



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

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Total # Pages: 3 (A - D)
Plus Appendix Pages
Finalized Date: 11-AUG-2016
Account: AAMICLSR

QC CERTIFICATE TB16121718

This report is for 34 Sediment samples submitted to our lab in Thunder Bay, ON, Canada on 27-JUL-2016.

The following have access to data associated with this certificate:

PHIL LARSON

SAMPLE PREPARATION

ALS CODE	DESCRIPTION
WEI-21	Received Sample Weight
LOG-22	Sample login - Rcd w/o BarCode
SCR-44	Screen to -63um
LOG-24	Pulp Login - Rcd w/o Barcode

ANALYTICAL PROCEDURES

ALS CODE	DESCRIPTION	
ME-MS61	48 element four acid ICP-MS	
Au-ICP22	Au 50g FA ICP-AES finish	ICP-AES
C-IR07	Total Carbon (Leco)	LECO

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ATTN: PHIL LARSON
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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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QC CERTIFICATE OF ANALYSIS TB16121718

Sample Description	Method Analyte Units LOR	Au-ICP22 Au ppm	ME-MS61 Ag ppm	ME-MS61 Al %	ME-MS61 As ppm	ME-MS61 Ba ppm	ME-MS61 Be ppm	ME-MS61 Bi ppm	ME-MS61 Ca %	ME-MS61 Cd ppm	ME-MS61 Ce ppm	ME-MS61 Co ppm	ME-MS61 Cr ppm	ME-MS61 Cs ppm	ME-MS61 Cu ppm	ME-MS61 Fe %
		0.001	0.01	0.01	0.2	10	0.05	0.01	0.01	0.02	0.01	0.1	1	0.05	0.2	0.01
STANDARDS																
BP-13		0.350														
Target Range - Lower Bound		0.336														
Upper Bound		0.380														
DS-1																
Target Range - Lower Bound																
Upper Bound																
G909-4		7.07														
Target Range - Lower Bound		7.07														
Upper Bound		7.97														
GAu-12a		0.019														
Target Range - Lower Bound		0.019														
Upper Bound		0.023														
GS310-10																
Target Range - Lower Bound																
Upper Bound																
MRGeo08		4.45	7.58	34.2	1100	3.21	0.68	2.74	2.38	80.6	19.8	97	13.55	610	3.93	
Target Range - Lower Bound		4.00	6.64	29.5	920	2.98	0.60	2.35	2.00	66.2	17.7	81	11.20	587	3.55	
Upper Bound		4.92	8.14	36.5	1270	3.76	0.76	2.90	2.48	81.0	21.9	102	13.80	675	4.37	
OREAS 905		0.55	7.37	34.6	2770	2.81	6.02	0.62	0.35	97.3	14.5	20	7.31	1440	3.97	
Target Range - Lower Bound		0.46	6.67	31.0	2280	2.69	5.14	0.52	0.30	82.8	13.2	16	6.05	1425	3.66	
Upper Bound		0.58	8.17	38.4	3110	3.39	6.30	0.66	0.42	101.0	16.4	22	7.51	1640	4.50	
PD1		0.525														
Target Range - Lower Bound		0.508														
Upper Bound		0.576														
BLANKS																
BLANK		<0.001														
Target Range - Lower Bound		<0.001														
Upper Bound		0.002														
BLANK																
Target Range - Lower Bound																
Upper Bound																
BLANK		<0.01	<0.01	<0.2	<10	<0.05	<0.01	<0.01	<0.02	0.01	<0.1	1	<0.05	0.2	<0.01	
Target Range - Lower Bound		<0.01	<0.01	<0.2	<10	<0.05	<0.01	<0.01	<0.02	<0.01	<0.1	<1	<0.05	<0.2	<0.01	
Upper Bound		0.02	0.02	0.4	20	0.10	0.02	0.02	0.04	0.02	0.2	2	0.10	0.4	0.02	



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QC CERTIFICATE OF ANALYSIS TB16121718

