Government of
Northwest Territories

IDENTIFICATION

Department	Position Title	
Industry, Tourism and Investment	Energy Geologist	
Position Number	**Community**	**Division/Region**
63-10261	Yellowknife	NWT Geological Survey/HQ

PURPOSE OF THE POSITION

The Energy Geologist increases the capacity for NWT energy geoscience research at the Northwest Territories Geological Survey (NTGS). Reporting to the Manager, Energy Geosciences, the position undertakes geoscientific studies that increase knowledge of the NWT's energy resources and encourage development of these resources, resulting in economic benefits to the NWT.

SCOPE

Located in Yellowknife, the NTGS is part of the Department of Industry, Tourism and Investment (ITI). The NTGS provides expertise on the mineral and petroleum resources of the NWT. It also carries out mineral and energy potential studies, and renewable as well as non-renewable resource assessments in support of land use planning, land claim processes, and conservation initiatives. The NTGS also compiles, manages and makes available a variety of geoscientific data, and provides public education and outreach services.

The Energy Geologist is a key position in NTGS' Energy Geosciences group, which operates in the following areas:

- Geoscientific research to assess renewable and non-renewable energy potential of the NWT;
- Provision of data, general information and advice on energy geoscience to clients, including residents of the NWT, industry, and other government agencies; and
- Promotion of NWT energy resources through geoscience.

The incumbent works with NTGS colleagues, staff in other government geoscience agencies, department regional offices, petroleum industry, Indigenous Organizations, communities throughout the NWT, and/or university researchers on specific petroleum- related projects.

The Energy Geologist provides highly technical and professional geological reports and compilations, advice and data to these groups and the public that may aid in development of NWT petroleum resources.

RESPONSIBILITIES

1. **Energy Geologist develops and participates in original geoscience research projects in energy-prospective areas of the NWT by:**
   - Planning and designing new projects under the direction of the Manager, Energy Geosciences. Projects may vary from contributing to regional scale, multi- disciplinary basin analysis work to small thematic studies carried out on an independent basis. The incumbent works with the supervisor to design projects in collaboration with other staff and via partnerships with other agencies, as well as developing new research and/or funding opportunities.
   - Assembling all relevant surface and subsurface data including (but not limited to) seismic profiles, well logs, core and drill cuttings, bedrock and subsurface maps, cross-sections, field and analytical reports by government, industry and/or academic researcher s, to serve as a framework for interpreting new field and/or analytical data.
   - Delivering or contributing to multiple projects that may run concurrently.
   - Supervising casual staff or students assisting in project work.
   - Supervising graduate and undergraduate student research projects in conjunction with university staff.

2. **The Energy Geologist maintains NTGS energy-related data holdings and where applicable, produces new compilations that provide additional interpretative value and improved accessibility to clients, by:**
   - Conducting "data mining" projects and generating digital, Internet-read data compilations.
   - Monitoring the release and acquiring new public information from the Canadian Energy Regulator (CER) and/or the NWT's Office of the Regulator of Oil and Gas Operations (OROGO) and interpreting results where applicable.
   - Supervising contracts with data vendors and publishers to ensure NTGS' well log, seismic profile library, energy-related scientific publications, and other data holdings are kept up to date.
   - Monitoring energy-related pages on the NTGS website, suggesting updates and changes as required, and liaising with NTGS staff to ensure energy-related data download services are maintained.
   - Responding to client requests for assistance in accessing energy-related data.

3. **The Energy Geologist prepares reports, figures, maps and/or cross-sections that detail the project work undertaken and ensures the results are available to clients in a timely and effective manner by:**

- Authoring and preparing reports, figures, maps and cross-sections to meet project goals and deadlines; these products are of high technical quality and suitable for the NTGS publication process and/or scientific journals.
- Assembling results of work for oral and poster presentations at the Northwest Territories Geoscience Forum, the Canadian Society of Petroleum Geologists Annual Convention, the Arctic Energy and Emerging Technologies Conference, and other scientific meetings, industry conferences, project workshops, and Indigenous and community organization meetings as requested.
- Maintaining regular contact with colleagues at NTGS, other government geoscience agencies, and the energy industry to ensure constant critical feedback of work underway, high technical quality of completed work, and realization of research partnership opportunities.

4. **The Energy Geologist provides information, data and advice on a regular basis to NTGS staff in general as well as to its outreach geoscientists, the department, energy industry professionals, Indigenous and community residents, and other government geoscience agencies on project areas and energy-related geological matters.**

5. **The Energy Geologist assists in producing informative promotional materials and advancing NTGS initiatives and the energy resources of the NWT at public events.**

6. **The Energy Geologist performs peer-review of manuscripts by other NTGS colleagues and other colleagues outside the NTGS for both internal NTGS and external publications (e.g. GSC Reports, Journal Articles, conference abstracts). The Incumbent may perform confidential peer- reviews of relevant scientific journal articles for scientific journals if requested by the journal's editorial board.**

7. **The incumbent may be required to undertake field work, or take extended duty travel to work on data and samples held in collections in southern Canada and to consult with research colleagues. Where field work is a necessary part of the project, the incumbent is responsible for:**
   - Organizing, undertaking and reporting on field research programs, often as the project leader.
   - Responsible for financial, scientific, and logistical management of field program, often located in remote fly-in locations.
   - Contributing to obtaining field support services e.g. aircraft charters, contribution agreements for research partners.
   - Responsible for human resource management of field crews (including summer student hiring) and safe conduct of all field operations.
   - Field crew can number up to 6-8 participants.
   - Leading or participating in pre- and post-fieldwork research activities.
   - Fostering ongoing healthy and productive partnerships with external research partners, e.g. university students and professors.

