Update

Ministry

Environment and Protected Areas

Describe: Basic Job Details

Position

Position ID

Position Name

Surface Water Data Supervisor

Current Class

Technologies 6

Job Focus

Operations/Program

Supervisory Level

01 - Yes Supervisory

Agency (ministry) code

Cost Centre

Program Code: (enter if required)

Employee

Employee Name (or Vacant)

Organizational Structure

Division, Branch/Unit

RSD/AWS/EKDS

Supervisor's Position ID

Supervisor's Position Name

Data Stewardship Manager

Supervisor's Current Class

Manager (Zone 2)

Design: Identify Job Duties and Value

Changes Since Last Reviewed

Date yyyy-mm-dd

2026-02-03

Responsibilities Added:

New responsibilities added include:
1. Develop and maintain enhanced data visualization and reporting tools (e.g., Power BI dashboards) to support data quality assurance, validation workflows, and data-driven decision-making.
2. Collaborate with Business Intelligence, System Support, Technology and Innovation teams, and other partners to design, develop, and improve internal and public-facing data portals and reporting tools.
3. Translate new program and business needs into clear technical and data requirements to support system development and enhancement initiatives.
4. Lead planning and integration of data not currently stored in existing databases and support development of new database structures, ensuring proper ingestion, organization, and governance.
5. Establish and maintain coding rules, metadata standards, and validation procedures for new and existing datasets to ensure accuracy, consistency, and alignment across systems.

Responsibilities Removed:

No responsibilities removed.

Job Purpose and Organizational Context

Why the job exists:

This position leads a team of data specialists responsible for all aspects of surface water quality data management including surface water quality, sediment, phytoplankton, periphyton, fish tissue, and invertebrate data. The role oversees the acquisition, quality assurance and control, and management of electronic reporting systems for surface water quality data submitted by non-regulated parties.

As the business data steward for surface water quality data, this position ensures the integrity and reliability of environmental data throughout its entire lifecycle - from collection and maintenance to quality control, metadata management, security, access, and dissemination - to ensure that surface water quality data are credible, trusted, and readily available for decision-making.

Working collaboratively with internal and external business areas, IT teams, and data management professionals, this position translates business policies and regulatory requirements into data standards and system needs. Key responsibilities include data stewardship, governance, and management of corporate data assets.

As a subject matter expert, the position provides guidance and training to users on the interpretation, use, and context of surface water data. It also serves as a business analyst and liaison between data users, IT, and contractors who manage surface water data systems - including the main data base, related data loaders, data warehouses, and reporting tools. The role identifies systems improvement opportunities and participates in the design, testing, and implementation of solutions.

Additionally, the position delivers data dissemination services, training, and technical advice to internal and external stakeholders, and supports the maintenance and enhancement of portals, such as the Water Quality Data Portal, and associated systems. It contributes to the development and testing of new tools and databases for data collection, validation, and reporting in alignment with the department's data strategy.

Responsibilities

1. Lead a team of surface water data specialists who:
• Manage and coordinate the acquisition, storage, and maintenance of electronic surface water quality monitoring data to ensure data are high-quality, accurate, and available in a timely manner to meet EPA's commitments to government, industry, other agencies, and Albertans.
• Partner with data stewards, data management professionals, and business stakeholders to recommend improvements to data integrity and standards.
• Participate in defining data requirements, retention, and security needs for surface water data assets.
• Define, document, and maintain data standards, metadata, and quality assurance/control requirements based on best practices, ensuring consistent application across systems.
• Consult with business areas to establish key business terms, definitions, and business rules.
• Oversee data remediation, and cleanup processes in coordination with project scientists, technologists, contractors, analytical laboratories and Environment and Climate Change Canada.

2. Manage the surface water data validation process in collaboration with project scientists and technologists, contractors, and analytical laboratories, and implement improvements as required, including records management.
• Serve as the surface water quality data steward user coordinator, work with other business area data stewards, and with laboratories, to establish and maintain electronic data transfer processes.
• Manage data not yet stored in the database and ensure proper integration planning.

• Develop and maintain user documentation and training materials for data retrieval and system use.
• Educate users on data sources, quality, and applications to promote consistent and informed data use.
• Identify opportunities for data sharing and reuse; communicate data-related decisions and practices to stakeholders.
• Provide user training and act as the first point of contact for data-related issues.

