



IDENTIFICATION

Department	Position Title	
Industry, Tourism and Investment	Mineral Deposits Geologist	
Position Number	Community	Division/Region
63-7167	Yellowknife	Northwest Territories Geological Survey / HQ

PURPOSE OF THE POSITION

The Mineral Deposits Geologist provides authoritative public geoscience by designing and executing mineral deposit research and mineral resource assessment activities for the Northwest Territories Geological Survey (NTGS). The incumbent plans and conducts research programs on Northwest Territories (NWT) metallic mineral deposits, including field investigations, data compilation, and resource assessments, generates defensible interpretations of mineral potential, and translates results for internal and external clients to inform mineral exploration investment and development as well as the regulatory and land-use planning systems in which the mineral industry operates. Operating in a context of economic constraint and competing policy objectives, the position aligns scientific work with departmental priorities, ensures scientific integrity, and meets the needs of stakeholders across regulatory and economic development functions.

SCOPE

Located in Yellowknife and reporting to the Manager, Mineral Deposits, the Mineral Deposits Geologist is a professional geoscientist responsible for planning, conducting, and reporting on mineral-deposit research and applied geoscience investigations, including the geological characterization of mineral occurrences, scientific capacity related to the assessment of mineral resource potential, and synthesis of deposit-scale geological knowledge across the NWT, within the Northwest Territories Geological Survey (NTGS). The position exercises professional autonomy over technical project design and execution within the policies, guidelines, and priorities established by the Manager and the NTGS.

The resource sector is a foundational contributor to the NWT economy and socio-economic well-being, with direct and indirect economic impacts that account for up to a third of the territory's Gross Domestic Product. It is essential that these resources are responsibly managed to ensure that northerners receive maximum benefits from the sector while negative impacts



are minimized and effectively mitigated. Geoscience data produced by the NTGS underpins this objective: it drives mineral exploration investment, informs land-use planning, infrastructure routing and design, and environmental assessment, supports Indigenous government processes, and sustains broader public-policy priorities for economic sustainability and responsible resource development.

Mineral deposit projects are critical to advancing understanding of the NWT's mineral potential. Comprehensive mineral-deposit knowledge — including deposit models, metallogenic frameworks, and mineral resource assessments reduces uncertainty in public and private decision-making and provides a scientific basis upon which industry can plan exploration investments in the NWT. These data also deliver significant economic returns by reducing risk for the private sector and informing the allocation of limited public resources—supporting government decision-making that competes for attention alongside demands for health care, education, and infrastructure. The Mineral Deposits Geologist's work contributes directly to these outcomes by advancing understanding of mineral-deposit geology and resource potential across the NWT, thereby reducing exploration risk, supporting evidence-based land-use and investment decisions, and contributing to critical minerals strategies where deposit-specific expertise is needed.

The Mineral Deposits Geologist independently plans and leads one to three concurrent geoscience projects, each typically lasting two to five years. Core responsibilities include co-developing project scopes, timelines, and budgets with the Manager; conducting targeted field investigations of mineral occurrences, rock sampling, drill-core logging, and petrographic and geochemical analysis; synthesizing geological data to develop deposit models, the annual Mineral Exploration Overview, and related publications; producing and quality-controlling geoscience datasets for public release; and preparing peer-reviewed scientific publications, public-facing government reports, maps, and presentations that meet NTGS standards for scientific rigour and client utility. The position contributes to securing external funding and supports collaborative arrangements with academic, industry, and governmental partners, including through, negotiating of contribution agreements and participation in intergovernmental coordination mechanisms such as the Intergovernmental Geoscience Accord.