Sample Description	Method Analyte Units LOR	ME-MS61 Ga ppm 0.05	ME-MS61 Ge ppm 0.05	ME-MS61 Hf ppm 0.1	ME-MS61 In ppm 0.005	ME-MS61 K % 0.01	ME-MS61 La ppm 0.5	ME-MS61 Li ppm 0.2	ME-MS61 Mg % 0.01	ME-MS61 Mn ppm 5	ME-MS61 Mo ppm 0.05	ME-MS61 Na % 0.01	ME-MS61 Nb ppm 0.1	ME-MS61 Ni ppm 0.2	ME-MS61 P ppm 10	ME-MS61 Pb ppm 0.5
STANDARDS																
BP-13																
Target Range - Lower Bound																
Upper Bound																
DS-1																
Target Range - Lower Bound																
Upper Bound																
G909-4																
Target Range - Lower Bound																
Upper Bound																
GAu-12a																
Target Range - Lower Bound																
Upper Bound																
GS310-10																
Target Range - Lower Bound																
Upper Bound																
MRGeo08		19.30	0.19	3.2	0.177	3.20	38.6	31.1	1.36	552	15.55	2.00	22.0	696	1070	1080
Target Range - Lower Bound		17.50	<0.05	2.8	0.155	2.79	31.1	29.5	1.17	497	13.65	1.76	19.0	622	930	971
Upper Bound		21.5	0.27	3.6	0.201	3.43	39.1	36.5	1.45	619	16.75	2.18	23.4	760	1160	1185
OREAS 905		25.0	0.16	7.0	0.667	2.91	47.2	18.4	0.27	356	3.25	2.38	18.5	9.3	270	31.1
Target Range - Lower Bound		22.5	<0.05	6.1	0.571	2.58	40.9	17.8	0.24	333	2.89	2.15	16.2	8.4		26.9
Upper Bound		27.7	0.27	7.6	0.709	3.18	51.1	22.2	0.31	418	3.65	2.65	20.0	10.7		33.9
PD1																
Target Range - Lower Bound																
Upper Bound																
BLANKS																
BLANK																
Target Range - Lower Bound																
Upper Bound																
BLANK																
Target Range - Lower Bound																
Upper Bound																
BLANK		<0.05	0.06	<0.1	<0.005	<0.01	<0.5	<0.2	<0.01	<5	<0.05	<0.01	<0.1	0.2	<10	<0.5
Target Range - Lower Bound		<0.05	<0.05	<0.1	<0.005	<0.01	<0.5	<0.2	<0.01	<5	<0.05	<0.01	<0.1	<0.2	<10	<0.5
Upper Bound		0.10	0.10	0.2	0.010	0.02	1.0	0.4	0.02	10	0.10	0.02	0.2	0.4	20	1.0



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Sample Description	Method Analyte Units LOR	ME-MS61 Rb ppm	ME-MS61 Re ppm	ME-MS61 S %	ME-MS61 Sb ppm	ME-MS61 Sc ppm	ME-MS61 Se ppm	ME-MS61 Sn ppm	ME-MS61 Sr ppm	ME-MS61 Ta ppm	ME-MS61 Te ppm	ME-MS61 Th ppm	ME-MS61 Ti %	ME-MS61 Tl ppm	ME-MS61 U ppm	ME-MS61 V ppm
		0.1	0.002	0.01	0.05	0.1	1	0.2	0.2	0.05	0.05	0.01	0.005	0.02	0.1	1
STANDARDS																
BP-13																
Target Range - Lower Bound																
Upper Bound																
DS-1																
Target Range - Lower Bound																
Upper Bound																
G909-4																
Target Range - Lower Bound																
Upper Bound																
GAu-12a																
Target Range - Lower Bound																
Upper Bound																
GS310-10																
Target Range - Lower Bound																
Upper Bound																
MRGeo08		204	0.007	0.31	4.70	12.6	2	4.0	308	1.62	<0.05	21.7	0.504	1.14	6.0	111
Target Range - Lower Bound		173.5	0.005	0.27	3.89	11.1	<1	3.5	277	1.39	<0.05	17.90	0.443	0.89	4.9	97
Upper Bound		212	0.013	0.35	5.39	13.7	4	4.7	339	1.81	0.14	21.9	0.553	1.25	6.2	121
OREAS 905		140.0	<0.002	0.07	1.97	5.2	3	4.0	159.5	1.40	0.05	14.95	0.120	0.78	5.1	10
Target Range - Lower Bound		124.0	<0.002	0.04	1.61	4.3	<1	3.4	141.0	1.16	<0.05	13.15	0.105	0.59	4.4	8
Upper Bound		152.0	0.004	0.09	2.29	5.5	5	4.6	173.0	1.52	0.19	16.05	0.139	0.85	5.6	13
PD1																
Target Range - Lower Bound																
Upper Bound																
BLANKS																
BLANK																
Target Range - Lower Bound																
Upper Bound																
BLANK																
Target Range - Lower Bound																
Upper Bound																
BLANK		<0.1	<0.002	<0.01	0.06	<0.1	<1	<0.2	<0.2	<0.05	<0.05	<0.01	<0.005	<0.02	<0.1	<1
Target Range - Lower Bound		<0.1	<0.002	<0.01	<0.05	<0.1	<1	<0.2	<0.2	<0.05	<0.05	<0.01	<0.005	<0.02	<0.1	<1
Upper Bound		0.2	0.004	0.02	0.10	0.2	2	0.4	0.4	0.10	0.10	0.02	0.010	0.04	0.2	2



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QC CERTIFICATE OF ANALYSIS TB16121718

