



IDENTIFICATION

Department	Position Title	
MACA	Water Quality & Environmental Specialist	
Position Number(s)	Community(s)	Division/Region(s)
21-11019	Yellowknife	Community Operations / Water and Sanitation HQ

PURPOSE OF THE POSITION

This position serves as the Departmental expert on matters related to water quality and environment. The incumbent provides expertise to guide the development and operation of water and sanitation facilities in the Northwest Territories (NWT) and guides the decisions of community governments and Health Authorities on matters related to water and sanitation facilities.

SCOPE

The Water and Sanitation Section with Municipal and Community Affairs (MACA) is the lead Government of the Northwest Territories (GNWT) agency for much of the technical work undertaken to support the provision of safe drinking water in the NWT Communities.

The position is constantly involved in a multi-tasking, multi-functional, interdisciplinary environment providing specialized technical advice on an on-demand basis to Municipalities, Consultants, Boards and Agencies both internal and external to the Organization. This position provides professional expertise and technical data to Departmental staff, Community Governments, other GNWT Departments, Health Authorities and other agencies in order to improve the planning, design, operations and maintenance of water and sewage systems and solid waste management facilities. The position also works with Federal, Territorial, National and Provincial Organizations and agencies in the development of standards and guidelines for matters related to environment and water quality.

NWT water and sewage facilities are typically high cost and technically complex projects with long planning horizons, heightened performance expectations and keen public interest.

The position is located in Yellowknife and reports to the Engineering Team Lead of Water and Sanitation, which operates in the Capital Planning and Infrastructure Section.

RESPONSIBILITIES

1. Provides water quality expertise so that technically appropriate and cost effective plans and designs are developed for water and sewage systems and solid waste management facilities

Main Activities

- Develops terms of references for functional programs, feasibility and pilot studies, develops and implements environmental testing and monitoring programs, facility programs and conceptual prototypes.
- Interprets and explains water quality issues related to capital projects.
- Provides specialized technical advice and assistance in the development of comprehensive environmental and Water and Sewage related Projects Briefs.
- Review design submissions for appropriateness and adherence to environmental standards.
- Accept or reject calculations and designs submitted by consultants or others for conformance to codes and regulations, departmental standards, objectives and good practice (i.e. Good Engineering Practice, CSA Standards, AWWA Standards and Guidelines).
- Identifies any undesirable features or potential operating and maintenance problems associated with the designs and recommend changes where required.
- Develops terms of reference for specialist consultants' reports and reviews contents of reports for responsiveness (i.e. water quality, water treatment process, pipe materials, heat traces, chemicals and processes used in water or sewage treatment, system performance evaluations, hydrological studies, etc.).
- Provides specialized technical assistance in project commissioning processes to verify whether the facility is technically sound, complies to design parameters and functions as intended, and the operations and maintenance personnel have sufficient training.

2. Provides water quality expertise related to NWT water sanitation facilities

Main Activities:

- Participates in numerous inter-departmental and inter-governmental water and environmental technical committees.
- Interprets and explains water quality issues to representatives of community governments, First Nations, industry and the public.
- Collects and compiles data and produce information about water quality conditions on the NWT, by designing and implementing monitoring and sampling programs.
- Arranges for the collection of water or other samples and arrange for the testing of samples at appropriate laboratories.
- Provides guidance about collection techniques and equipment, and interprets data analysis techniques to NWT Community Governments representatives and others.
- Prepares reports using water quality and other environmental data and analysis or water quality topics in the NWT.

- Organizes and makes available water quality information and data for use by department staff, other agencies and the public, such as Environmental Health Officers and Community Government representatives.
- Recommends appropriate systems, databases and analytical technique requirements to summarize, analyze and display data.
- Keeps up to date with water quality and environmental issues, methods, programs, and other technologies.
- Operates physical equipment to collect data in the field and in the departmental lab facilities.
- Researches NWT Watersheds, focusing on drinking water source catchments, by working with Community Governments, the Federal Government and other agencies involved with watershed management functions.
- Explains and interprets water quality and environmental information, such as, watershed protection, cleaning of household water tanks, community monitoring and communications planning.