The Mineral Deposits Geologist supports regulatory functions in three capacities. First, the position provides authoritative evaluation of the geological validity and completeness of geoscience information in work-assessment reports, and other legislated industry submissions under the NWT Mineral Resource Act (MRA). These evaluations, coordinated through the Assessment Geologist, provide scientifically sound recommendations to those with authority to approve and ensure that industry submissions meet statutory requirements. Second, as a proponent of field programs, the position ensures that its own field activities comply with applicable legislation governing safety, conduct of scientific activities, and professional practice accreditation, integrating regulatory compliance and stakeholder engagement into project



design, permitting, and execution. Third, the geoscience products and advice of the position provide expert information to external regulatory boards and agencies — including those operating under the Mackenzie Valley Resource Management Act — supplying geological data on mineral-deposit occurrences and resource potential that supports consideration of mineral resource values in initiatives such as land-use or conservation planning. The position is likely the NTGS's most frequent point of technical contact with exploration companies on deposit-specific questions.

The Mineral Deposits Geologist collaborates with colleagues within and between NTGS work units, mentors junior staff and students engaged in field programs, and contributes to a safe, supportive, and inclusive workplace. The position may provide day-to-day technical guidance to field assistants and project students but does not hold formal supervisory authority over professional staff. The position often serves as the project safety officer and ensures that field operations adhere to health-and-safety plans and safe work practices appropriate for remote northern environments.

The position maintains an active professional profile through publication in peer-reviewed journals and geological survey publications, presentation at national and international geological mapping and regional geology conferences, participation in collaborative bedrock-mapping research networks (including other geological survey organizations and university partners), engagement with the geological materials management community on collections standards, and professional registration as a geoscientist, contributing to the credibility and reputation of government science in the NWT.

NTGS geoscientists are core contributors to the annual Yellowknife Geoscience Forum and play a central role in shaping the credibility of the conference's technical program. They provide authoritative geoscience knowledge, present current research, and help translate technical findings into information that is directly useful for exploration companies, Indigenous governments, regulators, educators, and northern communities. Their participation ensures the Forum, the NWT's largest annual conference, remains grounded in the realities of northern priorities—supporting responsible resource development, improved land-use decision-making, and a stronger shared understanding of the NWT's mineral potential. The Geologist may also represent the NTGS at national and international technical and intergovernmental forums relevant to their area of expertise and participates in the broader land and resource management regime grounded in settled land-claim and self-government agreements, particularly as these address land-use planning, environmental assessment, and economic measures under land claims.

Overall, the Mineral Deposits Geologist's portfolio combines scientific excellence with applied service delivery, regulatory support, and collaborative partnership to advance responsible resource development, sustain economic opportunity, support land-use decisions, and maintain the long-term credibility of government geoscience in the Northwest Territories.



RESPONSIBILITIES

1. Advances the understanding of territorial mineral potential through mineral deposit research and conducting or guiding mineral resources assessments.

- Initiates, plans, and conducts independent and collaborative research on NWT mineral deposits and metallogenic settings, integrating geological, geochemical, geophysical, and geochronological data to advance understanding of mineral deposit-forming processes and metallic mineral potential across the territory.
- Produces metallogenic syntheses that characterize the nature, setting, and distribution of mineral deposits in priority areas, contributing to the improvement of geological knowledge for the NWT.
- Maintains the NTGS's scientific readiness to conduct or commission resource assessments by staying current with assessment methodologies, sustaining professional networks with practitioners in federal and provincial geological surveys as well as academia, and ensuring the organization can define scope, procure expertise and ramp up assessment activities when required.
- Provide authoritative critical review and advice on resource assessments originating outside the NTGS, that concerns the mineral potential of the NWT, including contracted work produced interdepartmentally or intergovernmentally, and advises senior management on the implications of mineral resource assessment results for balancing economic potential with other policy objectives.
- Organizes, leads, and reports on field research programs in remote locations, including responsibility for scientific design, logistical planning, financial management, and the training and supervision of field crews including junior staff, students, early career researchers and collaborative partners.
- Develops, sustains, and contributes to productive scientific partnerships with universities, other geological survey organizations, and research institutions through cooperative investigations, co-supervision of graduate research, and joint field programs.
- Prepares and delivers scientific outputs including maps, reports, GIS-based datasets, peer-reviewed publications, and presentations at academic and industry forums, national and international conferences, and to Indigenous and community organizations.

