

Job Description

Job Title:	Sulphur/Nitrogen, Carbonate and Oxygen/Hydrogen in Water Isotope Technician
Department:	Earth and Environmental Sciences, Environmental Isotope Laboratory
Reports To:	Lab Manager and Senior Technologist
Jobs Reporting:	None
Salary Grade:	USG 8
Effective Date:	June 2018

Primary Purpose

The Sulphur/Nitrogen, Carbonate and Oxygen/Hydrogen in Water Isotope technician is responsible for the preparation and analysis of Dissolved Sulphate samples for ^{34}S and ^{18}O , Nitrate and Ammonium samples for ^{15}N , ^{18}O , Carbonates for ^{18}O , ^{13}C and Water for ^{18}O , ^{17}O and ^2H isotope determination. The incumbent will be aptly versed in isotope theory to be able to discuss procedures and results with clients. Supervision of technicians and students may be required for pre-treatments and other duties. The incumbent will be an integral part of the team to provide sample analyses results in a timely manner to clients from around the world. Duties assigned will involve the preparation of samples, operation and maintenance of laboratory analytical equipment, conduct data analysis and interaction with students, co-workers and clients.

Key Accountabilities

Mass Spectrometer/Laser systems and peripherals operation, maintenance and repair

- Responsible for the use and maintenance of the following lab equipment:
 - IsoPrime CFSIR-MS (IsoPrime / UK) coupled to Eurovector High Temperature EA (EUROVECTOR Srl / Pavia. Italy) - deuterium
 - IsoPrime CFSIR-MS (IsoPrime / UK) coupled to MicroGas/TraceGas (IsoPrime / UK) – oxygen, nitrogen
 - IsoPrime CFSIR-MS (IsoPrime / UK) coupled to MicroGas (IsoPrime / UK) – oxygen, carbon
 - Los Gatos Research (LGR), Liquid Water Isotope Analyzer (LWIA), model T-LWIA-45-EP (ABB – Los Gatos Research / USA)
- Coordinates with staff member to organize and prioritize samples for preparation and analysis
- Assists other co-workers with preparatory work as needed
- Knowledge of good lab practices in working with hazardous materials and chemicals

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

Supervision and Training

- Help to supervise the safety training of staff, students and visiting fellows working in the lab focusing on familiarity with the dangerous chemicals utilized as well as the various locations of safety gear available in the lab.
- Assist with sample preparation, analysis, data calibration and interpretation for students and researchers working within the lab.

Job Description

- Assist undergraduate and graduate students with all aspects of analytical work. This includes teaching analytical methods, supervising students, on machinery and wet chemistry procedures and providing advice and help with interpretation of analytical data used in student research projects.

**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, Master's degree preferred
- A combination of equivalent education and/or experience will be considered.

Experience

- At least 3 years' experience working in an Isotope laboratory environment required.
- Experience with associated peripherals preferred

Knowledge/Skills/Abilities

- Effectively manage multiple priorities and exercise independent, prudent judgement
- Strong analytical and problem solving skills
- Excellent verbal and written communication skills
- Intermediate MS Word and Excel
- Ability to effectively multitask to complete various projects
- Constant need to give close attention to detail with written material; deadline pressures.

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 and training of visiting students and researchers requiring work in dissolved Sulphate, Nitrogen, solid Carbonate, and/or Oxygen, Hydrogen in water.
- **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 for extended periods.