

1571-0002
E



ANALYTES REQUIRED Complete & tick as required

CLIENT:	Macquarie Gold (Challenger Mines)		E-mail	DATE SAMPLED	NATURE OF SAMPLE	TIME SAMPLED	CONTAINER TYPE	NUMBER OF CONTAINERS	ANALYTES REQUIRED												
	CONTACT:	Brett Hampel/Ramon Atayde							bwh.business@bigpond.com	Alkalinity, BOD, CN, EC, pH	Hardness, SAR	TSS, Turbidity	Al, As, B, Cd, Ca, Cr, Co, Cu	Fe, Pb, Mg, Mn, Hg, Mo, Ni, P	K, Se, Na, S, Zn	Oil & Grease	Cl, F				
ADDRESS:	65 Golden Gully Road adelong NSW 2729																				
TELEPHONE:	0407 729 788																				
SAMPLE IDENTIFICATION																					
#1 sediment pond				29-10-15	water	9:20	Plastic	2													
#2 sediment pond				29-10-15	water	9:20	Plastic/glass	2													
#3 goodwin dam spillway				29-10-15	water	9:20	Plastic	1													
#3 goodwin dam spillway				29-10-15	water	9:40	Glass	1													
#4 sample point goodwin dam				29-10-15	water	9:40	Plastic	1													
#4 sample point goodwin dam				29-10-15	water	9:40	Glass	1													
#6 Sample Gully				29-10-15	water	10:00	Plastic	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	TIME
	Melanie Maher	<i>Melanie Maher</i>	Challenger mines	29-10-15	10:40
Mode of Transport	Pack & Send				
RECEIVED BY:					

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

Thursday, November 12, 2015



NATA Accredited Laboratory
Number: 9597

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LABORATORY ANALYSIS REPORT

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Facility:	Order # Job Order 113
Sample Type	Collected By Melanie Maher
Water	Date Received 02-November-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>
15Nov-0002	#1 Sediment Pond 29.10.15 9.20am	Alkalinity, Total as CaCO3	77 mg/L	APHA 2320 B	2
		Aluminium (acid extractable)	1.48 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	3 mg/L	APHA 5210 B/4500-O G	2
		Boron (acid extractable)	0.39 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)	15.5 mg/L	APHA 3030 E/3120 B	0.03
		Chloride	2.6 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	214 µS/cm	APHA 2510 B	1
		Fluoride	0.3 mg/L	APHA 4110 B	0.1
		Total Hardness as CaCO3	74 mg/L	APHA 2340 B	2
		Iron (acid extractable)	1.17 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)	8.66 mg/L	APHA 3030 E/3120 B	0.02
		Manganese (acid extractable)	0.030 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

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15Nov-0002	#1 Sediment Pond 29.10.15 9.20am	Oil & Grease	3 mg/L	APHA 5520 D	1
		Phosphorus	0.17 mg/L	APHA 3030 E/3120 B	0.02
		pH	8.8 pH units	APHA 4500-H+ B	
		Potassium (acid extractable)	0.8 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)	17.9 mg/L	APHA 3030 E/3120 B	0.05
		Sulphur (acid extractable)	11.2 mg/L	* APHA 3030 E/3120 B	0.06
		Total Suspended Solids	16 mg/L	APHA 2540 D	2
		Turbidity	14 NTU	APHA 2130 B	1
		Zinc (acid extractable)	<0.002 mg/L	APHA 3030 E/3120 B	0.002
15Nov-0003	#3 Goodwin Dam Spillway 29.10.15 9.40am	Alkalinity, Total as CaCO ₃	118 mg/L	APHA 2320 B	2
		Aluminium (acid extractable)	0.72 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)	51.7 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