Sample Description	Method Analyte Units LOR	ME-MS61 W ppm 0.1	ME-MS61 Y ppm 0.1	ME-MS61 Zn ppm 2	ME-MS61 Zr ppm 0.5	C-IR07 C % 0.01
STANDARDS						
BP-13						
Target Range - Lower Bound						
Upper Bound						
DS-1						3.14
Target Range - Lower Bound						3.01
Upper Bound						3.25
G909-4						
Target Range - Lower Bound						
Upper Bound						
GAu-12a						
Target Range - Lower Bound						
Upper Bound						
GS310-10						1.08
Target Range - Lower Bound						1.03
Upper Bound						1.13
MRGeo08		5.0	28.7	807	109.5	
Target Range - Lower Bound		4.1	23.8	722	92.2	
Upper Bound		5.8	29.3	886	126.0	
OREAS 905		2.9	16.7	136	252	
Target Range - Lower Bound		2.3	14.0	122	214	
Upper Bound		3.3	17.4	154	290	
PD1						
Target Range - Lower Bound						
Upper Bound						
BLANKS						
BLANK						
Target Range - Lower Bound						
Upper Bound						
BLANK						<0.01
Target Range - Lower Bound						<0.01
Upper Bound						0.02
BLANK		<0.1	<0.1	<2	<0.5	
Target Range - Lower Bound		<0.1	<0.1	<2	<0.5	
Upper Bound		0.2	0.2	4	1.0	



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		0.001	0.01	0.01	0.2	10	0.05	0.01	0.01	0.02	0.01	0.1	1	0.05	0.2	0.01
DUPLICATES																
ORIGINAL		0.030														
DUP		0.027														
Target Range - Lower Bound		0.026														
Upper Bound		0.031														
ORIGINAL		0.007														
DUP		0.002														
Target Range - Lower Bound		0.003														
Upper Bound		0.006														
AGAM13841			0.06	6.43	2.7	540	1.24	0.12	2.32	0.08	49.9	12.0	118	1.77	30.3	2.90
DUP			0.07	6.43	2.2	530	1.19	0.13	2.30	0.09	47.0	11.8	116	1.77	29.1	2.85
Target Range - Lower Bound			0.05	6.10	2.1	480	1.10	0.11	2.18	0.06	46.0	11.2	110	1.63	28.5	2.72
Upper Bound			0.08	6.76	2.8	590	1.33	0.14	2.44	0.11	50.9	12.6	124	1.91	30.9	3.03
AGAM13847		0.001														
DUP		0.001														
Target Range - Lower Bound		<0.001														
Upper Bound		0.002														



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ORIGINAL DUP Target Range - Lower Bound Upper Bound		DUPLICATES														
ORIGINAL DUP Target Range - Lower Bound Upper Bound																
AGAM13841 DUP Target Range - Lower Bound Upper Bound		14.80 14.60 13.90 15.50	0.13 0.15 0.08 0.20	3.4 3.1 3.0 3.5	0.028 0.026 0.021 0.033	1.82 1.80 1.71 1.91	23.7 23.0 21.7 25.0	15.1 14.1 13.7 15.5	0.95 0.95 0.89 1.01	497 502 470 529	11.75 11.30 10.90 12.15	2.14 2.11 2.01 2.24	5.9 5.8 5.5 6.2	43.8 39.9 39.6 44.1	560 550 520 590	14.4 14.0 13.0 15.4
AGAM13847 DUP Target Range - Lower Bound Upper Bound																



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		0.1	0.002	0.01	0.05	0.1	1	0.2	0.2	0.05	0.05	0.01	0.005	0.02	0.1	1
ORIGINAL DUP Target Range - Lower Bound Upper Bound		DUPLICATES														
ORIGINAL DUP Target Range - Lower Bound Upper Bound																
AGAM13841 DUP Target Range - Lower Bound Upper Bound		66.6 66.3 63.0 69.9	0.003 0.002 <0.002 0.004	0.04 0.04 0.03 0.05	0.41 0.37 0.31 0.47	8.8 8.6 8.2 9.2	1 1 <1 2	1.4 1.4 1.1 1.7	327 324 309 342	0.50 0.52 0.43 0.59	<0.05 <0.05 <0.05 0.10	7.35 6.56 6.60 7.31	0.259 0.255 0.239 0.275	0.40 0.40 0.35 0.45	1.5 1.4 1.3 1.6	60 60 56 64
AGAM13847 DUP Target Range - Lower Bound Upper Bound																



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Sample Description	Method Analyte Units LOR	ME-MS61 W ppm 0.1	ME-MS61 Y ppm 0.1	ME-MS61 Zn ppm 2	ME-MS61 Zr ppm 0.5	C-IR07 C % 0.01
ORIGINAL DUP Target Range - Lower Bound Upper Bound	DUPLICATES					
ORIGINAL DUP Target Range - Lower Bound Upper Bound						
AGAM13841 DUP Target Range - Lower Bound Upper Bound	9.1 9.0 8.3 9.8	12.6 12.3 11.7 13.2	42 41 37 46	121.5 115.5 112.0 125.0	0.48 0.48 0.46 0.50	
AGAM13847 DUP Target Range - Lower Bound Upper Bound						



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CERTIFICATE COMMENTS

ANALYTICAL COMMENTS

Applies to Method: NSS is non-sufficient sample.
 ALL METHODS

Applies to Method: REE's may not be totally soluble in this method.
 ME-MS61

LABORATORY ADDRESSES

Applies to Method: Processed at ALS Thunder Bay located at 1160 Commerce Street, Thunder Bay, ON, Canada.
 LOG-22 LOG-24 SCR-44 WEI-21

Applies to Method: Processed at ALS Vancouver located at 2103 Dollarton Hwy, North Vancouver, BC, Canada.
 Au-ICP22 C-IR07 ME-MS61