

# JOB DESCRIPTION POINT RATING EVALUATION PLAN

Working Title

Name

Agro-meteorological Technologist

Position Number	Reports to Position No., Class & Level	Division, Branch/Unit	Ministry
			Agriculture and Irrigation

Present Class

Requested Class

Cost Centre	Project Code (if applicable)

**PURPOSE:** Give a brief summary of the job, covering the main responsibilities; the framework within which the job has to operate and the main contribution to the organization (see [Section 2.3](#)).

This position reports to the Southern Region Senior Agro-meteorological Technologist and is responsible for management, maintenance and installation of the Alberta Drought and Climate Monitoring stations. This network provides real time data that conforms to World Meteorological Organization (WMO) and Meteorological Service of Canada (MSC) standards. Timely and accurate data is required for crop insurance, flood and weather forecasting, monitoring and reporting on drought conditions, evaluation of water supply outlook conditions, irrigation scheduling, research and a diverse range of private and public needs. This is the primary data used by government agencies, non-government organizations, and agribusiness to make major environmental and economic decisions. In addition, the data collected is the foundation for Alberta Financial Services Corporation's (AFSC) moisture deficiency crop insurance programs.

**RESPONSIBILITIES AND ACTIVITIES:** The purpose of the job can be broken down in different responsibilities and end results. Each end result shows what the job is accountable for, within what framework and what the added value is. Normally a job has 4-8 core end results. For each end result, approximately 3 major activities should be described (see [Sections 2.1](#) and [2.2](#)).

This position is responsible for the operation, maintenance and installation of AF's real time meteorological network. Meteorological data collection conforms to national and international standards and is provided to stakeholders to evaluate and manage Alberta's agricultural lands and water resources.

- Coordination and completion of scheduled maintenance and response to emergency repairs of meteorological stations. The majority of the work is completed while alone and without direct supervision.
- Fabrication and installation of new stations and instrumentation as required
- Assist with installation and co-ordination of activities.
- Maintain and calibrate instrumentation to ensure production of a continuous data set that meets established standards.
- Research and provide input into improving standards.
- Maintain current documentation and databases associated with station records and history.
- Provide quality controlled data to stakeholders in a timely manner.
- Assist with procuring materials and supplies from numerous vendors.
- Maintain a working relationship with stakeholders and provide technical information, advice and data as required.
- Perform snow surveys, to effectively predict drought conditions and produce water supply outlook reports.
- Support the projects of other groups within AF and partners. These activities may include such things as:  
Assist with the operation, maintenance or expansion of Environment and Parks (EP) real-time meteorological



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network or other monitoring networks if required and time permits.

**SCOPE:** List specific information that illustrates what internal or external areas the job impacts, and the diversity, complexity, and creativity of the job (see [Section 2.4](#)).

**Job Impacts:**

- Data collected from the Agriculture Meteorological Network is utilized by numerous stakeholders; including several of AF's line divisions, AFSC, EP, Government of Canada, producers, environmental consultants, universities and the general public. The data is widely published and is also available on web sites operated by AF, EP and MSC. This is the primary source of data required by many of these groups to make major economic, environmental, and policy related decisions.
- For Government, this is the primary data required for purposes ranging from predicting drought conditions, fire danger, flood forecasting and supporting many watershed management initiatives.
- The data supplied by the Agricultural meteorological network is the foundation for AFSC's weather derivative crop insurance programs, and as such, the quality and reliability of the data has significant ramifications to AFSC and AF. It is imperative that the data be available to them in a timely manner and of a quality that meets national and international standards.

**Liaison:**

- Interact with co-workers and professionals from other divisions and agencies (AF, EP, MSC, AFSC, U of A etc.) for the purpose of implementing and assisting with programs, workloads, data collection, co-ordination and support. Effectively communicate data and information regarding programs to supervisors, co-workers and stakeholders.
- Co-ordinate and cooperate with landowners in order to facilitate access, installation, operation and maintenance of the AF weather monitoring network as well as programs as required.
- Network and strengthen relationships with numerous equipment vendors to facilitate transferring of product specifications, problem solving and to effectively resolve equipment and software related problems.

**Diversity and Complexity:**

- The AF Meteorological Network is a province wide meteorological network currently with 170 stations, projected to expanding to 180 by 2020, making this the largest provincial near real time network of high quality weather stations in the country. These are complex multi-sensor stations that transmit data in real time, via satellite and cellular communications. The sensors measure parameters including all season precipitation, wind speed and direction, air temperature, relative humidity, snow depth, net radiation, soil temperature and soil moisture.
- Proficiency with different manufacturers' software in order to communicate, diagnose, calibrate, program, upload and download data from data loggers and various types of calibration equipment.
- Evaluate and research new and routinely used equipment using accepted and known calibration standards to verify proper operation according to manufacturer's specifications. Accurately document results and repair and replace defective equipment.
- Data quality and integrity are a fundamental component to the collection of first-rate data. Sensor calibrations, inspections and data quality checks are some of the aspects used to assure data quality.
- Support the wide variety of field activities undertaken by AF and partners such as: Water quality and quantity measurements on ground and surface water bodies of varying size, condition and location.

**Creativity:**

- Much of the work is performed alone in remote locations. As a result, independent problem solving skills,



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troubleshooting and ingenuity are necessary to insure continuous data from remote stations. Positive results are expected. Detailed knowledge of all aspects of the complex systems employed at these key sites is required to accomplish our goal of 95% data recovery.

