TESTING AND CALIBRATION LABORATORY ACCREDITATION PROGRAM (LAP)

Scope of Accreditation

Legal Name of Accredited Laboratory:	**AGAT Laboratories Ltd.**
Location Name or Operating as (if applicable):	AGAT Mining Geochemistry Testing Services
Contact Name:	Belinda B. Lacuata
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SCC File Number:	151266
Accreditation Standard(s):	ISO/IEC 17025:2017 General requirements for the competence of testing and calibration laboratories
Fields of Testing:	Chemical/Physical
Program Specialty Area:	Mineral Analysis
Initial Accreditation:	2021-09-03
Most Recent Accreditation:	2024-07-09
Accreditation Valid to:	2026-09-03

SCC Group Accreditation:
This laboratory is a part of a Group Accreditation with the following facilities in accordance with SCC's policy on Group Accreditation documented in the Accreditation Services Accreditation Program Overview.

- AGAT Laboratories Ltd., Thunder Bay, SCC File No. 151083
- AGAT Laboratories Ltd., Calgary, SCC File No. 151266

The physical sample preparation involving accredited test methods for Minerals Analysis as listed on the Scope of Accreditation may be performed at the AGAT Laboratories Ltd., Calgary, SCC File No. 151266 location or at off-site sample preparation laboratories that are monitored regularly for quality control and quality assurance practices:

- AGAT Laboratories Ltd. –3500 19th Street NE, Calgary, AB T2E 8B9

- AGAT Laboratories Ltd. – 1045 Gorham Street, Thunder Bay, ON P7B 5X5
- AGAT Laboratories Ltd. – 1185 Rue Des Foreurs, Val-d'Or, QC J9P

Remarque: La présente portée d'accréditation existe également en français, sous la forme d'un document distinct.
Note: This scope of accreditation is also available in French as a document issued separately.

ENVIRONMENTAL AND OCCUPATIONAL HEALTH AND SAFETY

Environmental:

Leachates, Wastewater

ARD-284-18011	Determination of pH in Aqueous Extracts and Leachates Using a Manual pH Meter (formerly ARD-283-18011) (Eaton, A. D., Clesceri, L. S., Rice, E. W. and A. E. Greenberg (Eds). 2012. 4500-H^+ pH Value in Standard Methods for the Examination of Water and Wastewater, 23rd ed., American Public Health Association. Washington, D.C): pH
ARD-284-18012	Determination of Electric Conductivity (EC) in Aqueous Extracts and Leachates Using Manual EC Meter (formerly ARD-283-18012) (Eaton, A. D., Clesceri, L. S., Rice, E. W. and A. E. Greenberg (Eds). 2012. 2510 Conductivity in Standard Methods for the Examination of Water and Wastewater, 23rd ed., American Public Health Association. Washington, D.C.): Conductivity (25°C)
ARD-284-18013	Determination of Oxidation Reduction Potential (Eh) in Aqueous Extracts & Leachates Using ORP Meter (formerly ARD-283-18013) (Eaton, A.D., Clesceri, L. S., Rice, E.W. and A.E. Greenberg (Eds). 2580 B Oxidation-Reduction Potential Measurement in Clean Water in Standard Methods for the Examination of Water and Wastewater, 23rd ed., American Public Health Association, Washington, D.C.): Oxidation Reduction Potential

Tailings, Waste Rock, Soil & Ore

ARD-284-18000	Determination of the Neutralization Potential of Acid Rock Drainage (ARD) Samples by the Modified Acid-Base Accounting (ABA) Procedure (formerly ARD-283-18000) (Lawrence, R. W., Poling, G.P. and Marchant, P.B., 1989. Investigation of Predictive Techniques for Acid Mine Drainage. Report on DSS Contract No. 23440-7-9178/01-SQ, Energy Mines and Resources, Canada, MEND Report 1.16.1 (a). (Lawrence Back Titration to pH 8.3, 1989 Method; Mend Project 1.16.1b, 1991 Method): Neutralization Potential as kg $CaCO_3$/tonne

