



ALS Canada Ltd.
2103 Dollarton Hwy
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www.alsglobal.com

To: ANGLOGOLD ASHANTI MINNESOTA INC.
6300 S. SYRACUSE WAY #500
CENTENNIAL CO 80111
USA

Page: 1
Total # Pages: 2 (A - E)
Plus Appendix Pages
Finalized Date: 16-SEP-2016
Account: AAMICLSR

CERTIFICATE TB16147048

This report is for 10 Rock samples submitted to our lab in Thunder Bay, ON, Canada on 2-SEP-2016.

The following have access to data associated with this certificate:

PAUL BARTOS

PHIL LARSON

SAMPLE PREPARATION

ALS CODE	DESCRIPTION
WEI-21	Received Sample Weight
LOG-22	Sample login - Rcd w/o BarCode
CRU-31	Fine crushing - 70% <2mm
SPL-21	Split sample - riffle splitter
PUL-32	Pulverize 1000g to 85% < 75 um
CRU-QC	Crushing QC Test
PUL-QC	Pulverizing QC Test

ANALYTICAL PROCEDURES

ALS CODE	DESCRIPTION	INSTRUMENT
Au-ICP22	Au 50g FA ICP-AES finish	ICP-AES
ME-ICP06	Whole Rock Package - ICP-AES	ICP-AES
C-IR07	Total Carbon (Leco)	LECO
S-IR08	Total Sulphur (Leco)	LECO
ME-MS81	Lithium Borate Fusion ICP-MS	ICP-MS
ME-MS42	Up to 34 elements by ICP-MS	ICP-MS
OA-GRA05	Loss on Ignition at 1000C	WST-SEQ
TOT-ICP06	Total Calculation for ICP06	ICP-AES
ME-4ACD81	Base Metals by 4-acid dig.	ICP-AES

To: ANGLOGOLD ASHANTI MINNESOTA INC.
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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:

Colin Ramshaw, Vancouver Laboratory Manager



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CERTIFICATE OF ANALYSIS TB16147048

Sample Description	Method Analyte Units LOR	WEI-21 Recvd Wt. kg	Au-ICP22 Au ppm	ME-ICP06 SiO2 %	ME-ICP06 Al2O3 %	ME-ICP06 Fe2O3 %	ME-ICP06 CaO %	ME-ICP06 MgO %	ME-ICP06 Na2O %	ME-ICP06 K2O %	ME-ICP06 Cr2O3 %	ME-ICP06 TiO2 %	ME-ICP06 MnO %	ME-ICP06 P2O5 %	ME-ICP06 SrO %	ME-ICP06 BaO %
AGAR3555		1.16	0.001	58.5	7.88	8.03	9.38	2.46	0.08	1.85	<0.01	0.64	0.15	0.05	0.01	<0.01
AGAR3556		0.68	<0.001	67.8	15.90	4.93	1.08	2.72	1.99	1.14	0.02	0.53	0.03	0.12	0.04	0.01
AGAR3557		1.16	0.003	53.5	15.30	13.65	8.84	4.19	2.03	0.34	0.04	0.77	0.27	0.05	0.01	<0.01
AGAR3558		2.20	<0.001	68.5	14.35	5.05	1.77	2.13	5.32	1.13	0.02	0.49	0.04	0.14	0.04	0.02
AGAR3559		1.10	0.001	66.0	15.65	4.11	2.02	1.05	3.42	4.64	0.01	0.52	0.05	0.15	0.09	0.08
AGAR3560		0.87	<0.001	66.9	14.35	5.65	1.75	2.23	5.21	1.12	0.03	0.55	0.05	0.16	0.04	0.02
AGAR3561		0.93	0.002	67.4	16.35	3.99	1.41	2.32	3.17	2.14	0.01	0.36	0.05	0.13	0.05	0.06
AGAR3562		1.32	0.019	44.5	13.85	10.25	6.73	3.74	6.98	1.14	0.02	0.80	0.18	0.15	0.02	0.01
AGAR3563		1.40	<0.001	99.0	0.17	0.72	0.01	0.04	0.03	0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.01
AGAR3564		1.02	0.001	85.0	7.14	3.22	1.36	1.25	1.23	1.05	0.01	0.23	0.03	0.07	0.03	0.01



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CERTIFICATE OF ANALYSIS TB16147048