3. Develop and maintain a data quality program in collaboration with departmental scientists:
• Oversee final data validation and acceptance of samples before they are made available to users and the public.
• Serve as the surface water quality data steward user coordinator, providing the first point of contact for issue resolution.
• Investigate and correct errors in WDS; identify root causes and ensure prevention.
• Coordinate and maintain core code dictionaries for surface water quality in WDS with collaboration.
• Collaborate with data and quality assurance specialists to address data quality issues and implement corrective actions, develop and apply quality assurance procedures (e.g., spiking events), and contribute to policy development related to laboratory and data quality assurance.

4. Create and implement data policies, business rules, and metadata standards in collaboration with scientists and technologists:
• Establish coding rules and metadata standards for new datasets.
• Establish and maintain validation rules and procedures (e.g., standard measurement qualifiers).
• Support the work to ensure data consistency and accurate reporting

5. Develop and maintain reporting and visualization tools and support public data access:
• Develop and maintain query tools to meet operational reporting needs of surface water quality data users (e.g. scientists and technologists).
• Work with business intelligence, system support, and partner teams to develop and enhance reports, portals, and tools for internal and external access to surface water quality data, ensuring timeliness and accuracy.
• Analyzing and transforming data into clear visual formats such as PowerBI dashboards to improve data quality and validation processes, and to enable data-driven decision-making.

6. Participate in business system development and enhancement projects:
• Collaborate with technology and innovation teams, contractors, and business staff to expand surface water datasets and access to surface water and related water quality information
• Act as a business analyst, translating program needs into data and system requirements and ensuring successful project implementation.
• Provide subject matter expertise on surface water quality data content, meaning, and suitability for use.
• Assess impacts of enhancements or upgrades to systems that house or disseminate surface water quality data.
• Maintain batch-loading processes for laboratory and field data; diagnose and resolve issues or recommend corrective actions.
• Conduct user acceptance testing (UAT) and sign off on behalf of the business area.
• Advise internal and external partners on data processes and best practices.

Problem Solving

Typical problems solved:

The data are complex by nature and the complexity must be taken into account when considering data storage and dissemination The incumbent resolves issues related to data integrity, access, and system functionality, including:
• Addressing data integrity and transfer issues identified through work with contract laboratories.
• Detecting and correcting errors within databases, ranging from minor data entry mistakes to complex functional issues.
• Identifying gaps and opportunities for improvement within data systems and recommending enhancements.
• Developing strategies to align existing data processes with evolving data governance and stewardship standards (e.g., Enterprise Data Management).
• Interpreting and translating the technical and data needs of diverse users (e.g., researchers, managers, and the public) into actionable system or reporting requirements.

Types of guidance available for problem solving:

WDS is the primary repository for surface water quality data. The extracted data support scientific reports, statistical analyses, and modeling conducted by EPA, other government and non-government agencies, and consultants. These outputs inform assessments of lake and river water quality in Alberta and can influence government programs, industry practices, and public understanding.

The incumbent identifies problems, deficiencies, and opportunities for improvement, developing and implementing solutions in consultation with supervisors, program scientists, IT staff, and data governance specialists. Guidance is available through data management policies, technical documentation, and established system procedures. As the data environment and enterprise data systems evolve, the incumbent must adapt existing processes to align with new governance and stewardship frameworks.

Direct or indirect impacts of decisions:

Decisions made in this role have significant and wide-ranging impact on scientific research, government policy, and system development.

Direct Impacts:
Decisions made while participating on development teams influence the direction of database development and also can directly affect multiple business areas, including surface water, drinking water, groundwater, and industrial wastewater groups.
Decisions regarding error correction and validation directly determine the quality and integrity of the provincial surface water quality databases and public facing portals.

Indirect Impacts:
The extracted data (which relies on the incumbent's solutions) serves as the foundation for scientific reports, statistical analyses, and predictive modeling by government, industry, and external consultants.

Key Relationships

Major stakeholders and purpose of interactions:

The position works collaboratively with a wide range of internal and external stakeholders to ensure the integrity, accessibility, and effective use of surface water quality data. Key interactions include:
- EPA staff, including surface water scientists and field technologists to oversee the sampling standard, data validation process and ensure that environmental data are credible, trusted and readily available
- Analytical laboratories, to manage electronic data transfer processes and resolve data quality or formatting issues.
- External data users --including other government agencies, non-government organizations, consultants, researchers, and the public --to interpret diverse data needs and deliver accurate, often complex, data products.
- Database development, technology, and innovation teams, as well as managers and programmers, to communicate business requirements, support system enhancements, and contribute to decisions that improve data management systems and functionality.