- As required, fully participating in collaborative field research activities organized by other groups, e.g. universities, Geological Survey of Canada, and other NTGS researchers.

WORKING CONDITIONS

Physical Demands

Normal office environment for most of the year, with up to eight weeks of fieldwork during summer months.

Fieldwork is physically taxing; the incumbent will be hiking over rough terrain with a backpack, often carrying rock samples (up to 50 pounds) for 8 hours a day. Field work related logistics (sleeping arrangements in tents, travel arrangement s in small aircraft and helicopters, loading and unloading vehicles, preparing meals, etc.) can be physically demanding.

Environmental Conditions

Normal office environment for most of the year, with up to eight weeks of fieldwork during summer months.

While in the field, the incumbent can be exposed to: rapidly changing weather and to conditions such as cold (hypothermia), intense sun {burn), wind, rain; helicopters, airplanes, ATV's, road vehicles (physical injury, hearing loss, gas/ fumes); insects and insect bites; dangerous, unforeseen, uncontrolled field situations such as vehicular accidents, attack by wild animals, falls and other accidents while on traverse (broken bones, cut s, etc.). The incumbent will be exposed to these environment conditions every day while in the field.

Sensory Demands

Normal office environment outside of field season.

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 will likely be exposed to these environmental conditions every day in the field.

Mental Demands

Multiple concurrent and conflicting tasks, leading to conflicting work priorities and time pressures . While in the field, the incumbent is subject to substantial disruption of family life due for field work in distant locations. The incumbent is also responsible for the continuous management of scientific and logistical activities and safe work practices while in the field, including the prediction and mitigation of potentially hazardous situations and managing personality conflicts amongst field staff. The incumbent will be exposed to these demands every day up to three weeks per year.

The incumbent is al so required to present research or work plans to scientific peers, collaborators, community groups, etc., and attend research meetings in Southern Canada two to four times per year.

KNOWLEDGE, SKILLS AND ABILITIES

- Knowledge of the geological principles as they relate to energy related geological disciplines, including but not limited to: sedimentary basin analysis, stratigraphy, sedimentology, tectonics, fluid movement in the subsurface, and basic geochemical principles.
- Knowledge of the techniques used in well log analysis; petroleum play development; bedrock and subsurface mapping; analyses of samples in outcrop, core and drill cuttings; and stratigraphic correlation. Familiarity with the principles of seismic interpretation is an asset.
- Knowledge of the petroleum geology, Phanerozoic stratigraphy, and oil and gas industry of the
- NWT.
- Knowledge of the legal and ethical obligations of the geological profession.
- Knowledge of government financial and human resource policies and best practices.
- Project management, organizational and logistical skills to effectively manage and participate in both independent research and integrated geoscience projects.
- Analytical skills to assess existing scientific and industry data and incorporate it in new research endeavors.
- Skills in critical peer review and editing of scientific reports and interpretations.
- Supervisory skills to oversee contractors, casual staff, and field assistants.
- Field research skills including techniques in measured section work, navigation (using GPS, topographic and/or bedrock map images, air photos), outcrop description and documentation, and sample collection.
- Presentation skills in order to transfer new knowledge and its implications to both scientific peers and laypersons.
- Basic techniques of wilderness survival, first aid, aircraft safety, water craft and land vehicle operation and firearms operation in order to ensure safety and well-being of field crews and successful execution of field activities in remote areas.
- Ability to use petroleum industry-specific software for manipulating well and seismic data (e.g. GeoScout). Experience in using the Internet for research purposes, presentation software (e.g. Microsoft PowerPoint), spreadsheets (e.g. Microsoft Excel), graphic design (e.g. CorelDRAW, Illustrator), word processing (e.g. Microsoft Word), and desktop Geographic Information Systems software (e.g. ESRI ArcMap).
- Ability to conceptualize, design and undertake surface and subsurface geological studies aimed at solving geological questions related to energy geosciences.
- Ability to produce scientific reports of high technical quality suitable for publishing in external geological journals and through the NTGS publication process.
- Ability to present geological information in a competent and effective manner in visual, oral and written formats to a variety of audiences, including: community residents; school children; industry explorationists and producers; and the academic community.

- Ability to work effectively on an independent basis or with other professionals in a team situation.
- Ability to complete complex geological projects on time and on budget, often while performing other duties.

Typically, the above qualifications would be attained by:

These knowledge, skills and abilities may typically be obtained with a Master of Science degree in Geology, with a focus on petroleum geology and/or a sedimentary sub-discipline, and a minimum of three years' work experience in the petroleum industry, academia or a government geoscience agency in a petroleum-related capacity.

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

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