2. Provides mineral deposit expertise and conducts technical reviews of industry submissions to ensure compliance with geoscience-related requirements under mineral resource legislation.



- Evaluates industry work assessment reports involving mineral deposit geology and provides technically defensible recommendations on whether submissions meet the scientific and regulatory standards prescribed under mineral resources legislation.
- Contributes mineral deposit subject-matter expertise to the development of regulatory standards, guidelines, procedures, and interpretive materials for geoscience-related requirements under mineral resource legislation, as directed by the Manager.
- Applies mineral deposit expertise to support programs that improve mineral exploration outcomes in the NWT.
- Maintains current awareness of mineral exploration and development activity in the NWT and of national and international developments in mineral deposit research to inform both scientific programs, enhance coordinated and collaborative geoscience programming to increase cost efficiencies and to contribute to the discharge of regulatory advisory responsibilities.

3. Translates, communicates, and applies mineral deposit knowledge to inform mineral exploration activities, regulatory processes, infrastructure planning, and public decision-making.

- Translates and communicates general mineral deposit knowledge and research results to inform mineral exploration and infrastructure development decisions, regulatory processes, land use planning, environmental assessment, and broader public decision-making in the NWT.
- Provides expert targeted mineral deposit advice to regulatory boards and processes established under land claim and self-government agreements, including land and water boards, land use planning bodies, and environmental assessment panels, ensuring NTGS input is scientifically sound and relevant to the decision at hand.
- Prepares briefing materials, technical summaries, and plain-language communications on mineral deposit geology for senior management, departmental colleagues, elected officials, Indigenous governments, and external clients as required.
- Engages with Indigenous communities, industry, prospectors, and the academic community to share research results, understand client perspectives, and ensure NTGS mineral deposit programs are responsive to diverse stakeholder needs.
- Contributes to NTGS knowledge-transfer products and services, including the Yellowknife Geoscience Forum, open file publications, web-based information, and stakeholder workshops, to ensure mineral deposit knowledge is accessible and applied.
- Engages with Indigenous Governments and community organizations on matters related to mineral potential within their traditional territories, ensuring engagement is respectful, timely, and consistent with obligations under land claim and self-government

agreements and aligned with the Government of Northwest Territories' implementation of the United Nations Declaration on the Rights of Indigenous People.

4. Manages project-level resources and research operations to support effective mineral deposit program delivery.

- Plans and manages project-level budgets, expenditures, and procurement activities for assigned mineral deposit research programs, ensuring resources are used effectively within approved allocations and in compliance with Government of Northwest Territories' financial and administrative requirements.
- With oversight from the manager, increases financial support and expertise capacity for mineral deposit projects by developing funding proposals, negotiating collaboration and partnership agreements, and addressing requirements.
- Coordinates the logistical planning and execution of remote field operations, including arranging transportation, equipment, accommodations, and supplies, and ensures all field activities are conducted safely and in accordance with approved health and safety plans.
- Provides day-to-day direction, mentoring, and technical supervision to junior geoscientists, field assistants, and summer students assigned to mineral deposit projects, including ensuring appropriate training and competency for field work.
- Manages scientific data, samples, and records generated through mineral deposit research to ensure integrity, accessibility, and compliance with NTGS data management standards and any requirements under mineral resource legislation for the submission and stewardship of geological information.
- Supports a diverse, inclusive, and supportive scientific workforce by mentoring colleagues, providing constructive feedback to peers, and fostering a culture of mutual support, teamwork, knowledge-sharing, and professional development.

5. Contributes mineral deposit expertise to NTGS, departmental, and intergovernmental initiatives to support alignment of programs with policy objectives and collaborative management frameworks.