Sample Description	Method Analyte Units LOR	OA-GRA05 LOI %	TOT-ICP06 Total %	C-IR07 C %	S-IR08 S %	ME-MS81 Ba ppm	ME-MS81 Ce ppm	ME-MS81 Cr ppm	ME-MS81 Cs ppm	ME-MS81 Dy ppm	ME-MS81 Er ppm	ME-MS81 Eu ppm	ME-MS81 Ga ppm	ME-MS81 Gd ppm	ME-MS81 Ge ppm	ME-MS81 Hf ppm
		0.01	0.01	0.01	0.01	0.5	0.5	10	0.01	0.05	0.03	0.03	0.1	0.05	5	0.2
AGAR3555		11.15	100.18	2.84	0.08	127.0	8.1	30	1.30	3.35	2.16	0.58	14.4	3.08	<5	1.1
AGAR3556		2.21	98.52	0.03	1.17	195.0	46.9	180	0.59	2.11	1.20	0.90	18.8	2.74	<5	3.6
AGAR3557		1.66	100.65	0.08	0.86	105.5	8.1	320	1.02	3.58	2.29	0.79	16.7	2.92	<5	1.4
AGAR3558		1.24	100.24	0.03	0.72	272	58.9	170	2.53	2.18	1.20	1.04	14.7	3.23	<5	4.4
AGAR3559		2.99	100.78	0.09	2.15	821	167.0	70	4.65	3.01	1.35	2.44	20.7	5.99	<5	7.8
AGAR3560		1.42	99.48	0.03	0.89	268	70.1	210	1.73	2.32	1.31	1.23	15.3	3.72	<5	5.4
AGAR3561		2.05	99.49	0.03	0.16	654	53.0	70	2.37	1.84	0.86	0.91	21.6	2.68	<5	4.0
AGAR3562		9.74	98.11	2.84	0.29	76.1	22.2	140	0.31	3.16	1.79	0.98	15.6	3.19	<5	2.2
AGAR3563		0.04	100.03	<0.01	<0.01	3.7	1.0	40	0.07	<0.05	<0.03	0.04	0.5	0.08	<5	<0.2
AGAR3564		0.96	101.59	<0.01	0.20	148.0	25.9	120	1.70	1.48	0.70	0.61	8.2	2.10	<5	1.2



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CERTIFICATE OF ANALYSIS TB16147048

Sample Description	Method Analyte Units LOR	ME-MS81 Ho ppm 0.01	ME-MS81 La ppm 0.5	ME-MS81 Lu ppm 0.01	ME-MS81 Nb ppm 0.2	ME-MS81 Nd ppm 0.1	ME-MS81 Pr ppm 0.03	ME-MS81 Rb ppm 0.2	ME-MS81 Sm ppm 0.03	ME-MS81 Sn ppm 1	ME-MS81 Sr ppm 0.1	ME-MS81 Ta ppm 0.1	ME-MS81 Tb ppm 0.01	ME-MS81 Th ppm 0.05	ME-MS81 Tm ppm 0.01	ME-MS81 U ppm 0.05
AGAR3555		0.74	3.2	0.31	1.9	6.1	1.31	66.9	2.19	<1	94.5	0.1	0.58	0.24	0.32	0.05
AGAR3556		0.41	22.1	0.16	3.6	19.9	5.61	35.6	3.30	1	316	0.3	0.40	6.18	0.21	2.12
AGAR3557		0.73	4.1	0.37	1.7	6.6	1.33	13.4	2.26	<1	101.5	0.1	0.52	0.32	0.33	0.34
AGAR3558		0.42	28.6	0.15	5.0	26.2	7.06	39.4	4.12	1	367	0.3	0.42	5.89	0.17	2.15
AGAR3559		0.51	92.3	0.19	12.3	61.6	17.80	143.5	9.22	<1	813	0.5	0.65	16.10	0.22	3.30
AGAR3560		0.47	34.5	0.20	6.0	31.5	8.17	40.7	5.03	1	364	0.4	0.50	8.02	0.19	2.75
AGAR3561		0.35	24.2	0.13	4.6	20.7	5.82	65.8	3.56	1	426	0.4	0.37	5.64	0.14	1.78
AGAR3562		0.65	10.5	0.25	3.5	12.2	2.83	23.6	2.84	1	163.5	0.2	0.55	1.38	0.24	0.65
AGAR3563		0.01	0.7	0.01	<0.2	0.6	0.14	0.6	0.14	<1	4.1	<0.1	0.01	<0.05	0.02	<0.05
AGAR3564		0.30	12.6	0.08	2.7	12.2	3.21	50.2	2.25	1	242	0.1	0.30	2.28	0.12	0.79



