



## IDENTIFICATION

Department	Position Title	
Environment and Climate Change	Wildfire GIS and Database Technician	
Position Number	Community	Division/Region
23-17406	Fort Smith	Forest Management

## PURPOSE OF THE POSITION

The Wildfire GIS and Database Technician (Technician) integrates the use of Geographic Information Systems (GIS) technology into the information management processes that are used to support program delivery for Forest Management Division (FMD). The Technician provides a broad range of geospatial services to both the Forest Management Division and regional offices. The Technician will collect, maintain, and distribute data and produce mapping products related to fire operations and other FMD initiatives.

## SCOPE

Located In Fort Smith and reporting to the Fire Management Geomatics Analyst, the Wildfire GIS and Data Technician conducts spatial data analysis on a variety of land and resource planning and decision-making projects relevant to the territorial wildland fire and forest management programs. Projects include infrastructure and land use planning, environmental reporting and monitoring, and economic analyses.

The Forest Management Division (FMD) provides the policy, planning, and regulatory framework for the stewardship, protection, and sustainable management of forest resources on 80 million hectares of land in the Northwest Territories (NWT). The fire management program is a key area of responsibility. The fire operations section of the division provides scientific fire management expertise and supports the fire management program. The section conducts applied research for enhanced fire science knowledge and manages an information management framework for fire management. The use of geomatics plays a significant role in the ability of the section to provide effective program delivery.

The Technician is the junior technical specialist in geomatics for FMD. This position is a subject matter expert with knowledge and skills in spatial information including remote sensing,



geographic information systems, and spatial data management. Specific focus includes managing spatial data and ensuring data standards are met to maintain the integrity, currency, and security of government data sets. The position's ability to successfully respond to time-critical requests for information and services is of great importance.

The Technician gathers and manages digital data from a range of subject areas. The technician will aid in the collection, compilation, integration, interpretation, and integrity of spatial data for the fire management program. The position uses vector, raster, and statistical data using GIS applications, Relational Database Management Systems, and content management systems to achieve results. The technician will also use these varying data sources to produce cartographic products by request.

The Technician, using a combination of technical and theoretical knowledge, will support the Geomatics Analyst in the acquisition, storage, maintenance, and security of information in compliance with divisional, departmental, and interagency specifications and standards. The information is territorial in extent and provides the foundation for divisional automated decision support systems and is made available through access via divisional spatial data repositories and planning tools.

The Technician is able to assess the reliability/risk of data when completing projects or responding to requests for information. If the data is not reliable the safety of personnel, values-at-risk, communities, and cost effectiveness of the program may be compromised. This is a specialized technical support position, with no supervisory responsibilities. However, this position is expected to function in a team environment and as a result is required to work collaboratively with peers and subordinates to deliver according to developed work plans. A mentoring role is provided to peers and subordinates on the appropriate use of fire management data, spatial data management methodologies, and related use of GIS technology to meet divisional business requirements.

The Technician assists regions with specific analysis projects required to meet client resource information needs. As required, the Technician may be temporarily assigned regional roles to assist with critical operations during the wildland fire season. Key contact requirements include divisional staff, regions, and other ECC Divisions to provide information, tools, operational support, and technical expertise; and to collaborate on priority setting and joint initiatives.

Other contacts are counterparts in other departments and agencies to consult, exchange information, and discuss data, data sets, metadata, standards, services, joint initiatives, and issues. Contact with contractors is required for goods and services needed to obtain and process data, develop products, and maintain or enhance systems.



## **RESPONSIBILITIES**

### **1. Maintain NWT wildfire management related data sets.**

- Work with the Canadian Forest Service to incorporate the most recent seasons fire perimeters into the Fire History data set and distribute as required.
- Maintain the fuels management geodatabase.
- Other data sets of note include Values at Risk and Fuel Caches.

### **2. Primary contact for Regional mapping support.**

- Produce and maintain Territory-wide mapping products including Community Wildfire Protection Plan maps, Interface Response Plan maps as well as others.
- Produce maps as and when required to support regional needs.

### **3. Provide Fire Operations Mapping Support**

- Produce maps of active wildfires as and when required.
- Participate on the Territorial Wildfire Mapping Roster.
- Manage the Territorial Wildfire Mapping Roster when the Fire Management Geomatics Analyst is unavailable.
- Provide on-site support to regions or wildfire incidents as a Wildfire Mapper.

### **4. Provide input and mapping support for winter project work.**

- Participate actively on project teams or provide support to project teams through spatial analysis and the development of mapping products.
- Present results of spatial analyses to the project team.
- Provide advice with regards to data storage and maintenance related to project work.
- Contribute to the production of project write-ups.

### **5. Collaborate with FMD technical team on support and development of in-house decision support tools.**

- Attend FMD Technical Team meetings to provide input with regards to data storage needs and data management recommendations.
- Manage the Geoserver environment that is the primary local data source for decision support systems.
- Facilitate making changes to the Geoserver environment to accommodate new development needs.

## **WORKING CONDITIONS**

### **Physical Demands**

The Technician will be required to sit at a computer for long periods of time, some light lifting is required.



### **Environmental Conditions**

During the fire season, the Technician works under adverse conditions such as smoke, extreme heat, and mountainous terrain, in remote and isolated locations, and spends extensive periods of time in aircraft in often adverse flying conditions.

### **Sensory Demands**

The Technician spends long periods documenting, recording, and preparing correspondence, meeting minutes, and documentation where intense concentration and attention to detail is required.

### **Mental Demands**

Travel and work away from home during the fire season (long hours and away from family). The Technician must be able and willing to work extended hours, travel extensively and be on standby for extended periods of time in accordance with operational plans during fire season. The severity of the fire season determines the Technicians' workload, and this is a factor beyond the control of the Technician.

The Technician will be exposed to shifting priorities and tight deadlines with urgent situations, which significantly increase the level of stress in this position, especially during the wildland fire season.

Given the nature of the organization and responsibilities for emergency response, flexibility is required for sudden changes in responsibilities and assignments such as callouts for emergencies or supporting regional staff during times of increased fire activity.

### **KNOWLEDGE, SKILLS AND ABILITIES**

- Knowledge of ArcGIS suite of tools including both ArcMap and ArcGIS Pro, Microsoft office suite of tools.
- Knowledge of Geoserver and the management of Geoservers preferred.
- Familiarity with cloud data storage solutions and managing data within them.
- Familiar with database management and writing queries using structured query language (SQL).
- Capable of managing data in both an SQL and a NoSQL environment.
- Expert in the principles of cartography for hardcopy and digital map production.
- Skills to capture, create, compile, convert, edit, and maintain digital information in a GIS environment, including use of a GPS unit and creation of shapefiles from GPS data.
- Ability to organize and manage multiple GIS projects and initiatives concurrently.



- Ability and willingness to continue learning new methods and applications to maintain currency in GIS technology, applications, and workflows.
- Ability to listen to clientele needs to assess and effectively understand and respond to their requests.
- Ability to work cooperatively with co-workers, clients, and contractors in a multidisciplinary resource environment, as well as to work independently and exercise judgment and initiative as appropriate.
- Ability to interpret and follow complex written and verbal instructions.
- Ability to clearly communicate, verbally and in writing, complex technical information, and evolving issues to a variety of people.
- 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 bachelor's degree or technical diploma in geography, GIS, or a natural resource management related field, and one (1) year of GIS experience.

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