IDENTIFICATION

Department	Position Title	
Industry, Tourism and Investment	Data Geoscientist	
Position Number	**Community**	**Division/Region**
63-7166	Yellowknife	Northwest Territories Geological Survey

PURPOSE OF THE POSITION

The Data Geoscientist leads the development and implementation of geoscience data management strategies and data curation projects for the Northwest Territories Geological Survey (NTGS).

SCOPE

The Northwest Territories Geological Survey (NTGS) is a Division of the Department of Industry, Tourism and Investment (ITI), Government of Northwest Territories (GNWT). The NTGS is responsible for generating, managing, and disseminating the Northwest Territories' (NWT) public geoscience data and information in support of research and education activities and industrial and governmental initiatives for the NWT, including attracting mineral and energy development projects and to inform critical land use and climate change decisions made by the GNWT. The NTGS generates geoscience data and information on the geology, mineral deposits, energy resources, and permafrost conditions of the NWT by conducting and collaborating on field and office-based geoscience research, and archiving projects of legacy data.

Located in Yellowknife and reporting to the Assistant Director, Information Services (Assistant Director), the Data Geoscientist is a member of the NTGS Information Services Team and works collaboratively with the Geomatics Specialist, the GIS Librarian, the Geoscience Editor, and other GNWT organizations to ensure efficient delivery of geoscience information to clients. The Data Geoscientist leads the development and maintenance of data management strategies and data collection, compilation and curation projects.

The NTGS Information Services Team manages and disseminates geoscience data and information including spatial datasets, digital maps, peer-reviewed data, papers and reports, geoscientific databases, outreach products, and provides library services. The geoscience knowledge at the NTGS is used by a wide range of clients with diverse geoscience expertise and needs, including geoscientists and environmental scientists, the mining and mineral

exploration industry, environmental and engineering consultants, professional associations, various levels of government, Indigenous Organizations, mining and environmental regulators, educators and students, and the media.

The Information Services Team supports three geoscience working groups at the NTGS; the Mineral Deposits and Bedrock Mapping Group, the Energy Geosciences Group, and the Permafrost Science Group. Each working group is responsible for developing geoscience datasets through field research projects and gathering data from other sources such as mineral assessment reports, other GNWT divisions and departments, municipal and Indigenous Governments, consulting and mining industries, legacy data sources, and collaborators such as the Geological Survey of Canada and academia. The data format, quality, completeness, and processing methods often vary between dataset sources.

The Data Geoscientist collaborates with the NTGS working groups and external stakeholders such as colleagues in other GNWT Departments and other governments (federal and Indigenous) to develop a wide range of technical geoscience datasets and databases and is responsible for efficient delivery of geoscience information to clients by ensuring the use of appropriate standards for data and metadata organization, processing, storage, and dissemination protocols.

NTGS geoscience data includes but is not limited to the following categories:

1. Bedrock Mapping and Mineral Deposits: bedrock and surficial mapping data and shapefiles; structural data; rock samples, description and location data; geophysical data; geochemical data; indicator mineral picking and mineral chemistry data; mineral exploration core inventory; mineral occurrence (showings) data; donated historical mine and mineral exploration records; as well as field photo and sample collections.

2. Energy Geosciences: Organic and inorganic geochemical data; thermal maturity data; whole-rock properties data (density, permeability, porosity, thermal capacity and conductivity); crystallography data; petrographic data; seismic data; well log data (porosity logs (density, neutron porosity, sonic); lithology logs (gamma-ray, self/spontaneous potential); caliper log, nuclear magnetic resonance)); and well fluid analysis data.

3. Permafrost Science: ground temperature data; ground ice content data; active layer thickness data; permafrost thaw feature inventories; and geotechnical engineering data from GNWT infrastructure design projects such as borehole data on rock/soil type, moisture/ice content, and strength properties.

In collaboration with the Mining Recorder's Office (MRO), the NTGS manages geoscience data associated with mineral exploration according to NWT mining regulations. The incumbent is responsible for managing the timely and effective release of public geoscience data contained in mineral industry assessment reports and for developing an inventory of collar depths and orientations for all mineral exploration drill holes located in the NWT. In addition, with the imminent introduction of new NWT mining regulations, there is a need for the development of

new databases and data management strategies in support of numerous regulatory functions. In collaboration with the MRO, the incumbent will be required to lead the interoperability and/or merging of NTGS data storage, search and delivery systems with new data management systems that will be implemented with the new *Mineral Resource Act.*

The Data Geoscientist also supports the management of physical assets and resources. For example, the NTGS administers and preserves some mineral industry drill core collections located at remote sites. Periodic visits to these sites are required to maintain and minimize degradation of these resources. This work typically requires the mobilization of a small crew of two to four people and camping at a remote site in a primitive tent camp environment. In addition, the NTGS's Geological Materials Storage Facility is a repository for selected diamond drill core, geological samples collected during mapping and research (rocks, till, lake sediments, stream sediments), and derivative materials from these samples (sample rejects, powders, thin sections, picked fractions, etc.). In collaboration with other NTGS staff, the position manages and maintains these collections in good order. This includes intake and accession of samples, updating and maintenance of sample databases, arranging client viewing and sampling of materials, obtaining and maintaining records of all analytical results from collection materials, maintaining the relationship of material returned from analytical testing to the original sample, and re-entering these materials into the collection.