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Sample Description	Method Analyte Units LOR	ME-MS81 V ppm 5	ME-MS81 W ppm 1	ME-MS81 Y ppm 0.5	ME-MS81 Yb ppm 0.03	ME-MS81 Zr ppm 2	ME-MS42 As ppm 0.1	ME-MS42 Bi ppm 0.01	ME-MS42 Hg ppm 0.005	ME-MS42 In ppm 0.005	ME-MS42 Re ppm 0.001	ME-MS42 Sb ppm 0.05	ME-MS42 Se ppm 0.2	ME-MS42 Te ppm 0.01	ME-MS42 Tl ppm 0.02	ME-4ACD81 Ag ppm 0.5
AGAR3555		212	6	21.3	1.94	45	34.3	0.32	0.007	0.036	0.001	0.16	1.2	0.09	0.05	<0.5
AGAR3556		128	3	10.9	1.03	139	3.5	0.45	<0.005	0.010	0.002	<0.05	0.7	0.05	0.05	0.5
AGAR3557		306	1	21.1	2.12	51	4.2	0.01	<0.005	0.012	0.001	<0.05	0.7	0.03	0.18	<0.5
AGAR3558		99	1	11.7	1.13	170	0.3	0.29	<0.005	0.025	0.001	<0.05	0.3	0.06	0.10	<0.5
AGAR3559		89	3	15.6	1.42	321	11.9	0.08	<0.005	0.019	0.007	0.10	1.3	0.28	0.54	<0.5
AGAR3560		107	1	13.4	1.23	219	0.2	0.34	<0.005	0.026	0.001	<0.05	0.3	0.07	0.06	<0.5
AGAR3561		71	2	9.5	0.91	141	0.6	0.72	<0.005	0.011	<0.001	<0.05	0.3	0.08	0.17	<0.5
AGAR3562		193	4	17.0	1.75	85	0.8	0.12	<0.005	0.022	<0.001	0.30	<0.2	0.06	<0.02	<0.5
AGAR3563		<5	<1	<0.5	<0.03	2	0.4	<0.01	<0.005	<0.005	<0.001	<0.05	<0.2	<0.01	<0.02	<0.5
AGAR3564		53	1	7.7	0.74	45	0.9	0.22	<0.005	0.013	0.001	<0.05	<0.2	0.05	0.12	<0.5



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Sample Description	Method Analyte Units LOR	ME-4ACD81	ME-4ACD81	ME-4ACD81	ME-4ACD81	ME-4ACD81	ME-4ACD81	ME-4ACD81	ME-4ACD81	ME-4ACD81
		Cd	Co	Cu	Li	Mo	Ni	Pb	Sc	Zn
		ppm 0.5	ppm 1	ppm 1	ppm 10	ppm 1	ppm 1	ppm 2	ppm 1	ppm 2
AGAR3555		0.6	25	55	10	<1	25	47	24	210
AGAR3556		<0.5	17	214	<10	4	62	16	9	92
AGAR3557		<0.5	53	129	10	1	131	<2	41	106
AGAR3558		<0.5	19	58	20	2	52	16	10	71
AGAR3559		<0.5	29	64	20	6	98	22	11	53
AGAR3560		<0.5	23	70	20	2	55	18	11	82
AGAR3561		<0.5	12	34	30	2	34	16	8	72
AGAR3562		<0.5	17	7	<10	<1	31	4	27	26
AGAR3563		<0.5	<1	4	<10	<1	1	<2	<1	2
AGAR3564		<0.5	9	39	20	2	33	8	8	30



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CERTIFICATE COMMENTS

LABORATORY ADDRESSES

Applies to Method:	Processed at ALS Thunder Bay located at 1160 Commerce Street, Thunder Bay, ON, Canada.	
	CRU-31	CRU-QC
	PUL-QC	SPL-21
		LOG-22
		WEI-21
		PUL-32
Applies to Method:	Processed at ALS Vancouver located at 2103 Dollarton Hwy, North Vancouver, BC, Canada.	
	Au-ICP22	C-IR07
	ME-MS42	ME-MS81
	TOT-ICP06	ME-4ACD81
		OA-GRA05
		ME-ICP06
		S-IR08