ARD-284-18003	Determination of Saturated Paste pH of Acid Rock Drainage (ARD) Samples Using a Manual pH Meter (formerly ARD-283-18003) (Sobek, A.A., Schuller, W.A., Freeman, J.R. and Smith, R.M., Field and Laboratory Method Applicable to Overburden and Minesoils, Report EPA-600/2-78-054, U.S. National Technical Information Service Report PB-280 495 p 45-47, March 1978.): Paste pH
ARD-284-18019	Determination of Total Carbon and Sulphur in Geological Samples Using Infrared Combustion Furnace (formerly MIN-283-12001)
ARD-284-18020	Determination of Graphitic Carbon in Geological Samples Using Using Infrared Combustion Furnace (formerly MIN-283-12002)
ARD-284-18021	Extraction of Acid Soluble Sulphate (SO_4^{2-}) in Mineralogical and Acid Rock Drainage Samples by Hydrochloric Acid Digestion followed by ICP-OES (formerly MIN-283-12003)
MIN-283-12018	Determination of Major and Trace Metals in Industrial Waters, Aqueous Extracts and Leachates using Inductively Coupled Plasma-Optical Emission Spectroscopy (ICP-OES) Al, Ba, Ca, Cr, Cu, Fe, K, Li, Mg, Mn, Na, Ni, P, S, Si, Sr, Ti, V, Zn
MIN-283-12021	Determination of Major and Trace Metals in Industrial Waters, Aqueous Extracts and Leachates using Inductively Coupled Pasma-Mass Spectroscopy (ICP-MS) Ag, Al, As, Au, B, Ba, Be, Bi, Ca, Cd, Ce, Co, Cr, Cs, Cu, Dy, Er, Eu, Fe, Ga, Gd, Ge, Hf, Hg, Ho, In, K, La, Li, Lu, Mg, Mn, Mo, Na, Nb, Nd, Ni, P, Pb, Pd, Pt, Pr, Rb, Re, Sb, Sc, Se, Sm, Sn, Sr, Ta, Tb, Te, Th, Ti, Tl, Tm, U, V, W, Y, Yb, Zn, Zr

METALLIC ORES AND PRODUCTS

Mineral Analysis Testing

Mineral Assaying

MIN-283-12004	Extraction of Rare Elements and Oxides in Mineralogical Samples Using Lithium Borate Fusion and ICP-OES and/or ICP-MS - ICP-OES: Al_2O_3, BaO, CaO, Cr_2O_3, CuO, Fe_2O_3, K_2O, MgO, MnO, Na_2O, NiO, P_2O_5, SiO_2, SrO, TiO_2, ZnO; - ICP-MS: Ba, Ce, Co, Cs, Cu, Dy, Er, Eu, Ga, Ge, Gd, Hf, Ho, In, La, Lu, Mo, Nb, Nd, Ni, Rb, Pr, Sc, Sm, Sn, Sr, Ta, Tb, Th, Tl, Tm, U, V, W, Y, Yb, Zr
MIN-283-12005	Determination of Loss on Ignition in Mineralogical Testing Samples

