Job Description

Job Title:	Elemental Analysis and Geochemistry Laboratory Technician
Department:	Earth and Environmental Sciences
Reports To:	Laboratory Manager, Environmental Isotope Lab
Jobs Reporting:	None
Salary Grade:	8
Effective Date:	2026-05-01

Primary Purpose

The incumbent is responsible for primary and supporting roles in the preparation and analysis of samples for stable isotope determination. This includes dissolved sulphate samples for $\delta^{34}S$ and $\delta^{18}O$ analysis; nitrate and ammonium samples for $\delta^{15}N$ and $\delta^{18}O$; and water samples for $\delta^{18}O$, $\delta^{17}O$, and $\delta^{2}H$ analysis. Responsibilities also include the preparation of solid, liquid, and gas samples for elemental and isotope analysis of $\delta^{13}C$, $\delta^{15}N$, $\delta^{18}O$, and $\delta^{34}S$.

Working as an integral member of the laboratory team, the incumbent contributes to the delivery of accurate and timely analytical results to clients from around the world.

Assigned duties include sample preparation, operation and maintenance of laboratory analytical instrumentation, data analysis and quality control, and interaction with students, coworkers, researchers, and external clients.

Key Accountabilities

Mass Spectrometer/Laser systems and peripherals operation and maintenance

- Responsible for the use and maintenance of the following lab equipment:
  - IsoPrime CFSIR-MS (IsoPrime / UK) coupled to MicroGas/TraceGas (IsoPrime / UK) – oxygen, nitrogen
  - Los Gatos Research (LGR), Liquid Water Isotope Analyzer (LWIA), model T-LWIA-45-EP (ABB – Los Gatos Research / USA)
  - Mettler Toledo WXTS3DU analytical precision microbalance

Sample Preparation

- Extraction and purification of nitrate, sulphate and ammonium for isotopic analysis from various matrixes
- Azeotropic distillation to extract pure water from plants, soils, brines or contaminated waters for isotopic analysis
- Weighing of carbonate materials and acidification for isotopic analysis
- Weighing and encapsulation of homogeneous subsamples of solids for Elemental Analysis using a microbalance

Method Development and Other Duties

- Work with faculty and students affiliated with the EIL to help optimize methods and develop new methodologies for IRMS applications.
- Assist with day-to-day operation supporting the senior stable isotope technicians as required.

**All employees of the University are expected to follow University and departmental health and safety policy, procedures and work practices at all times. Employees are also responsible for the completion of all health and safety training, as assigned. Employees with staff supervision and/or management responsibilities will ensure that assigned staff abide by the above, and actively identify, assess and correct health and safety hazards, as required.*

Required Qualifications

Education • Undergraduate degree in related Science field required • A combination of equivalent education and/or experience will be considered.
Experience • At least 1 years' experience working in an Isotope laboratory environment required • Experience with stable Isotope mass spectrometry across several equipment manufacturers required • Experience with associated peripherals preferred
Knowledge/Skills/Abilities • Familiarity with Good Laboratory Practice • Strong analytical and problem-solving skills • Excellent verbal and written communication skills

Nature and Scope

- **Contacts:** Good oral skills for telephone contacts, communicate effectively with clients, staff, students and faculty by telephone and/or email.
- **Level of Responsibility:** Supervision of visiting students and researchers requiring training in dissolved sulphate preparation
- **Decision-Making Authority:** Organize and prioritize samples for weighing and analysis. When to perform machine maintenance either scheduled or reactive
- **Physical and Sensory Demands**: Works in a busy lab where it can be noisy and hot, must be able to lift and carry medium to heavy weight boxes containing samples to storage areas throughout the labs. Must be able to disconnect, move, and reconnect gas cylinders safely. Use of cryogenic systems involving the filling of high pressure dewars and dispensing.
- **Working Environment:** Lab based with various chemical compounds, and chemicals; may have to stand or focus for extended periods.