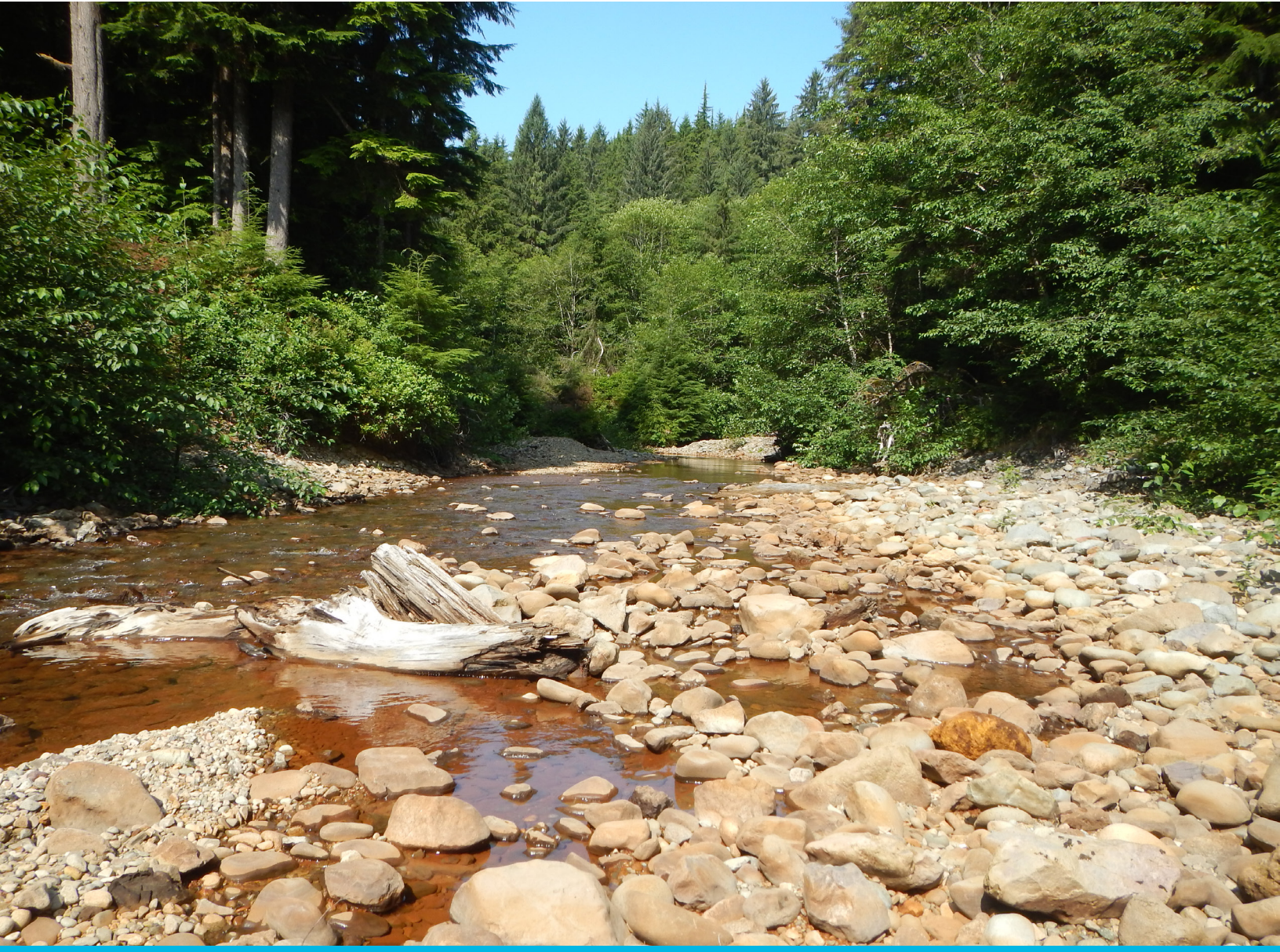

Supplementary data for multi-media geochemical and Pb isotopic evaluation of modern drainages on Vancouver Island

Alexei S. Rukhlov, Gabe Fortin, Gennady N. Kaplenkov, Ray E. Lett, Vivian W.-M. Lai, and Dominique Weis

BRITISH COLUMBIA
Ministry of Energy, Mines and Petroleum Resources

BRITISH COLUMBIA GEOLOGICAL SURVEY

British Columbia Geological Survey GeoFile 2019-14

Ministry of Energy, Mines and Petroleum Resources
Mines and Mineral Resources Division
British Columbia Geological Survey

Recommendation citation: Rukhlov, A.S., Fortin, G., Kaplenkov, G.N., Lett, R.E., Lai, V. W.-M., and Weis, D., 2019. Supplementary data for multi-media geochemical and Pb isotopic evaluation of modern drainages on Vancouver Island. British Columbia Ministry of Energy, Mines and Petroleum Resources, British Columbia Geological Survey GeoFile 2019-14, 1 p.

