document number: 1512-0001

Facility:	Order #	Job Work Order 143
Sample Type	Collected By	Date Received
Water	M Maher	01-December-2015

<u>EAL ID</u>	<u>Client ID.</u> Date/Time sample taken	<u>Test</u>	<u>Result (units)</u>	<u>Method Reference</u>	<u>Limit of Reporting</u>
15Dec-0002	#3 Goodwin Dam Spillway 26.11.15 9.30am	Copper (acid extractable)	0.072 mg/L	APHA 3030 E/3120 B	0.002
		Cyanide	<0.002 mg/L	* APHA 4500-CN E	0.002
		Conductivity	447 µS/cm	APHA 2510 B	1
		Fluoride	0.4 mg/L	APHA 4110 B	0.1
		Total Hardness as CaCO3	186 mg/L	APHA 2340 B	2
		Iron (acid extractable)	0.37 mg/L	APHA 3030 E/3120 B	0.01
		Lead (acid extractable)	0.03 mg/L	APHA 3030 E/3120 B	0.01
		Magnesium (acid extractable)	18.8 mg/L	APHA 3030 E/3120 B	0.02
		Manganese (acid extractable)	0.033 mg/L	APHA 3030 E/3120 B	0.001
		Mercury	<0.0001 mg/L	Analysis by Ecowise, Melbourne (acc no: 992)	
		Molybdenum (acid extractable)	<0.01 mg/L	* APHA 3030 E/3120 B	0.01
		Nickel (acid extractable)	<0.01 mg/L	APHA 3030 E/3120 B	0.01
		Oil & Grease	3 mg/L	APHA 5520 D	1
		Phosphorus	<0.02 mg/L	APHA 3030 E/3120 B	0.02
		pH	7.9 pH units	APHA 4500-H+ B	
		Potassium (acid extractable)	3.4 mg/L	APHA 3030 E/3120 B	0.2
		Sodium Adsorption Ratio	1 Ratio	LTM-W-039	
		Selenium (acid extractable)	<0.02 mg/L	APHA 3030 E/3120 B	0.02
		Sodium (acid extractable)	21.4 mg/L	APHA 3030 E/3120 B	0.05
		Sulphur (acid extractable)	38.1 mg/L	* APHA 3030 E/3120 B	0.06
		Total Suspended Solids	5 mg/L	APHA 2540 D	2
		Turbidity	3 NTU	APHA 2130 B	1

Macquarie Gold Ltd
c/- 'Willowie' Delegate Road
Bombala NSW 2632
Attention: Mike Walcott

Tuesday, December 15, 2015



NATA Accredited Laboratory
Number: 9597

*This document is issued in accordance with
NATA's accreditation requirements. Accredited
for compliance with ISO/IEC 17025. This
document shall not be reproduced, except in full.*

LABORATORY ANALYSIS REPORT

Report Number: 1512-0001

Page 4 of 7

For all enquiries related to this report please quote document number: 1512-0001

Facility:	Order #	Job Work Order 143
Sample Type	Collected By	Date Received
Water	M Maher	01-December-2015

<u>EAL ID</u>	<u>Client ID.</u> Date/Time sample taken	<u>Test</u>	<u>Result (units)</u>	<u>Method Reference</u>	<u>Limit of Reporting</u>
15Dec-0002	#3 Goodwin Dam Spillway 26.11.15 9.30am	Zinc (acid extractable)	0.011 mg/L	APHA 3030 E/3120 B	0.002
15Dec-0003	#4 Sample Point Goodwin Dam 26.11.15 9.40am	Alkalinity, Total as CaCO ₃	112 mg/L	APHA 2320 B	2
		Aluminium (acid extractable)	1.03 mg/L	APHA 3030 E/3120 B	0.03
		Arsenic (acid extractable)	<0.02 mg/L	APHA 3030 E/3120 B	0.02
		Biochemical Oxygen Demand	4 mg/L	APHA 5210 B/4500-O G	2
		Boron (acid extractable)	0.04 mg/L	* APHA 3030 E/3120 B	0.02
		Cadmium (acid extractable)	<0.002 mg/L	APHA 3030 E/3120 B	0.002
		Calcium (acid extractable)	44.8 mg/L	APHA 3030 E/3120 B	0.03
		Chloride	6.2 mg/L	APHA 4110 B	0.1
		Chromium (acid extractable)	<0.002 mg/L	APHA 3030 E/3120 B	0.002
		Cobalt (acid extractable)	<0.003 mg/L	* APHA 3030 E/3120 B	0.003
		Copper (acid extractable)	<0.002 mg/L	APHA 3030 E/3120 B	0.002
		Cyanide	<0.002 mg/L	* APHA 4500-CN E	0.002
		Conductivity	453 µS/cm	APHA 2510 B	1
		Fluoride	0.4 mg/L	APHA 4110 B	0.1
		Total Hardness as CaCO ₃	192 mg/L	APHA 2340 B	2
		Iron (acid extractable)	0.66 mg/L	APHA 3030 E/3120 B	0.01
		Lead (acid extractable)	<0.01 mg/L	APHA 3030 E/3120 B	0.01
		Magnesium (acid extractable)	19.4 mg/L	APHA 3030 E/3120 B	0.02
		Manganese (acid extractable)	0.035 mg/L	APHA 3030 E/3120 B	0.001