- Contributes mineral deposit expertise to NTGS, departmental, and intergovernmental initiatives, including those established under the National Geoscience Accord and settled land claim and self-government agreements, to support alignment of programs with policy objectives and collaborative management frameworks.



- Provides scientific input to briefings, reports, and decision-support materials requested by the Manager or senior management that integrate mineral deposit assessments with policy considerations.
- Participates in technical working groups, committees, and forums related to mineral deposit research, mineral exploration policy, critical minerals strategies, and geoscience program coordination as assigned by the Manager.
- Supports the alignment of mineral deposit research with the purposes and requirements of mineral resources legislation, including the improvement of geological knowledge in the territory, by ensuring research programs address priority knowledge gaps identified through regulatory, policy, and client engagement processes.
- Contributes to the development and continuous improvement of shared NTGS approaches to scientific standards, field safety, data management, and program delivery as directed by the Manager.

WORKING CONDITIONS

Physical Demands

Office work involves minimal physical demands.

Fieldwork involves sustained physical exertion over extended periods, including hiking over rough and uneven terrain for full workdays while carrying field equipment and geological samples (with individual loads up to 25 kg) for 8 hours a day. Field operations also require participation in physically demanding logistical activities typical of remote camps, such as equipment handling, camp setup, loading and unloading vehicles, boats and aircraft. The physical demands are experienced daily during field deployments, which may extend several consecutive weeks.

Environmental Conditions

Normal office environment for most of the year, with periodic extended field deployments of up to approximately eight weeks annually in remote locations.

During fieldwork, the incumbent is regularly exposed to uncontrolled outdoor environments and occupational hazards inherent to remote operations including: rapid and adverse changing weather; uneven terrain; aviation-supported, off-road and/or marine travel; wildlife and other safety risks. These conditions are experienced daily during field deployments.

Sensory Demands

Normal office environment outside of the field season.



Field work requires sustained vigilance, situational awareness, and a heightened state of alertness to the safety of the team and operations in dynamic, potentially hazardous environments. Workdays may be extended requiring continuous monitoring of environmental and operational conditions. The incumbent is subject to impacts associated with long hours of field work (e.g. fatigue). These demands are present throughout field assignments.

Mental Demands

Ongoing management of multiple concurrent responsibilities including scientific leadership, regulatory oversight, human and financial resource management and stakeholder engagement, often under time constraints.

During field deployments, the incumbent assumes continuous responsibility for scientific decision-making, logistical coordination, and staff safety, requiring real-time judgment under conditions of uncertainty and risk. The incumbent is also subject to substantial disruption of family life. These demands are experienced daily during field assignments, which may extend for a couple of months.

The incumbent is also responsible for the timely delivery of reports and results, presenting research or work plans to scientific peers, collaborators, community groups, etc. and attending geoscience meetings in Southern Canada two to four times per year.

KNOWLEDGE, SKILLS AND ABILITIES

- Knowledge of the inter-relationship of ore-forming and crustal processes on regional scales suitable for the development of models that explain the spatial distribution of mineral deposits within defined geological domains such as sedimentary basins and volcanic and orogenic belts.
- Knowledge of field and laboratory studies to upgrade data, information and knowledge of the NWT's mineral wealth in relation to mineral deposit and crust-forming processes.
- Knowledge of the evolution of the Precambrian Shield and Phanerozoic platform rocks of the NWT.
- Knowledge of metallogeny and mineral deposit geology including but not limited to the principal mineral deposit types in the NWT (i.e., diamonds, orogenic gold, volcanogenic massive sulphides, SEDEX, iron oxide-copper-gold, carbonate-hosted lead-zinc, and magmatic nickel-copper-PGE).
- Knowledge of integrating mineral deposit studies with geological mapping, geochemistry, geophysics and remote sensing datasets in a GIS format.
- Knowledge of modern geoscience data systems, GIS, databases, analytical tools, and digital information delivery platforms sufficient to support data stewardship and dissemination.
- Knowledge of the NWT's mineral deposits to guide scientific activities, to serve as a subject matter resource for clients, academia and senior management, and to represent the organization within national and international geoscience communities.



