



IDENTIFICATION

Department	Position Title	
Infrastructure	Senior Electrician	
Position Number	Community	Division/Region
33-11522	Norman Wells	Sahtu Region

PURPOSE OF THE POSITION

The Government of Northwest Territories (GNWT) owns and operates 27 public airports in the Northwest Territories (NWT). The Airports Division has the responsibility to ensure that airports facilities are in place to meet the demands of the air industry, and that airports are operated according to federal regulations and standards.

The Senior Electrician primarily maintains and repairs all airport and airfield electrical systems, equipment and components located at the Norman Wells, Fort Good Hope, Colville Lake, Déline and Tulita airports, to ensure operational integrity and reliability. This position provides similar electrical support to the remaining GNWT airports on an "as required" basis.

The Senior Electrician inspects, services and repairs electrical and electronic systems in government owned and operated buildings, in up to 5 different communities in the region to ensure safe and efficient operation in accordance with the Canadian Electrical Code, Northwest Territories (NWT) Safety Regulations and departmental policies and procedures.

SCOPE

This position is located at the Norman Wells Maintenance Shop and reports to the Maintenance Coordinator, Norman Wells.

The Senior Electrician organizes and implements a planned program of maintenance and repairs for all electrical systems, equipment and components at the five Sahtu Regional airports, and provides support for the remaining NWT airports as required.

The airports equipment referred to includes:

- Medium and Low intensity approach lights
- Visual flight approach systems
- High-voltage runway edge lights and airside lighting
- Building electrical systems
- Airport groundside lighting and electric gate components
- Airport emergency power generation systems
- High-voltage switch gear
- Low-voltage control systems including DDC
- Fire alarm and detection systems

Located in Norman Wells and reporting to the Norman Wells Maintenance Coordinator, this position is responsible for performing electrical inspections, servicing and repairs on some 300 plus Government of the Northwest Territories (GNWT) assets in up to 5 different regional communities and several other remote sites including Mile 222 - Canol Trail. This position completes and/or manages approx. 1300 work orders per year at an approximate value of \$400,000.

The incumbent conducts electrical and electronics inspections and repairs on highly sensitive and critical systems in buildings throughout the region. Typically the inspections and much of the resulting work is governed by a variety of codes and legislation, including but not limited to the Canadian Electrical code, Canadian Building Code, NWT Fire Code, and NWT Safety Legislation. Compliance with these codes and legislation is required for the continued operation of the buildings in question (typically Health Centres, Schools, government office buildings, and petroleum products tanks farms, RCMP Detachments, warehouses, and residential units).

A challenge for this position is in coordinating work assignments with those of other trades positions in order to see a project completed efficiently and effectively. Work is almost always performed with little or no direct supervision, and, most often without the benefit of professional collaboration.

RESPONSIBILITIES

1. Plans, organizes and implements the maintenance program for the airport electrical systems.

- Formulates and implements work programs and develops work methods, procedures and acceptance criteria.
- Establishes operation and maintenance costs of new systems, equipment and installations.
- Carries out emergency repairs and makes alternative arrangements in response to electrical and power failures, so as to minimize the impact on airport operations
- Ensures proper completion of Work Orders and Work Requests following the Airport Maintenance Management System (MMS).
- Prepares requisitions for materials and supplies.
- Prepares and administers maintenance contracts, inspects completed work, and recommends payment of invoices.

- 2. Maintains and promotes reliable and efficient operation of all airport electrical systems, equipment and installations, for the Norman Wells airfield and at four community airports.**
 - Conducts regular inspections, tests, checks and verifications on equipment condition and performance.
 - Provides emergency repairs and alternatives in response to electrical equipment and power failures so as to minimize interruption of service.
 - Adjusts, calibrates, re-aligns and repairs equipment and installations to the required performance standards.
 - Reports equipment failures and abnormalities in equipment performance, and recommends corrective action.
 - Maintains electrical drawings, data and inventory to "as built" status.
 - Maintains adequate supply of materials, spare parts, tools and test instruments to perform emergency repairs and deliver the preventative maintenance program.
 - Maintains records of materials spent in preventative maintenance.