Macquarie Gold Ltd
c/- 'Willowie' Delegate Road
Bombala NSW 2632
Attention: Mike Walcott

Tuesday, December 15, 2015



NATA Accredited Laboratory
Number: 9597

*This document is issued in accordance with
NATA's accreditation requirements. Accredited
for compliance with ISO/IEC 17025. This
document shall not be reproduced, except in full.*

LABORATORY ANALYSIS REPORT

Report Number: 1512-0001

Page 5 of 7

For all enquiries related to this report please quote document number: 1512-0001

Facility:	Order #	Job Work Order 143
Sample Type	Collected By	Date Received
Water	M Maher	01-December-2015

<u>EAL ID</u>	<u>Client ID.</u> Date/Time sample taken	<u>Test</u>	<u>Result (units)</u>	<u>Method Reference</u>	<u>Limit of Reporting</u>
15Dec-0003	#4 Sample Point Goodwin Dam 26.11.15 9.40am	Mercury	<0.0001 mg/L	Analysis by Ecowise, Melbourne (acc no: 992)	
		Molybdenum (acid extractable)	<0.01 mg/L	* APHA 3030 E/3120 B	0.01
		Nickel (acid extractable)	<0.01 mg/L	APHA 3030 E/3120 B	0.01
		Oil & Grease	1 mg/L	APHA 5520 D	1
		Phosphorus	0.05 mg/L	APHA 3030 E/3120 B	0.02
		pH	7.6 pH units	APHA 4500-H+ B	
		Potassium (acid extractable)	3.7 mg/L	APHA 3030 E/3120 B	0.2
		Sodium Adsorption Ratio	1 Ratio	LTM-W-039	
		Selenium (acid extractable)	<0.02 mg/L	APHA 3030 E/3120 B	0.02
		Sodium (acid extractable)	21.8 mg/L	APHA 3030 E/3120 B	0.05
		Sulphur (acid extractable)	38.5 mg/L	* APHA 3030 E/3120 B	0.06
		Total Suspended Solids	47 mg/L	APHA 2540 D	2
		Turbidity	5 NTU	APHA 2130 B	1
		Zinc (acid extractable)	0.006 mg/L	APHA 3030 E/3120 B	0.002
15Dec-0004	#6 Sawpit Gully 26.11.15 9.45am	Alkalinity, Total as CaCO3	179 mg/L	APHA 2320 B	2
		Aluminium (acid extractable)	0.12 mg/L	APHA 3030 E/3120 B	0.03
		Arsenic (acid extractable)	<0.02 mg/L	APHA 3030 E/3120 B	0.02
		Biochemical Oxygen Demand	<2 mg/L	APHA 5210 B/4500-O G	2
		Boron (acid extractable)	0.09 mg/L	* APHA 3030 E/3120 B	0.02
		Cadmium (acid extractable)	<0.002 mg/L	APHA 3030 E/3120 B	0.002

Macquarie Gold Ltd
c/- 'Willowie' Delegate Road
Bombala NSW 2632
Attention: Mike Walcott

Tuesday, December 15, 2015



NATA Accredited Laboratory
Number: 9597

*This document is issued in accordance with
NATA's accreditation requirements. Accredited
for compliance with ISO/IEC 17025. This
document shall not be reproduced, except in full.*