- The problems that are faced are not always known, and the immediate solution is often unknown. Many new technologies are being utilized where similar problems have not been experienced in the past; as a result new solutions need to be discovered.
- Fieldwork is inherently dynamic and unpredictable, and hence creativity is an integral part of scheduling activities, associated with the installation, maintenance and operation of all sites.

**Geography and Location of Work:**

- Travel throughout the province to complete routine station maintenance, repairs, new site installation and sampling programs is considerable. Sites visited range from highway accessible to remote locations and can involve in excess of 30,000 km of travel annually. Often multi day trips are planned, resulting in overnight stays for up to four consecutive nights at a time. As well emergency repairs require unscheduled field trips throughout the year.

**KNOWLEDGE, SKILLS & ABILITIES:** Provide a list of diplomas, degrees and the most important knowledge factors, skills and abilities including knowledge about practical procedures, specialized techniques, etc.; analytical and conceptual skills and abilities; and skills needed for direct interaction with others. Specific training if it is an occupational certification/registration required for the job.

1. The position requires field experience, practical and theoretical knowledge in several areas.
  - Knowledge of electronics is required for installation, maintenance and troubleshooting of a wide variety of meteorological sensors, power supply components as well as data collection platforms that use modem and satellite based telemetry.
  - A solid understanding of electronic principles and the ability to use multimeters and other tools to troubleshoot and isolate problematic components of a meteorological station.
  - Mechanics and construction experience is required for maintaining and installing stations and their components as well as a maintaining a wide range of equipment (lawn mowers, generators, trimmers, trailers, assorted tools and hand held devices).
  - Navigation and global positioning systems (required for station sighting, locating, installation and maintenance)
  - Experience in environmental monitoring with an emphasis on Meteorology would be a bonus.
  - Organizational skills for maintaining accurate and detailed field notes, equipment inventories, tools and consumable supplies.
  - Computer skills for interfacing with station components (data loggers, downloading and storing data using strict protocols, and maintaining and updating station met data and associated archives.
2. Become familiar with the standards and protocols used for sampling and data collection and the ability to use this information to develop the Agriculture Meteorological Network
  - Environment Canada meteorological standards
  - World Meteorological Organization standards
  - United States Geological Survey snow sampling standards
3. Be proficient in standard computer programs (Excel, Word), and have the ability to work with and assist in developing various database programs in order to enter, manipulate and quality check data from various sources and locations. Adaptability in computer skills to effectively and efficiently communicate with different instrumentation software.
  - Data Collection Platforms, Satellite Telemetry, Cellular Modems, Calibration and monitoring equipment.
  - Ability and drive to read and understand detailed technical documentation on sensors, instruments, loggers, etc.

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4. Knowledge of laboratory procedures and protocols ensuring laboratory and personal safety.
    - Proper storage and handling of chemicals, sample processing
    - Ordering and disposal of chemicals used for maintenance
  5. Certified or Knowledgeable in the following safety related areas.
    - Defensive Driving / Collision Avoidance (Certification required)
    - Standard First Aid (Certification required)
    - Workplace Hazardous Materials Information System (Certification required)
    - Pesticide Applicators License (minimum of Assistant level certification required to spray on site)
    - Transportation of Dangerous Goods Act and Regulations (Knowledge of when this Act applies)
    - Working Alone Legislation, Occupational Health and Safety Act (Knowledgeable)
  6. Outdoor skills
    - Good motor skills and eye-hand co-ordination
    - Awareness and adaptability to changing environmental conditions to ensure safety while traveling and working in the field, year round.
    - be physically fit, with a demonstrated ability to work effectively in a variety of outdoor environments, year round
- Typically requires a related technical diploma plus 4 years of related experience or equivalent

**CONTACTS:** The main contacts of this position and the purpose of those contacts.

Equipment vendors; Campbell Scientific, Geonor, Hoskins - Equipment purchasing, repairs, troubleshooting, training  
Station Co-operators; Gaining access to and resolving issues with sites, requests for information and data  
Environment and Parks Various Technologists - Technical expertise, administrative enquiries  
U of A - Co-ordination of maintenance and installation of partnership stations.  
MSC - Various Meteorological Technicians - Meteorological expertise, equipment programming, standards.

**SUPERVISION EXERCISED:** List position numbers, class titles, and working titles of positions directly supervised.

**CHANGES SINCE LAST CLASSIFICATION REVIEW:** This section is not required to be completed if the job description is being written for the conversion to PREP. It should be completed for any subsequent job evaluation requests under PREP.

**ORGANIZATION CHART:** An organization chart that includes supervisor, peers and staff **MUST** be attached.

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*This information is being collected under the authority of Section 10 of the Public Service Act and will be used to allocate positions within a classification plan and to manage the Alberta government human resources program. If you have any questions about the collection of this information, contact the Job Evaluation Unit, 6<sup>th</sup> Floor, Peace Hills Trust Tower, 10011 - 109 Street, Edmonton, Alberta, T5J 3S8, phone 780/408-8400 or contact your Ministry Human Resource Office.*

#### Signatures

The signatures below indicate that the incumbent, manager and division director/ADM have read, discussed and agreed that the information accurately reflects the work assigned.

Incumbent

_____	_____	_____
Name	Signature	Date

2017/10/30