- 3. Performs diagnosis and restoration of all airport electrical systems, equipment and installations to the required operational reliability and performance standards.**
 - Consults manuals, drawings, data and diagrams.
 - Locates faults with diagnostic equipment and test instruments.
 - Repairs, adjusts, calibrates, aligns and overhauls electrical equipment.
 - Requisitions parts and materials required to carry out repairs and overhauls.
 - Verifies that operational reliability and performance levels have been restored after repairs and overhauls by conducting tests and trial run.

- 4. Provides technical advice and service to management and other government departments, agencies, contractors, consultants and airport tenants in support of capital projects.**
 - Demonstrates and explains various electrical systems, equipment and installations, and performs shutdowns when required.
 - Checks plans and specifications for new projects to ensure compatibility with other existing systems, equipment and installations on the airport.
 - Provides safety and security escort and orientation when work is performed on airport systems, equipment and installations.
 - Inspects and reports on contractors' work performance and quality in accordance with contract requirements.
 - Ensures that the integrity of electrical systems is maintained during work in progress.
 - Verifies performance and recommends acceptance and commissioning.
 - Stakes utility systems for contractors and airport tenants.

- 5. Due to the fact that many GNWT building systems are operated through computerized controls, and any given building may have a number of computerized systems and software applications, the incumbent must be familiar with and be capable of troubleshooting and making programming adjustments as needed to meet code operating requirements. Inspects all electrical systems, electronic systems, Direct Digital Control systems (DOC), Energy Management and Control**

Systems (EMCS), Boiler control systems, Fire Alarm Systems, electrically-based fire control systems and generator systems in Government of Northwest Territories (GNWT) buildings and works to identify any potential electrical hazards. Consults with various codes and legislation, and plans and executes repairs on these critical fire and life safety systems.

- Conducts regular preventative maintenance checks of all electrical systems and components, including controls in accordance with the department's Computerized Maintenance Management System (CMMS) to ensure systems are safe and functioning according to design parameters.
- Diagnoses faults in electrical systems, components and appliances and identifies repairs required to correct deficiencies. Executes repairs as required.
- Completes code or legislation required formal inspection reports on all deficiencies and initiates and completes work orders for the repairs.
- Uses the CMMS to generate work orders as necessary and completes the work where possible. Otherwise the work is issued to a contractor and completed under the supervision of the incumbent. Incumbent inspects all contractor work to ensure compliance with code and GNWT policies and safety practices.
- Tests emergency generators and switch gear at regular intervals to ensure they are operating properly. Identifies deficiencies and corrects them, if electrical in nature, and advises the Maintenance Coordinator if mechanical repairs are required.
- Uses effective and approved lock out/tag out systems to prevent personal injury, occupant injury, property damage or dangerous situations.

6. Maintains electrical systems, components and appliances in government buildings and works to ensure a safe and efficient operation.

- Installs repairs and replaces electrical wiring and lighting systems to ensure safety of users and that systems function properly.
- Installs and repairs electrical motors and controls, fire alarm systems, clock systems and electrical heating systems and associated HVAC controls to achieve maximum building energy efficiency.
- Install, repairs and replaces generator components and switch gear to ensure safe and efficient operation.
- Repairs or replaces unserviceable motors and equipment as required.

7. Completes records for all maintenance and repairs to electrical systems and components to identify historical costs and work performed on each asset.

- Identifies supplies required to complete jobs and compiles material lists in order to ensure sufficient materials are on hand.
- Completes work orders for all work assignments indicating materials used, work accomplished and time required to complete jobs in order to document associated costs.
- Accounts for eight hours each day plus any overtime hours to ensure time is charged out against assets.
- Completes applications for electrical permits in order to obtain approval to commence with electrical work.

8. Checks electrical work performed by contractors to ensure compliance with plans, specifications and governing code.

- Conducts inspections of all electrical installations to ensure work requested was completed according to the department's requirements.
- Identifies deficiencies in workmanship or quality of materials that require correction.
- Identifies arranges assists and supervises any specialty resources that are required to complete a job.
- Organizes, supervises and inspects any warranty electrical, electronics and controls work performed by contractors.

9. Specifies, orders, installs, and services and maintains special electrical and electronic components to ensure they operate safely and continuously in accordance with original design specifications of the equipment.

