

Job Class Profile: Mineral Laboratory Assistant III**Pay Level: CG-26 Point Band: 490-533**

Factor	Knowledge	Interpersonal Skills	Physical Effort	Concentration	Complexity	Accountability & Decision Making	Impact	Development and Leadership	Environmental Working Conditions	Total Points
Rating	3	3	3	6	3	2	3	1	5	
Points	140	50	19	29	90	43	62	21	54	508

JOB SUMMARY

The Mineral Laboratory Assistant III performs advanced technical mineral laboratory work relating to the chemical analysis of minerals, rocks, soils, tills and stream sediments in support of geological research.

Key and Periodic Activities

- Reviews requests for analysis from geoscientists and clarifies any uncertainties. Prepares surficial materials received at the laboratory which include sorting, drying, labelling, sieving, crushing and pulverizing. Prepares and maintains records of samples received at the mineral laboratory.
- Prepares sample digestions for trace elements analysis, major element analysis, and fluoride analysis which require the use of analytical balances, computers, pipettes, hot plates, gas burners, automatic stirrers, water baths and the correct use of concentrated acids and a knowledge of the proper handling of laboratory glassware, Teflon vessels and nickel and graphite crucibles.
- Performs chemical analysis including volumetric determination of Ferrous Iron, determination of loss of ignition on rocks, determination of phosphorus in rocks using a spectrophotometer, determination of fluorides in rocks using ion selective electrodes and determination of sulphur, carbon and water in rocks using an infrared analyzer. Analyses various media types for loss on ignition using classical gravimetric techniques, uses analytical balances and microcomputers for weighing rocks, tills, soils and lake sediments.
- Carries out weighing and encapsulation of samples for neutron-activation analysis and is responsible for the shipping of samples to external labels for analysis.
- Prepares documentation required in recording of analysis and findings.
- Checks and maintains chemicals and consumable inventories for the geo-chemical laboratory.

SKILL**Knowledge****General and Specific Knowledge:**

- Knowledge of analytical chemistry.

- Knowledge of mineral laboratory procedures and equipment.
- Knowledge of the safe operation of laboratory equipment and Workplace Hazardous Materials Information System (WHMIS) as it relates to the safe use of chemicals.

Formal Education and/or Certification(s):

- Minimum: Graduation from high school supplemented by college level course work in geology and/or chemistry with laboratory components. Training in software use: spreadsheet, database/

Years of Experience:

- Minimum: 3-4 years.

Interpersonal Skills

- Interpersonal skills are used such as: listening and asking questions; and providing routine information..
- Most significant contacts are with: other employees in the laboratory to work co-operatively and share information; the Laboratory Director to receive assignments, direction and advice; and Geologists within the Department to provide information and results.

EFFORT

Physical Effort

- The demands of the job generally do not result in fatigue, requiring periods of rest.
- Occasionally required to lift or move objects between 25-50 lbs., and regularly lift objects from 10-25 lbs. such as geological material or supplies, especially in the preparation of surficial materials.
- The use of fine finger/precision work, using hand tools that require accurate control and steadiness, equipment requiring controlled movement, and using reflexes and maintaining balance is a regular requirement.

Concentration

- **Visual** concentration or alertness is required for preparing chemical digestions and reagents, weighing and sampling, entering information into a computer, and ensuring accuracy of instrument readings.
- **Auditory** demands are required when listening for beepers on ovens and other laboratory equipment and for indicators/noise from mechanical equipment.
- **Eye/hand coordination** is required when preparing materials received at the laboratory including sorting, drying, labelling, sieving, crushing and pulverizing, entering data into the computer, using gravimetric techniques, analytical balances and microcomputers for weighing rocks, tills, soils and lake sediments.
- Activities such as data entry, weighing samples and sample digestions can be **repetitious and require alertness**.
- **Higher than normal levels of attentiveness/alertness is required for the health and safety of others** due to handling hazardous acids and chemicals and working around equipment such as rock crushers, pulverizers and splitters.
- **Time pressures, deadlines, and lack of control over work pace** are experienced occasionally when there is a special request to place a rush on samples being analyzed. Also, work needs to

be completed from year to year as results are used to plan subsequent field work.

- **Exact results and precision** are required in everyday procedures. Results have to be of the highest degree of **precision and accuracy** as they are used in preparation of reports for scientific journals and maps. Quality controls are checked daily.

Complexity

- Work involves tasks and activities that are quite different but allow for the use of similar skills and knowledge.
- Tasks are regularly repetitive/well defined but may at times be different but related.
- Typically, work is performed with defined and standard work processes, have obvious or limited solutions and/or can be addressed by following procedures or guidelines.
- A typical problem is related to the failure of Quality Assurance/Quality Control protocols and must be resolved before the work task can be completed.

RESPONSIBILITY

Accountability and Decision-Making

- Work tasks are highly monitored or controlled. Work is carried out independently while following standard and defined procedures. The results of the work are checked using rigorous QA/QC procedures and all work is reviewed and analyzed by chemists and/or the Laboratory Director. Work is assigned by the Laboratory Director.
- Work progress and quality is reviewed periodically through oral reports and examination of work.
- Limited discretion is exercised in decisions.
- Supervisory approval is required for laboratory purchases and changes to procedures.

Impact

- Impacts generally affect the immediate work area, department, outside the organization, on clients, and the exploration/mining industry as the information generated by the laboratory analysis are used by Geologists for the purpose of reports, maps, and national and international research.
- Work activities impact on processes and systems, information, human resources, finances, health and safety and corporate image. The information provided impacts exploration on new mines, updating maps and research. The quality of work affects corporate image. Information provides background information for health and safety studies.
- The consequences of a mistake or error can have some impact only in the immediate workplace as all work undergoes a high degree of QA/QC procedures to eliminate mistakes. The mistake must be corrected which will involve repeating the work.

Development and Leadership of Others

- Does not have full time responsibility for the direct supervision of staff.
- During the summer months may provide guidance and orient summer students in laboratory procedures and safety.

WORKING CONDITIONS

Environmental Working Conditions

- Safety equipment and special precautions are required when working with hazardous chemicals, hot ovens, waterbaths, dust and fumes, and around equipment such as rock crushers and grinders. Also, manually breaking rocks requires special precautions.
- The likelihood of injury or illness is limited if normal precautions are followed.
- There is regular exposure to dust from sample preparation, fumes and hazardous chemicals, odours and glare from computer screens when entering data. Samples can be radioactive and odours can be present from chemical reactions. Regularly exposed to high heat from equipment such as furnaces and ovens.
- Occasionally, there is exposure to unusual/distracting noise, limited ventilation, vibration, physical dangers, radiation and heavy machinery.