

## Update

Ministry

Environment and Protected Areas

### Describe: Basic Job Details

#### Position

Position ID

Position Name

Water Supply Data Specialist

Current Class

Technologies 5

Job Focus

Operations/Program

Supervisory Level

00 - No Supervision

Agency (ministry) code

Cost Centre

Program Code: (enter if required)

#### Employee

Employee Name (or Vacant)

Vacant

#### Organizational Structure

Division, Branch/Unit

EPA/RSD/AWS

Supervisor's Position ID

Supervisor's Position Name

Supervisor's Current Class

Technologies 6

### Design: Identify Job Duties and Value

#### Changes Since Last Reviewed

Date yyyy-mm-dd

2022-04-05

Responsibilities Added:

Job description is up-to-date, Ministry names and acronyms updated.

Responsibilities Removed:

None

## Job Purpose and Organizational Context

Why the job exists:

Reporting to the Water Supply Data Supervisor, the Water Supply Data Specialist is a key member of a critical services team responsible for stewardship of water quantity data as well as delivering operational support and maintenance services for the real-time data collection systems which gather, manage, quality control and distribute the hydrometric data, reservoir data, water quality data, and groundwater well data necessary for informing flood forecasting, river ice monitoring, water supply forecasting, irrigation and reservoir operations in Alberta. These near-real-time data systems also include historical hydrometric data from various sources required for research, planning, monitoring, reporting, and related water resource management activities.

Because these near-real-time data assets and operating systems help raise public awareness and inform multi-stakeholder responses to environmental emergencies, the Water Supply Data Specialist position is formally recognized as part of the ministry's critical services team who offer 24/7 on-call services during river flooding, ice break-up, heavy rainfall events and natural disasters.

The incumbent within this position collaborates with ministry staff, partners and stakeholders to develop, maintain or enhance water supply data systems in order to improve performance, reliability, accessibility and overall stewardship of the data. The incumbent also provides training and support to staff, stakeholders and citizens who rely on the data.

Activities of the Water Supply Data Specialist help ensure high quality near real-time and historical data is available to inform actions and decisions that promote better water resource management and environmental health while protecting public property, health and safety.

## Responsibilities

The Water Supply Data Specialist performs the following key functions:

1. Maintains data assets and operates data systems and tools necessary for the stewardship of near-real-time and historical water data required to inform primary users such as flood forecasters, dam operators, river engineers, hydrologists, water managers, stakeholders and citizens. This includes:
  - Detecting, assessing, correcting and preempting problems that threaten the functionality of data acquisition, distribution and stewardship processes;
  - Maintaining telemetry protocols (satellite, modem, Internet) in part through effective communication with field staff and third parties;
  - Troubleshooting the data communication processes to ensure smooth data flow from remote stations;
  - Providing 24/7 data acquisition and distribution services in flood and ice jam emergency response situations;
  - Assuring system integrity by organizing and developing data polling schedules, problem logs and decoding algorithms;
  - Committing to team shift work schedules and standby duties to ensure minimum interruption during an emergency response.
2. Performs quality assurance and quality control (QA/QC) of water supply data. This includes:
  - Establishing and documenting QA/QC procedures for data management, corrections and retrieval;
  - Ensuring consistent application and achievement of standards;
  - Providing training to junior staff regarding techniques to ensure consistency and reliability during water supply data acquisition and data correction processes.
3. Works with ministry and Technology and Innovation staff to maintain and enhance existing applications and to continually improve the quality, quantity and accessibility of data. This includes:

- Identifying business requirements, recommending system revisions, participating in the design, development or enhancements of applications;
- Taking proactive measures to assess and improve data integrity, ensuring requirements are met and streamlining processes;
- Acting as a technical resource in data conversion and data verifications;
- Identifying opportunities such as new stations or new data networks (in and outside Alberta) that would generate information useful to stakeholders.