The NTGS has several geoscience databases that are searchable using web-enabled applications. The References and Showings databases are especially critical for NTGS clients. The References Database contains over 9000 geoscience publications, mineral exploration assessment reports, research theses, and NWT Open Files and NWT Open Reports (peer-reviewed, in-house geoscience products published by the NTGS). The Showings Database contains information on almost 3000 mineral occurrences. The incumbent is responsible for ensuring that the NTGS databases are updated as required and that usability issues and database errors are addressed. The NTGS also has geoscience information and resources that are not easily discoverable, such as archival records, petrographic thin sections, and photographs. The incumbent will lead the development of strategies to improve NTGS data accessibility.

The NTGS geoscientists predominantly use ESRI ArcGIS (Desktop or Pro) to visualize, analyze, and interpret geoscience data. Rugged tablets with mobile GIS software are used for collecting digital data in the field. A variety of geospatial datasets are produced by the NTGS, including: bedrock mapping projects and compilations, kimberlite data, geochemical data, geophysical surveys, and permafrost-related inventories. The incumbent uses GIS software to curate data and identify random and systematic errors.

This position is multifaceted. The incumbent will be required to prioritize multiple tasks and work collaboratively with a wide range of professionals. At various times, the incumbent may be responsible for supervising one or more project staff, coordinating the work activities of others, leading logistically complex projects, and contributing to NTGS- and GNWT-wide initiatives, such as strategic planning for the Information Services Group and contributing to the GNWT's Open Data initiative.

RESPONSIBILITIES

1. **Maintains and develops NTGS geoscience data collections.**
   - Implements strategies to ensure that NTGS data are findable, accessible, interoperable and reusable.
   - Leads the development and implementation of geoscience information management strategies including data entry, QA/QC, and troubleshooting.
   - Establishes, implements, and revises the NTGS's data management practices and procedures.
   - Serves as the primary liaison between NTGS and the GNWT's Information Systems Shared Services (ISSS) group that is responsible for database and web applications development and maintenance.
   - Documents issues with the geoscience databases and web applications and contributes to identifying solutions.
   - Contributes to Information Technology (IT) policies and procedures for data storage and maintenance, access, and security.
   - Develops and maintains current awareness of, and applies relevant developments and knowledge in, geoscience information services.
   - Liaises with national geoscience information communities to ensure that the NTGS develops and maintains high standards of geoscience data management and delivery.

2. **Curates geoscience datasets.**
   - Anticipates future geoscience information needs through discussion with clients and NTGS staff, awareness of data management trends and tools, and by monitoring changes in government mandates and strategic plans.
   - Curates geoscience data for research and outreach projects.
     - Identifies sources of geoscience data.
     - Digitizes and compiles data.
     - Cleans data and identifies errors in the dataset.
     - Transforms data into the required format.
     - Documents data curation process.
   - Collaborates on research projects and co-authors geoscience reports and publications.

3. **Works collaboratively to provide geoscience information services and products.**
   - Collaborates with NTGS scientists and research partners in interpreting data and developing derivative scientific or technical products.
   - Participates in the formulation of policies and procedures as they relate to information management and dissemination.
   - Supports implementation and consistent use of NTGS and GNWT information systems.
   - Contributes to financial tracking and budget forecasting for the Information Services Team.
   - Chairs and facilitates meetings, committees, and working groups.
   - Shares information with Mining Recorders Office staff on the status of confidential assessment reports.

- Engages in outreach activities, events, and government-wide initiatives related to geoscience information and data services.
- Contributes to developing outreach products such as trail guides, brochures, online tools, website pages, social media posts, posters, and educational presentations.
- Helps organize initiatives such as the Yellowknife Geoscience Forum, Mining Week, and conference trade show booths.
- Contributes to communication and promotional initiatives to raise the profile of the NTGS.
- Contributes to the internal peer review process, especially with respect to data products developed by NTGS staff, research partners, and contractors.

4. The Data Geoscientist collaborates on field-based geoscience research.

- Aids in planning and organization of field operations.
- Aids in gathering of geoscientific data and information in the field.
- Aids in downloading, organizing, storing, and disseminating field data.
- Organizes and maintains the NTGS's photo archive, with a special emphasis on cataloguing and tagging field photos, and maintaining the photo repository for both internal use and external stakeholders.