3. Reviews and evaluates potential environmental and socio-economic impacts of water and sanitation developments and practices.

Main Activities

- Researches, evaluates, and explains environmental data such as resource reports, climate data and hydrological data for consideration in planning or pre-design engineering studies.
- Identifies environmental issues affecting public safety and land and resource management, which are a result of departmental activities.
- Reviews development plans, proposals and operating procedures.
- Prepares terms of reference for environmental studies.

4. Provides water quality expertise in the development and interpretation of standards for the planning, design, construction, operation and maintenance of water and sewage systems and solid waste management facilities.

Main Activities

- Develop and maintain GNWT technical standards for water and sanitation facilities.
- Be informed and up to date about the related standards of other agencies with the design, construction and operation of GNWT water and sewage systems/facilities.
- Work with the Department of Health and Social Services (H&SS) on promoting safe drinking water and water conservation practices within communities.
- Assist in the preparation of operational performance reports describing the status or condition of water and sewage systems, sub-systems, components, operational procedures, training/certification level of system operators, regulatory requirements.
- Assist in technical and operational investigations on existing water and sewage systems and help prepare reports describing system.
- Verify and document the results of specified tests or observations to ensure that they meet required standards and regulatory requirements.

KNOWLEDGE, SKILLS AND ABILITIES

- Knowledge of environmental sciences, including but not limited to water, soil and sediment chemistry, as well as sample collection and analysis procedures and results interpretations; particularly in relation to the northern environment.
- Knowledge of current technical and scientific literature on water quality with emphasis on northern environments and cost-effective methodologies.
- Knowledge of statistical methods to review, analyze and interpret data and produce reports.
- Analytical and problem solving skills to assess technical problems and work to resolve them in a complex environment.
- Knowledge of Acts and Regulations, regulatory regimes and processes relevant to water and sanitation in the NWT.
- Knowledge and experience with engineering practices, such as project management.
- Experience with the operations of water and sanitation facilities in continuous and non-continuous permafrost, particularly relating to water treatment, water reservoirs, sewage pumping stations, water truck fill pump houses, underground utilities, sewage collection, treatment and disposal, solid waste facilities and their operation and maintenance.
- Familiar with codes, standards, guidelines and regulations applicable to water and sanitation facilities and environmental protection.
- Ability to use computer software including word processing, spreadsheet, database and specialized engineering programs.
- Strong verbal and written communication skills to exchange information and to influence, guide and direct.

Typically, the above qualifications would be attained by:

- The completion of a Bachelor's degree in Engineering, Environmental Sciences, Environmental Geology, or Chemistry and a minimum of three (3) years related working experience.
- The incumbent should be eligible for registration in a relevant professional association, such as National Association of Professional Engineers, Geologists and Geophysicists (NAPEGG).

WORKING CONDITIONS

Express frequency and duration of occurrence of physical demands, environmental conditions, sensory demands and mental demands.

Physical Demands

This position is involved in moderate to severe physical activity, on average three (3) times a month for several hours at a time over two (2) days when inspecting water and sewage systems (i.e. working in awkward positions, lifting, stretching, pulling, pushing).

Environmental Conditions

The position travels away from Yellowknife on average two (2) to three (3) times each month to assist in technical audits on water and sewage systems, and may be exposed to potentially hazardous materials such as chemicals and gasses and to temperature extremes.

Sensory Demands

This position has moderate sensory demands on average three (3) times a month for several hours at a time over two (2) days when inspecting water and sewage systems.

Mental Demands

The position travels away from Yellowknife on average two (2) to three (3) days each month.

EXCLUSION / INCLUSION

Section A

This job should be included in the bargaining unit

This job should be excluded from the bargaining unit (complete section B)

Section B – Rationale for exclusion from the bargaining unit

(Exclusion from the bargaining unit must meet the conditions outlined in section 306 of the GNWT's Human Resources Manual (HRM). Refer to Section 306 of the GNWT's HRM and outline the reason for the exclusion request below)

Comments:

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