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15Nov-0003	#3 Goodwin Dam Spillway 29.10.15 9.40am	Copper (acid extractable)	0.005 mg/L	APHA 3030 E/3120 B	0.002
		Cyanide	<0.002 mg/L	* APHA 4500-CN E	0.002
		Conductivity	483 µS/cm	APHA 2510 B	1
		Fluoride	0.6 mg/L	APHA 4110 B	0.1
		Total Hardness as CaCO3	205 mg/L	APHA 2340 B	2
		Iron (acid extractable)	0.30 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)	18.5 mg/L	APHA 3030 E/3120 B	0.02
		Manganese (acid extractable)	0.032 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	5 mg/L	APHA 5520 D	1
		Phosphorus	0.02 mg/L	APHA 3030 E/3120 B	0.02
		pH	8.3 pH units	APHA 4500-H+ B	
		Potassium (acid extractable)	3.5 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)	21.6 mg/L	APHA 3030 E/3120 B	0.05
		Sulphur (acid extractable)	39.7 mg/L	* APHA 3030 E/3120 B	0.06
		Total Suspended Solids	<2 mg/L	APHA 2540 D	2
		Turbidity	5 NTU	APHA 2130 B	1

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15Nov-0003	#3 Goodwin Dam Spillway 29.10.15 9.40am	Zinc (acid extractable)	<0.002 mg/L	APHA 3030 E/3120 B	0.002
15Nov-0004	#4 Sample Point Goodwin Dam 29.10.15 9.40am	Alkalinity, Total as CaCO ₃	115 mg/L	APHA 2320 B	2
		Aluminium (acid extractable)	0.47 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)	0.40 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)	51.5 mg/L	APHA 3030 E/3120 B	0.03
		Chloride	6.3 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)	0.005 mg/L	APHA 3030 E/3120 B	0.002
		Cyanide	<0.002 mg/L	* APHA 4500-CN E	0.002
		Conductivity	495 µS/cm	APHA 2510 B	1
		Fluoride	0.6 mg/L	APHA 4110 B	0.1
		Total Hardness as CaCO ₃	204 mg/L	APHA 2340 B	2
		Iron (acid extractable)	0.18 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)	18.4 mg/L	APHA 3030 E/3120 B	0.02
		Manganese (acid extractable)	0.026 mg/L	APHA 3030 E/3120 B	0.001

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15Nov-0004	#4 Sample Point Goodwin Dam 29.10.15 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	3 mg/L	APHA 5520 D	1
		Phosphorus	<0.02 mg/L	APHA 3030 E/3120 B	0.02
		pH	8.4 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)	21.5 mg/L	APHA 3030 E/3120 B	0.05
		Sulphur (acid extractable)	39.2 mg/L	* APHA 3030 E/3120 B	0.06
		Total Suspended Solids	2 mg/L	APHA 2540 D	2
		Turbidity	3 NTU	APHA 2130 B	1
		Zinc (acid extractable)	<0.002 mg/L	APHA 3030 E/3120 B	0.002
15Nov-0005	#6 Sawpit Gully 29.10.15 10.00am	Alkalinity, Total as CaCO3	201 mg/L	APHA 2320 B	2
		Aluminium (acid extractable)	0.36 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)	0.76 mg/L	* APHA 3030 E/3120 B	0.02
		Cadmium (acid extractable)	<0.002 mg/L	APHA 3030 E/3120 B	0.002

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15Nov-0005	#6 Sawpit Gully 29.10.15 10.00am	Calcium (acid extractable)	35.9 mg/L	APHA 3030 E/3120 B	0.03
		Chloride	8.8 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	445 µS/cm	APHA 2510 B	1
		Fluoride	0.4 mg/L	APHA 4110 B	0.1
		Total Hardness as CaCO3	167 mg/L	APHA 2340 B	2
		Iron (acid extractable)	0.18 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)	18.7 mg/L	APHA 3030 E/3120 B	0.02
		Manganese (acid extractable)	0.119 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	7.5 pH units	APHA 4500-H+ B	
		Potassium (acid extractable)	1.7 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

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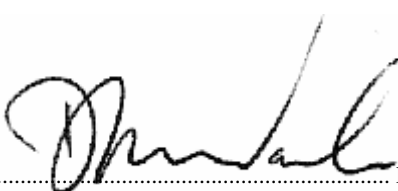
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15Nov-0005	#6 Sawpit Gully 29.10.15 10.00am	Sodium (acid extractable)	33.3 mg/L	APHA 3030 E/3120 B	0.05
		Sulphur (acid extractable)	12.6 mg/L	* APHA 3030 E/3120 B	0.06
		Total Suspended Solids	<2 mg/L	APHA 2540 D	2
		Turbidity	2 NTU	APHA 2130 B	1
		Zinc (acid extractable)	<0.002 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.
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