WORKING CONDITIONS

Physical Demands

Normal office environment most of the time. Work occasionally requires bending, stretching and light lifting to file or retrieve information from the library's collections. This includes climbing ladders and moving shelving to access information. The incumbent will spend up to 2 to 3 weeks per year in field camps and during those times will experience increases in walking, lifting, and carrying.

Environmental Conditions

Normal office environment most of the time. The work is performed in an open library/office environment meeting the usual standards for heating, lighting and ventilation. There is exposure to a variety of printed library materials, some of which may be dusty and dirty, with occasional exposure to moldy materials for short periods of time. The incumbent will spend up to 2 to 3 weeks per year in field camps and may be subject to uncomfortable conditions (variable weather, smoke from forest fires, insect bites, accommodation in tents, etc.).

Sensory Demands

Normal office environment most of the time. Field work requires a state of heightened alertness to ensure a safe working environment for the team, and the incumbent is subject to impacts associated with long hours of field work (e.g. fatigue). The incumbent is likely exposed to these environmental conditions every day in the field.

Mental Demands

No unusual demands.

KNOWLEDGE, SKILLS AND ABILITIES

- Knowledge of geoscience principles and research techniques.
- Knowledge of geoscience data acquisition, analysis, application, and related issues.
- Knowledge of data management methods, techniques, and practices related to geoscience data manipulation, interpretation, digitization, retrieval, and storage.
- Knowledge of FAIR principles for scientific data management and stewardship where FAIR data are Findable, Accessible, Interoperable, and Reusable.
- Knowledge of metadata standards related to the organization, discovery, and interoperability of geoscience data resources.
- Knowledge of the roles, responsibilities, and mandate of the NTGS, ITI and the GNWT.
- Knowledge of the typical geoscience needs of government organizations, communities, agencies, industries, and the public.
- Knowledge of emerging data resources and trends, such as open data and data ethics.
- Knowledge of the legal and ethical obligations of the geoscience and engineering professions.
- Knowledge of records management requirements related to the NWT Mining Regulations and the security of assessment reports.
- Knowledge of leadership practices and management techniques in order to supervise the work activities of casual staff, summer students, and contractors.
- Project management, organizational, analytical, problem-solving, and decision-making skills to effectively lead information service initiatives and participate in collaborative research projects.
- Data management skills to organize, archive, and manage large volumes of geoscience information.
- Analytical skills to describe and synthesize geoscience data.
- Computer coding skills required to upload, search, evaluate, clean, manipulate, and analyze geoscience datasets.
- Skills in scientific report writing, critical peer review, and editing of scientific reports and interpretations.
- Field work skills that are grounded in safety practices.
- Reviewing, editing, and proofreading skills.
- Interpersonal, oral, and written communication skills
- Ability to work effectively, both independently and in collaboration with other professionals.
- Ability to conceptualize geoscience relational databases.
- Ability to complete projects on time and within budget, often in conjunction with the performance of other duties.
- Ability to produce concise written guidance documents and technical reports.
- Ability to contribute to scientific reports of a high technical quality suitable for publishing in external journals or through the NTGS.

- Ability to efficiently use computer hardware and software for data management, synthesis, and presentation (e.g. MS Office; ArcGIS; specialized graphic design, statistics software, and database software).
- Ability to clearly and effectively communicate scientific information in visual, oral, and written formats and at an appropriate level.
- Ability to meticulously review data and identify systematic and random errors.
- Ability to ask clarifying questions to effectively interpret client needs and requests.
- Ability to manage and report financial information associated with the position.
- Ability to commit to actively upholding and consistently practicing personal diversity, inclusion and cultural awareness, as well as safety and sensitivity approaches in the workplace.

Typically, the above qualifications would be attained by:

Completion of a Master's degree in Geology or Earth Science and two (2) years working experience in a related field.

Equivalent combinations of education and experience will be considered.

ADDITIONAL REQUIREMENTS

- Eligibility for registration in the Northwest Territories and Nunavut Association of Professional Engineers and Geoscientists (NAPEG).

Position Security (check one)

☐ No criminal records check required
☒ Position of Trust – criminal records check required
☐ Highly sensitive position – requires verification of identity and a criminal records check

French language (check one if applicable)

☐ French required (must identify required level below)
Level required for this Designated Position is:
ORAL EXPRESSION AND COMPREHENSION
Basic (B) ☐ Intermediate (I) ☐ Advanced (A) ☐
READING COMPREHENSION:
Basic (B) ☐ Intermediate (I) ☐ Advanced (A) ☐
WRITING SKILLS:
Basic (B) ☐ Intermediate (I) ☐ Advanced (A) ☐
☐ French preferred

Indigenous language: Select language

☐ Required

☐ Preferred