MIN-283-12006	Extraction of Major and Trace Elements and Metals in Geological Samples Using Sodium Peroxide Fusion for ICP-OES and ICP-MS - ICP-OES: Al, As, Ba, Be, Ca, Cd, Co, Cr, Cu, Fe, K, La, Li, Mg, Mn, Mo, Ni, P, Pb, S, Sb, Sc, Si, Sn, Sr, Ti, V, W, Y, Zn; - ICP-OES and ICP-MS: Al, As, Ba, Be, Bi, Ca, Cd, Ce, Co, Cr, Cs, Cu, Dy, Er, Eu, Fe, Ga, Gd, Ge, Hf, Ho. In, K, La, Li, Lu, Mg, Mn, Mo, Nb, Nd, Ni, P, Pb, Pr, Rb, S, Sb, Sc, Se, Si, Sm, Sn, Sr, Ta, Tb, Te, Th, Ti, Tl, Tm, U, V, W, Y, Zn, Zr
MIN-283-12008	Extraction of Major and Trace Elements and Metals in Geological Samples by Four Acid Digestion followed by ICP-OES and/ or ICP-MS - ICP-OES: Ag, Al, As, Ba, Be, Bi, Ca, Cd, Co, Cr, Cu, Fe, Ga, K, La, Li, Mg, Mn, Mo, Na, Ni, P, Pb, S, Sb, Sc, Sr, Th, Ti, Tl, U, V, W, Zn; - ICP-OES and ICP-MS: Ag, Al, As, Ba, Be, Bi, Ca, Cd, Ce, Co, Cr, Cs, Cu, Fe, Ga, Ge, Hf, In, K, La, Li, Mg, Mn, Mo, Na, Ni, Nb, P, Pb, Re, Rb, S, Sb, Sc, Se, Sn, Sr, Ta, Te, Th, Ti, Tl, U, V, W, Y, Zn, Zr
MIN-283-12010	Determination of Metals in Geological and Mineralogical Samples by Aqua Regia (Nitric and Hydrochloric Acid) Digestion followed by ICP-OES and/or ICP-MS - ICP-OES: Ag, Al, As, B, Ba, Be, Bi, Ca, Cd, Co, Cr, Cu, Fe, Ga, Hg, K, La, Li, Mg, Mn, Mo, Na, Ni, P, Pb, S, Sb, Sc, Sr, Th, Ti, Tl, U, V, W, Zn; - ICP-OES and ICP-MS: Ag, Al, As, Au, B, Ba, Be, Bi, Ca, Cd, Ce, Co, Cr, Cs, Cu, Fe, Ga, Ge, Hf, Hg, In, K, La, Li, Mg, Mn, Mo, Na, Ni, Nb, P, Pb, Re, Rb, S, Sb, Sc, Se, Sn, Sr, Ta, Te, Th, Ti, Tl, U, V, W, Y, Zn, Zr
MIN-283-12015[f]	Determination of Gold (Au) in Gold Bead Samples from Lead Fusion Fire Assay Using Gravimetric Method
MIN-283-12016[f]	Extraction of Gold (Au), Platinum (Pt) and Palladium (Pd) in Gold Bead Samples from Lead Fusion Fire Assay Process using Inductively Coupled Plasma – Optical Emission Spectroscopy (ICP-OES) Finish
MIN-283-12017[f]	Determination of Gold (Au) in Gold Bead Samples from Lead Fusion Fire Assay Procedure using Atomic Absorption Spectroscopy (AAS)
MIN-283-12025	Determination of Major, Trace and Rare Earth Elements Including Metals and Oxides in Geological, Soil and Ore Samples Following Various Laboratory Extraction and Acid Digestion Methods Using Inductively Coupled Plasma – Optical Emission Spectroscopy (ICP-OES): see ARD-284-18021, MIN-283-12004, MIN-283-12006, MIN-283-12008, MIN-283-12010 and MIN-283-12016
MIN-283-12026	Determination of Major, Trace and Rare Earth Elements in Geological, Soil and Ore Samples Following Various Laboratory Extraction and Acid Digestion Methods Using Inductively Coupled Plasma – Mass Spectroscopy (ICP-MS) : see MIN-283-12004, MIN-283-12006, MIN-283-12008 and MIN-283-12010

*ROCK-10-26000	Determination of Oxide Content in Mineral Samples by Lithium Borate Fusion and Wavelength Disperse X-Ray Fluorescence Spectroscopy (In-House): Al_2O_3, BaO, CaO, Cr_2O_3, CuO, Fe_2O_3, HfO_2, K_2O, MgO, MnO, Na_2O, NiO, P_2O_5, PbO, SiO_2, SO_3, SrO, TiO_2, V_2O_5, ZnO, ZrO_2, %LOI
*ROCK-10-26002	Preparation and Determination of Specific Gravity Using Gas Pycnometry
**MIN-12007	Soil Sieving, Screen Analysis and Particle Size Distribution of Mineralogical Samples
**MIN-12010	Crushing and Splitting of Mineralogical Samples - Mining Geochemistry Assaying Division – Branches
**MIN-12012	Milling of Mineralogical Samples

Number of Scope Listings: 25

Notes:

ISO/IEC 17025:2017: General Requirements for the Competence of Testing and Calibration Laboratories
LOI: Loss on ignition

*Tests marked with asterisk are performed at 1620 27th Avenue NE, Calgary AB T2E 8W4.
**Physical sample preparations marked with asterisks are performed at 3500 19th Street NE, Calgary, AB T2E 8B9 and other off-site physical sample preparation locations.
[f]Fire assay is performed at off-site facility of AGAT Laboratories Ltd. 1045 Gorham Street, Thunder Bay, ON P7B 5X5

This document forms part of the Certificate of Accreditation issued by the Standards Council of Canada (SCC). The original version is available in the Directory of Accredited Laboratories on the SCC website at www.scc.ca.

Elias Rafoul
Vice-President, Accreditation Services
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