- Knowledge of mineral exploration approaches and the resulting geoscience data, metadata and documentation practices.
- Knowledge of the legal, ethical, and professional obligations of a registered professional geoscientist (P.Geo.), including standards of independence, impartiality, and evidence-based decision making.
- Knowledge of federal and territorial legislation, regulations, and policy frameworks governing mineral exploration, mining, and field-based research and operations, and the role of geoscience within regulatory systems.
- Knowledge of how scientific evidence informs government policy, regulatory decision-making, and public interest outcomes.
- Knowledge of the balance between scientific independence and the organizational mandate of public geoscience dissemination.
- Knowledge of intergovernmental roles, responsibilities, and collaboration mechanisms under geoscience accords and related agreements.
- Working knowledge of human resource and financial frameworks sufficient to support compliant procurement, contracting, and reporting for assigned activities.
- Knowledge of health, safety, and risk management principles related to remote field operations, including ensuring appropriate training, planning, and mitigation measures.
- Knowledge of standard office and project management tools required to deliver complex programs and reporting obligations.
- Data management skills to organize, archive, and disseminate large volumes of geological information.
- Field skills grounded in best practices in safety management and geoscience research.
- Skills in scientific writing, peer review, and quality assurance to ensure authoritative, defensible public-sector geoscience outputs.
- Interpersonal and relationship-building skills to establish and maintain effective working relationships with Indigenous Governments and Organizations, industry, academia, other governments, and internal stakeholders.
- Analytical and synthesis skills to integrate a variety of data (structural, petrologic, geochemical, isotopic, geochronological, geophysical, remote sensing data) from multiple sources, identify trends, and translate scientific results into scientific publications and usable public-sector information products.
- Demonstrated skills in conducting fieldwork, writing and reviewing geoscience technical reports and publications, collaborating effectively with research teams, and presenting the results of their original scientific work to colleagues and stakeholders.
- Ability to develop sound geological interpretations by incorporating geological knowledge, field and laboratory data, and reference materials.
- Ability to integrate current knowledge of ore-forming processes with crust-forming/modifying processes such as volcanism, sedimentation, metamorphism and deformation.



- Ability to integrate mineral deposit research priorities with ongoing and proposed mapping projects to contribute towards complimentary and linked final research products.
- Ability to co-develop, execute, and report on geoscience projects within budget and on schedule.
- Ability to anticipate emerging issues, opportunities, and risks affecting geoscience programs and to adapt strategies accordingly.
- Ability to mentor and develop junior scientists and students, including coaching in field methods, data management, and scientific communication and writing techniques.
- Ability to work independently and in collaboration with others in a team.
- Ability to foster a collaborative, respectful, and inclusive workplace that values teamwork, and knowledge sharing, while maintaining high scientific and ethical standards.
- Ability to facilitate and participate in solution-focused meetings and workshops.
- Ability to leverage external and intergovernmental partnerships and funding sources to deliver cost-effective geoscience programs.
- Ability to communicate complex scientific concepts, evidence, and uncertainty clearly and credibly to a range of audiences, including senior decision-makers, regulators, scientific peers, Indigenous Organizations, and non-technical audiences.
- Ability to translate scientific programs and results into information, tools, and practices applicable across disciplines and policy domains.
- 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:

A Master of Science degree with a specialization relevant to economic geology, and three years of work experience in industry, academia, or a government agency in a related capacity.

The incumbent must be eligible for professional registration in the NWT and Nunavut Association of Professional Engineers and Geoscientists (NAPEG).

Equivalent combinations of education and experience will be considered.

ADDITIONAL REQUIREMENTS

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