Front cover: Hushamu Creek, which drains an epithermal Au-Ag-Cu and a blind porphyry Cu-Mo-Au system. The waters are highly acidic and the brown colour reflects precipitation of iron hydroxides. **Photo by Alexei Rukhlov.**

BRITISH COLUMBIA | Ministry of Energy, Mines and Petroleum Resources

Supplementary data for multi-media geochemical and Pb isotopic evaluation of modern drainages on Vancouver Island

Alexei S. Rukhlov, Gabe Fortin, Gennady N. Kaplenkov, Ray E. Lett, Vivian W.-M. Lai, and Dominique Weis

Ministry of Energy, Mines and Petroleum Resources
British Columbia Geological Survey
GeoFile 2019-14

Supplementary data for multi-media geochemical and Pb isotopic evaluation of modern drainages on Vancouver Island

Alexei S. Rukhlov[1,a], Gabe Fortin[1], Gennady N. Kaplenkov[2], Ray E. Lett[3], Vivian W.-M. Lai[4], and Dominique Weis[4]

[1] British Columbia Geological Survey, Ministry of Energy, Mines and Petroleum Resources, Victoria, BC, V8W 9N3
[2]2874 Eton Street, Vancouver, BC, Canada, V5K 1K5
[3] 3936 Ashford Road, Victoria, BC, Canada, V8P 3S5
[4] Pacific Centre for Isotopic and Geochemical Research, Department of Earth, Ocean and Atmospheric Sciences, University of British Columbia, Vancouver, BC, Canada, V6T 1Z4

[a]corresponding author: Alexei.Rukhlov@gov.bc.ca

Recommended citation: Rukhlov, A.S., Fortin, G., Kaplenkov, G.N., Lett, R.E., Lai, V. W.-M., and Weis, D., 2019. Supplementary data for multi-media geochemical and Pb isotopic evaluation of modern drainages on Vancouver Island. British Columbia Ministry of Energy, Mines and Petroleum Resources, British Columbia Geological Survey GeoFile 2019-14, 1 p

Keywords: Drainage geochemistry, mineral exploration, stream sediment, moss mat sediment, heavy mineral concentrate (HMC), sluice, pan, dispersion streams, geochemical anomaly, basin productivity, geochemical resources, lithochemistry, hydrochemistry, Pb isotopic data, northern Vancouver Island, Hushamu, porphyry Cu-Mo-Au, epithermal Au-Ag-Cu, indicator mineral

Summary

This GeoFile serves as a data repository for interpretations presented by Rukhlov et al. (2020). It provides tables (with field data, sample details, analytical results and quality control of geochemical and Pb isotopic analyses of stream and moss mat-sediment, heavy mineral concentrate, rock, and stream water samples, and modal mineralogy of heavy mineral concentrate samples by QEMSCAN. The samples were collected from the Loss Creek placer gold occurrence on southern Vancouver Island and from streams draining prospective rocks of the Bonanza Group (Late Triassic to Middle Jurassic) hosting porphyry Cu-Mo-Au, epithermal Au-Ag-Cu and related mineralization on northern Vancouver Island.

Appendix 1. Field data regarding local terrain, sample site, sample type, and lithological and shape analysis of clasts.

Appendix 2. Details of stream and moss mat-sediment, heavy mineral concentrate, and rock samples, laboratory preparation, quality controls, and analytical methods.

Appendix 3. Geochemical results of stream and moss mat-sediment, heavy mineral concentrate, and rock samples and quality controls; detection limits and sensitivity, and relative precision of the analytical methods.

Appendix 4. Temperature, pH, conductivity and total dissolved solids of stream water measured in the field; concentrations of inorganic anions and dissolved metals in stream water samples and quality controls analyzed in laboratory; and calculated water parameters based on charge balance.

Appendix 5. Lead isotopic data, quality controls, and relative precision.

Appendix 6. Results of automated bulk mineralogical analysis (BMA) on 0.5-1.0 mm-size, sieved fraction of heavy mineral concentrate samples by QEMSCAN.

Acknowledgements

We thank Stephen Cook (Independent Consultant), Wayne Jackaman (Noble Exploration Services Ltd.), and Gene Dodd (Billiken Gold Ltd.) for discussions of drainage sampling procedures and equipment. Wayne Jackaman accompanied R.E.L. and A.R. in the field in April. We acknowledge Don Harrison (Senior Inspector of Mines Permitting, BC Ministry of Energy, Mines & Petroleum Resources) for approving our use of sluice in the field. Bruce Northcote (British Columbia Geological Survey), John McClintock (Northisle Copper & Gold Inc.), and Western Forest Products Inc. are thanked for discussions of access in the northern Vancouver Island area.

References cited

Abzalov, M.Z., 2008. Quality control of assay data: A review of procedures for measuring and monitoring precision and accuracy. Exploration and Mining Geology, 17, 1-14.

Rukhlov, A.S., Fortin, G., Kaplenkov, G.N., Lett, R.E., Lai, V. W.-M., and Weis, D., 2020. Multi-media geochemical and Pb isotopic evaluation of modern drainages on Vancouver Island. In: Geological Fieldwork 2019, British Columbia Ministry of Energy, Mines and Petroleum Resources, British Columbia Geological Survey Paper 2020-1, in press.

British Columbia Geological Survey
Ministry of Energy, Mines and Petroleum Resources