Supplementary data for gaseous elemental mercury (GEM) response from sediment-covered, volcanogenic massive sulphide mineralization on southern Vancouver Island

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Front cover: Measuring real-time gaseous elemental mercury (GEM) in near-surface air at the Lara-Coronation polymetallic occurrence, southern Vancouver Island. Much of the area is covered by thick glacial deposits. **Photo by Ben Coats.**

Back cover: Preparing a disturbed site for GEM analysis in air 1 cm above ground at the Lara-Coronation occurrence. **Photo by Alexei Rukhlov.**

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[1]British Columbia Geological Survey, Ministry of Energy, Mines and Low Carbon Innovation, Victoria, BC, V8W 9N3
[2] Lumex-marketing LLC, 1 lit. B, Obruchevykh Street, St. Petersburg, 195220, Russia
[3] Lumex Instruments, Mission, BC, V4S 0A3
[a]corresponding author: Alexei.Rukhlov@gov.bc.ca

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Keywords: Gaseous elemental mercury (GEM), near-surface air, real-time survey, portable Lumex RA-915M Hg analyzer, Wrangellia, volcanic rocks, Sicker Group, Devonian, sediment-covered Lara-Coronation polymetallic occurrence, volcanogenic massive sulphide, overburden, glacial deposits, mineral exploration under cover, southern Vancouver Island

Summary

This GeoFile serves as a data repository for interpretations presented by Rukhlov et al. (2022). It provides complete summary of field data for gaseous elemental mercury (GEM) orientation surveys at the polymetallic Lara-Coronation occurrence, southern Vancouver Island (MINFILE 092B 129). These data include measurements of: GEM in near-surface air (statistical summary and raw); in situ soil temperature, moisture content, electrical conductivity, and pH; simultaneous meteorological parameters; and GEM concentrations in the air of sealed glass jars containing selected ore minerals.

Appendix 1

1. Statistical summary of real-time gaseous elemental mercury (GEM) mass concentrations (ng·m^{-3}) in air 1 cm above ground and GPS locations of field stations; calculated distance along survey lines; elevation above sea level (m) based on the British Columbia Terrain Resource Information Mapping (TRIM) digital elevation model (DEM); field metadata; and simultaneously measured in situ soil temperature (°C), moisture content (%), electrical conductivity (µS·cm^{-1}), and pH.

2. Statistical summary and experimental metadata of GEM mass concentrations (ng·m^{-3}) in the air of sealed jars containing selected ore minerals measured: 1) after undisturbed storage inside closed, glass jars (1 L) for several days, 2) following 2 to 5 minutes, having gently shaken the samples of minerals inside the re-closed jars; and 3) background GEM concentration in ambient air 1 m above ground in Victoria, British Columbia (blank).

3. Raw, real-time GEM concentrations (ng·m^{-3}), and gas temperature (°C) and gas pressure (mmHg) in the analytical cell of the Lumex RA-915M Hg analyzer, per second; calculated time elapsed (in seconds) since start of survey; and field metadata.

4. Meteorological parameters, including air temperature (°C), relative humidity (%), barometric pressure (mb), wind speed (m·s^{-1}), and wind direction azimuth (in degrees), measured simultaneously (per 5 seconds) with the GEM surveys; calculated time elapsed (in seconds) since start of survey; and field metadata.

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Lumex Instruments Canada kindly rented out a portable RA-915M Hg analyzer for this study and Mosaic Forest Management kindly granted a permit to access private lands on southern Vancouver Island.

Reference cited

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