Required Education, Experience and Technical Competencies

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

If other, specify:

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

2-year diploma in environmental sciences or related disciplines plus a minimum 4 years of technical experience in a related field.
- Extensive knowledge of database table structure and links to other database components.
- Extensive knowledge of department business functions related to surface water quality assessment, surface water program design, surface water quality project implementation methods, surface water quality objectives and data interpretation processes.
- Extensive knowledge of quality control protocols, laboratory operational procedures and analytical methods.
- Considerable knowledge of surface water sample collection methods and field procedures.

• Considerable knowledge of principles of limnology, water chemistry, and taxonomy.
• Ability to independently identify, investigate and resolve `poor' data collected by field staff or analyzed by contract laboratories, which requires a thorough and complete understanding of all preceding items.
• Considerable knowledge of laboratory accreditation procedures.
• Considerable knowledge of electronic monitoring equipment and data capture/transfer procedures.
• Considerable knowledge of the concepts and practices outlined in the Data Management Body of Knowledge (DAMA), especially: stewardship roles, metadata management, data security, document and content management, data quality, data warehousing and business intelligence.
• Considerable knowledge of business intelligence and data warehousing
• Working knowledge of SQL, suite of Microsoft 365 and PowerBI, Geographical Information Systems (GIS), and adaptability to learn new technologies as required.
• Considerable knowledge of methods of manipulating data (Visual Basic macros, file conversions), relational database functionality, GIS functionality (ArcView) and statistical procedures.
• Working Knowledge of Power Automate, python, and R is considered an asset.
• Leadership skills with the ability to create and maintain positive working relationships within the work unit, throughout the department and with external stakeholders to ensure open communication, trust and mutual regard
• Well developed interpersonal communication skills, both written and verbal for effectively dealing with the public, other government agencies (provincial and federal), non-government agencies, private sector analytical laboratories and Department staff. Ability to communicate clearly to people from a diversity of backgrounds, knowledge, experience and opinions.
• Effective organizational and time management skills. Ability to work independently and to deal with shifting priorities and deadlines as well as `spur of the moment' projects.
• Independent and creative problem solving, ability to take initiative.
• Established network of key contacts in the Department, government (provincial and Federal), the consulting industry, and analytical contract laboratories.
• Working knowledge of business functions system related to ground water, drinking water, industrial and municipal wastewaters, and air quality monitoring.
• Working knowledge of environmental legislation, regulations, guidelines, approvals, codes of practice.

Behavioral Competencies

Competency	Level A B C D E	Level Definition	Examples of how this level best represents the job
Systems Thinking	○ ○ ◉ ○ ○	Takes a long-term view towards organization's objectives and how to achieve them: • Takes holistic long-term view of challenges and opportunities • Anticipates outcomes and potential impacts, seeks stakeholder perspectives • Works towards actions and plans aligned with APS values • Works with others to identify areas for collaboration	Works to continually improve processes, standards and systems needed to support surface water data stewardship. Works with EKDS, Water Stewardship and Resource Management teams to continually improve data stewardship processes and standards. Translates and adapts existing processes and standards to ensure new system development meets operational requirements.
Creative Problem Solving	○ ○ ◉ ○ ○	Engages the community and resources at hand to address issues: • Engages perspective to	Resolves simple and complex challenges surrounding the acquisition and validation of surface

		seek root causes • Finds ways to improve complex systems • Employs resources from other areas to solve problems • Engages others and encourages debate and idea generation to solve problems while addressing risks	water quality data received from field staff and analytical laboratories into government systems that are continually evolving. Works with IT resources and EPA's scientific community to enhance publicly facing reporting tools.
Agility	○ ○ ◉ ○ ○	Identifies and manages required change and the associated risks: • Identifies alternative approaches and supports others to do the same • Proactively explains impact of changes • Anticipates and mitigates emotions of others • Anticipates obstacles and stays focused on goals • Makes decisions and takes action in uncertain situations and creates a backup plan	Shifts quickly from an operational program to an environmental incident response focus in situations requiring emergency monitoring of surface waters.
Build Collaborative Environments	○ ○ ◉ ○ ○	Collaborates across functional areas and proactively addresses conflict: • Encourages broad thinking on projects, and works to eliminate barriers to progress • Facilitates communication and collaboration • Anticipates and reduces conflict at the outset • Credits others and gets talent recognized • Promotes collaboration and commitment	Leads or participates in initiatives with external partners to increase public access to EPA's surface water quality monitoring data. Facilitates collaboration between IT staff, business users, and other partners to develop internal and external reporting tools.