- Isolates faulty electronic circuits or components and replaces circuit boards or other components on boiler, HVAC or other heating or building system controls. Troubleshoots, repairs and tests alarms for electrical, system failure, mechanical system failure and sound systems within applicable GNWT assets to ensure component is functioning safely within its parameters.
- Repairs, services, tests, and ensure the operational integrity of fire alarms and emergency lighting systems. Conducts monthly, quarterly and annual inspections, adjustments and repairs to achieve the above.

10. Provide on call coverage

- Work with other trades to provide on call coverage in evenings and on weekends

WORKING CONDITIONS

Physical Demands

Incumbent is subject to the risk of electrical burns and potential for serious injury during inspection, testing and repair of installations.

Daily, the incumbent will experience risk of burn and injury for a period of 1-4 hours.

Works in awkward positions, in small cramped spaces, in high places, carries heavy tools and equipment Works at great heights on a regular basis requiring the use (and knowledge of how to use) safety harness and other fall arrest gear, scissor lifts and scaffolding. Works regularly with high energy systems that are potentially lethal.

Environmental Conditions

Working outdoors is required in extreme low temperatures. Incumbent is required to travel to other regional airports and two ferry sites.

Daily, the incumbent will work outdoors for 2-4 hours.

Exposure to toxic/unpleasant fumes, exposure to electrical systems and components. Risk of injury both in the nature of the work and in performing repair work on site. Work may be outside in extreme temperatures, on building roofs, or high on the walls of buildings. The sensitivity and criticality of the work the position performs may require performance of duties in conditions that would not otherwise be permitted. Intensity: Substantial Frequency: 4-6 hours per day

Sensory Demands

This position requires a normal exertion of sensory attention.

Daily, the incumbent will experience high intensity sensory attention demands for 8 hours. Exposure to toxic/unpleasant fumes, exposure to electrical systems and components. Risk of injury both in the nature of the work and in performing repair work on site. Work may be outside in extreme temperatures, on building roofs, or high on the walls of buildings. The sensitivity and criticality of the work the position performs may require performance of duties in conditions that would not otherwise be permitted.

Mental Demands

The incumbent is exposed to a large workload with competing priorities.

Daily, the incumbent will experience medium intensity competing priorities for 1-4 hrs.

On a monthly basis the incumbent will travel to remote locations for periods of 10-15 days.

KNOWLEDGE, SKILLS AND ABILITIES

- Knowledge of the Canadian Electrical Code, and of electrical installation and maintenance practices and principles.
- Knowledge of high voltage (5 KV) and low voltage electrical power distribution systems, safety practices and procedures in the isolation of electrical systems, switching controls, lighting systems, power generation, fire and security alarms and detection systems, visual navigational aid systems, electronics; programmable logic controllers, and a general knowledge of electrical theory as applied to the control and operation of airport electrical systems.
- Knowledge of electrical systems and regulations peculiar to airports, such as Airfield Lighting regulations, Industrial Electronics, Fire Alarm Systems, Fire Protection Systems, Programmable Logic Controller Systems, Electrical Power Generator, Logic Controls, High Voltage testing and fault locating, electrical safety.
- Knowledge of heating and air conditioning systems.
- Familiarity with Workplace Hazardous Materials Information System (WHMIS).
- Ability to interpret and understand electrical drawings and schematics.
- Skills and ability to use various electrical instruments and equipment for inspections and fault finding such as High Voltage cable insulation tester, cable locators, volt-ohm-amp meters, voltage testers and other electrical and electronic test equipment.
- Good oral and written communication skills to provide reports to management relating to observed occurrences or circumstances upon which operational decisions will be based.
- Ability to read and, when required, modify electrical drawings.

- Ability to work with chemicals such as solvents, coolants, degreasers, etc.
- Ability to work without technical assistance.
- Ability to manager/supervise direct reports

Typically, the above qualifications would be attained by:

- A First Class Journeyman Electrical Certificate, First Class Inter-provincial Red Seal Certificate and at least five years' experience as a maintenance electrician, preferably with a background in airfield lighting and airport electrical systems;
- Two years of experience in managing a preventative maintenance program for airport electrical equipment and systems;
- Experience in supervising and providing direction and advice to direct reports & electrical contractors;

ADDITIONAL REQUIREMENTS

The incumbent must possess a Class 5 drivers' license.

Facility Access 2 Clearance is Required For RCMP Detachments

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