LABORATORY ANALYSIS REPORT

Report Number: 1512-0001

Page 6 of 7

For all enquiries related to this report please quote document number: 1512-0001

Facility:	Order #	Job Work Order 143
Sample Type	Collected By	Date Received
Water	M Maher	01-December-2015

<u>EAL ID</u>	<u>Client ID.</u> Date/Time sample taken	<u>Test</u>	<u>Result (units)</u>	<u>Method Reference</u>	<u>Limit of Reporting</u>
15Dec-0004	#6 Sawpit Gully 26.11.15 9.45am	Calcium (acid extractable)	31.2 mg/L	APHA 3030 E/3120 B	0.03
		Chloride	6.9 mg/L	APHA 4110 B	0.1
		Chromium (acid extractable)	<0.002 mg/L	APHA 3030 E/3120 B	0.002
		Cobalt (acid extractable)	<0.003 mg/L	* APHA 3030 E/3120 B	0.003
		Copper (acid extractable)	<0.002 mg/L	APHA 3030 E/3120 B	0.002
		Cyanide	<0.002 mg/L	* APHA 4500-CN E	0.002
		Conductivity	374 µS/cm	APHA 2510 B	1
		Fluoride	0.3 mg/L	APHA 4110 B	0.1
		Total Hardness as CaCO3	143 mg/L	APHA 2340 B	2
		Iron (acid extractable)	0.32 mg/L	APHA 3030 E/3120 B	0.01
		Lead (acid extractable)	<0.01 mg/L	APHA 3030 E/3120 B	0.01
		Magnesium (acid extractable)	15.8 mg/L	APHA 3030 E/3120 B	0.02
		Manganese (acid extractable)	0.136 mg/L	APHA 3030 E/3120 B	0.001
		Mercury	<0.0001 mg/L	Analysis by Ecowise, Melbourne (acc no: 992)	
		Molybdenum (acid extractable)	<0.01 mg/L	* APHA 3030 E/3120 B	0.01
		Nickel (acid extractable)	<0.01 mg/L	APHA 3030 E/3120 B	0.01
		Oil & Grease	2 mg/L	APHA 5520 D	1
		Phosphorus	0.02 mg/L	APHA 3030 E/3120 B	0.02
		pH	7.5 pH units	APHA 4500-H+ B	
		Potassium (acid extractable)	1.6 mg/L	APHA 3030 E/3120 B	0.2
		Sodium Adsorption Ratio	1 Ratio	LTM-W-039	
		Selenium (acid extractable)	<0.02 mg/L	APHA 3030 E/3120 B	0.02

Macquarie Gold Ltd
c/- 'Willowie' Delegate Road
Bombala NSW 2632
Attention: Mike Walcott

Tuesday, December 15, 2015



NATA Accredited Laboratory
Number: 9597

*This document is issued in accordance with
NATA's accreditation requirements. Accredited
for compliance with ISO/IEC 17025. This
document shall not be reproduced, except in full.*

LABORATORY ANALYSIS REPORT

Report Number: 1512-0001

Page 7 of 7

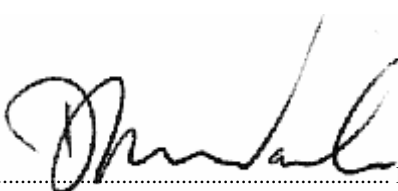
For all enquiries related to this report please quote document number: 1512-0001

Facility:	Order #	Job Work Order 143
Sample Type	Collected By	Date Received
Water	M Maher	01-December-2015

<u>EAL ID</u>	<u>Client ID.</u> Date/Time sample taken	<u>Test</u>	<u>Result (units)</u>	<u>Method Reference</u>	<u>Limit of Reporting</u>
15Dec-0004	#6 Sawpit Gully 26.11.15 9.45am	Sodium (acid extractable)	27.8 mg/L	APHA 3030 E/3120 B	0.05
		Sulphur (acid extractable)	6.54 mg/L	* APHA 3030 E/3120 B	0.06
		Total Suspended Solids	<2 mg/L	APHA 2540 D	2
		Turbidity	2 NTU	APHA 2130 B	1
		Zinc (acid extractable)	0.003 mg/L	APHA 3030 E/3120 B	0.002

Note:

*NATA accreditation not held for tests marked with **

Signed  David Wade, Laboratory Manager.

*All samples analysed as received.
All soil results are reported on a dry basis.
The EAL takes no responsibility for the end use of results within this report.
This report shall not be reproduced except in full.
This report replaces any previously issued report*