4. Collaborates with stakeholders and contracted resources in planning, building new data systems and new tools to gather, validate, store and distribute water supply (hydrometric, snow, water quality and groundwater) data. This includes:

- Acquiring information and details related to data sources and their alternatives;
- Providing technical advice regarding the building of new or replacement data systems;
- Reviewing requirements and identifying problems pertaining to stewardship of data from acquisitions through archiving;
- Assisting in the development and implementation of tools such as the Enterprise Data Warehouse; and
- Providing technical support for all programs, particularly those focused on environmental monitoring, evaluation and reporting activities.

5. Provides training and support to stakeholders, staff, consultants and citizens to encourage access to and responsible use of data and data systems. This includes:

- Producing educational training materials to facilitate data access, analysis, customization and user understanding;
- Supervising the work of seasonal or junior staff and consultants in order to promote accuracy, completeness and timeliness of project deliverables;
- Providing training for staff or users in operational techniques and procedures;
- Sharing corporate knowledge and offer expertise regarding data quality, interpretation and suitability for use.

## **Problem Solving**

Typical problems solved:

The Water Supply Data Specialist maintains the continuous acquisition and distribution system for Alberta's water supply data. This becomes particularly important during ice breakup, high water flood events and natural disasters, during which the incumbent provides 24-hour support and advisory services under highly stressful emergency conditions to ensure necessary data is available to inform decisions and actions that protect environmental health as well as the property, health and safety of Albertans.

The incumbent within this position is also frequently called upon to independently identify, investigate, prioritize, and rectify problems that may be data, telemetry, logger, database, or software-related then communicate results with appropriate groups to ensure full resolution.

Additionally, the incumbent operates as a leader by providing project oversight and guiding design, development, maintenance, and enhancement of the near real-time and historical data collection systems for the hydrological and meteorological related data to Alberta. Typically, the incumbent represents business interests and needs, identifies problems, deficiencies, or areas that need enhancement and develops possible solutions or strategies to achieve goals and objectives.

Types of guidance available for problem solving:

Considerable guidance and support is available through the Water Supply Data Supervisor and the Data Standards and Services Manager, as well as colleagues throughout the branch and ministry, standard operating practices and on-line training courses. Additionally, IT service providers and consultants, colleagues in other provincial ministries and federal departments, industry businesses and agencies interact frequently with the Water Supply Data Specialist offering a variety of products and services.

Direct or indirect impacts of decisions:

The incumbent's contributions have a large and direct impact to many users of the ministry's near-real-time data acquisition system, including users providing mission-critical and mission-important business functions, such as flood forecasting. Stakeholders include Alberta Agriculture and Irrigation, TransAlta Utilities, the cities of Edmonton and Calgary, Saskatchewan and Manitoba Environment ministries, hydro power operations, and federal environment and agriculture agencies.

**Key Relationships**

Major stakeholders and purpose of interactions:

- Flood Forecasting Centre: data problems, corrections, other data issues
- EPA's monitoring field staff: logger or telemetry issues, data problems that cannot be resolved remotely
- Water Survey of Canada: logger or telemetry issues, data problems that cannot be resolved remotely
- Meteorological Service of Canada: logger or telemetry issues, data problems that cannot be resolved remotely
- Technology and Innovation: potential system or database problems
- Data end-users (forecasters, hydrologists, limnologists, hydrogeologists, environmental scientists, researchers, general public, among others): completing data requests and fielding data related problems

**Required Education, Experience and Technical Competencies**

Education Level	Focus/Major	2nd Major/Minor if applicable	Designation
Diploma (2 year)	Science		

If other, specify:

Job-specific experience, technical competencies, certification and/or training:

- This position requires:
- A thorough understanding of natural hydrological and meteorological concepts, processes and conditions present in Alberta;
  - In-depth knowledge of flood, drought, and ice jams potential in Alberta;
  - An extensive knowledge of Alberta's water resources and methodologies with respect to the collection of hydrological, meteorological, groundwater, and water quality near real-time data;
  - Extensive knowledge of data loggers, configuration setup and use of electronic field equipment;
  - Constant diligence to remain updated on current data acquisition, analysis, and storage technology to maintain the efficiency of the data acquisition and distribution system;
  - In-depth knowledge of hydrometric data computation techniques and QA/QC standards used by federal and provincial agencies;
  - Extensive knowledge of various data logger telemetry;
  - Extensive knowledge of modern communication and modern data decoding techniques;
  - Extensive knowledge of GOES satellite data communication;
  - In-depth knowledge of the OpenDCS software and scripting languages applied by the ministry to capture and decode raw hydrological and meteorological data;
  - Familiarity with UNIX/LINUX operating systems;
  - Excellent communication skills to work with field, office, and IT Support teams in achieving common goals;
  - Ability to make decisions independently during high-pressure periods;
  - Working knowledge of federal and provincial water supply monitoring standards;
  - Sound knowledge of data policies and standards, data management and stewardship, data systems and life-cycle; and
  - Knowledge of the *Freedom of Information and Protection of Privacy Act*, *Environmental Protection and Enhancement Act*, *Water Act*, *Emergency Management Act* and associated statutes, regulations, policies, standards and guidelines.

**Behavioral Competencies**

Competency	Level					Level Definition	Examples of how this level best represents the job
	A	B	C	D	E		
Creative Problem Solving	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	Engages the community and resources at hand to address issues: <ul style="list-style-type: none"> <li>• Engages perspective to</li> </ul>	The incumbent within this position stewards data and resolves issues related to data acquisition, validation,

		<p>seek root causes</p> <ul style="list-style-type: none"> <li>• Finds ways to improve complex systems</li> <li>• Employs resources from other areas to solve problems</li> <li>• Engages others and encourages debate and idea generation to solve problems while addressing risks</li> </ul>	<p>loading, storage, distribution and disposition based on a network of systems and processes that are continually evolving.</p>
Systems Thinking	<input type="radio"/> <input type="radio"/> <input checked="" type="radio"/> <input type="radio"/> <input type="radio"/>	<p>Takes a long-term view towards organization's objectives and how to achieve them:</p> <ul style="list-style-type: none"> <li>• Takes holistic long-term view of challenges and opportunities</li> <li>• Anticipates outcomes and potential impacts, seeks stakeholder perspectives</li> <li>• Works towards actions and plans aligned with APS values</li> <li>• Works with others to identify areas for collaboration</li> </ul>	<p>This position requires the integration of multiple operating systems and information portals. Understanding how these systems interact and how they provide value to the ministry is essential.</p>
Agility	<input type="radio"/> <input type="radio"/> <input checked="" type="radio"/> <input type="radio"/> <input type="radio"/>	<p>Identifies and manages required change and the associated risks:</p> <ul style="list-style-type: none"> <li>• Identifies alternative approaches and supports others to do the same</li> <li>• Proactively explains impact of changes</li> <li>• Anticipates and mitigates emotions of others</li> <li>• Anticipates obstacles and stays focused on goals</li> <li>• Makes decisions and takes action in uncertain situations and creates a backup plan</li> </ul>	<p>Changes to business, technology and environments are constant. It is important the incumbent within this position be able to anticipate, assess and adapt to changing priorities, and make effective data-related decisions.</p>
Develop Networks	<input type="radio"/> <input type="radio"/> <input checked="" type="radio"/> <input type="radio"/> <input type="radio"/>	<p>Leverages relationships to build input and perspective:</p> <ul style="list-style-type: none"> <li>• Looks broadly to engage stakeholders</li> <li>• Open to perspectives towards long-term goals</li> <li>• Actively seeks input into change initiatives</li> </ul>	<p>This position requires a lot of interaction with internal and external stakeholders who are submitting or consuming data. Developing networks to work collaboratively, anticipate concerns and solve data problems is vital in meeting</p>

		<ul style="list-style-type: none"><li>• Maintains stakeholder relationships</li></ul>	the needs of the organization.
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