

Job Purpose and Organizational Context

Why the job exists:

The Water Quality Specialist provides technical expertise into regional water quality monitoring and management programs, leads investigations on water quality issues and impacts to aquatic ecosystem health, and coordinates multi-stakeholder responses to water quality issues. The position ensures that regional ambient water quality is protective of public and environmental health through leading management actions that mitigate the cumulative effect of multiple stressors to water quality in the region. The position provides subject matter expertise into the development of provincial-scale policy and to statutory decisions in Environmental Assessment and Regulatory Approvals processes.

Responsibilities

Support the delivery of Environmental Assessment and Regulatory Approvals processes to ensure effluent targets, limits and guidelines are met and to influence effective solutions for industrial pollution control.

- Review water quality modelling and monitoring components of industrial approvals to ensure that water quality impact predictions achieve regional objectives and limits that are protective of aquatic ecosystem health;
- Provide scientific and technical advice to the Regulatory Assurance Division in the preparation of approvals and delivery of compliance actions;
 - Prepare Supplementary Information Requests as part of environmental assessments and/or regulatory approvals to ensure that all necessary information is available to inform statutory decisions.

Develop and implement regional Surface Water Quality Management Frameworks to achieve ambient water quality outcomes through cumulative effects management.

- Understand and integrate knowledge of place-based issues and pollution sources, water pollutant fate and transport processes, aquatic ecosystem function, and various policies to ensure ambient water quality objectives are being achieved and aquatic ecosystem health is maintained;
- Participate as a scientific expert on multi-stakeholder technical, management response, and advisory committees to support technical studies, monitoring and evaluation, and management recommendations as part of framework implementation;
- Lead investigations and focused studies to determine the source and impact of water quality pollutants in order to identify practicable management actions;
- Make informed recommendations to internal and external stakeholders, regional advisory councils, regulatory authorities, the members of the public to manage water quality issues.

Provide scientific guidance and advice on water quality monitoring projects and into the development and implementation of management actions.

- Collaborate with departmental teams to provide regional expertise in the design of monitoring networks, focused studies and research programs that seek to understand and address water quality issues;
- Plan special water monitoring projects with local approvals and compliance staff to understand and address local water quality issues with regulated facilities;
- Provide support on the development and implementation of operational policies/programs in support of the Designated Industrial Zone in the Industrial Heartland;
- Collaborate with regional Watershed Planning and Advisory Councils and other stakeholders to advise on monitoring, evaluation, and reporting of regional water quality;
 - Work with internal, cross-ministry and external stakeholders to implement management actions that can effectively address regional water quality issues.

Contribute scientific advice and regional knowledge to departmental and cross-ministry initiatives and working groups in relation to water quality management and planning.

- Provide regional knowledge and technical expertise on Science and Technical Advisory Committees and Management Response Committees to achieve provincial consistency in the development and implementation of water quality management frameworks;
- Participate in the development, evaluation and updating of provincial-scale policies that relate to water quality monitoring, pollutant fate and transport modelling, industrial and municipal effluent monitoring

and management, and cumulative effects management;

- Maintain collaborative networks of water quality specialists in the department and across ministries through the Limnology Resource Management Team and other working groups to provide advice and recommendations on policy gaps, emerging issues, and research needs that are informed by regional situations.

Problem Solving

Typical problems solved:

The Water Quality Specialist provides subject matter expertise in reviewing water quality impact assessment and management aspects as part of provincial approvals and compliance actions for regulated facilities. The position reviews applications and provides recommendations to statutory decision makers on requirements for water quality monitoring and modelling, and pollution abatement technologies.

The Water Quality Specialist is responsible for identifying regional water quality issues and implementing management responses to mitigate risks to public and environmental health. The position applies expert-level knowledge to determining the potential sources, spatial extent and magnitude of water quality issues and coordinates multi-stakeholder working groups to develop and implement management actions to address water quality impairments.

The Water Quality Specialist informs the development of provincial policies and regional water quality management frameworks by integrating knowledge of regional issues and perspectives into the development process. The position advises policy, program and framework development to ensure that the deliverables are suitable for regional application and that implementation can be achieved through concrete management actions.

Types of guidance available for problem solving:

The Water Quality Specialist will work with a wide range of water quality policies, programs, guidance documents, databases and regulatory tools to make decisions on water quality management and address water quality issues including, but not limited to: Environmental Protection and Enhancement Act (EPEA), Public Lands Act, Water Act, Environmental Quality Guidelines for Alberta Surface Waters, Wastewater and Storm Drainage Regulations, etc.

Place-based water quality outcomes and management actions will also be guided by regional water quality management frameworks. For example, the Water Management Framework for the Industrial Heartland and Capital Region, North Saskatchewan Region Surface Water Quality Management Framework, Industrial Heartland Designated Industrial Zone Water Quality Management Program, and watershed management plans within the region (e.g, State of the Watershed reports) . The Water Quality Specialist will participate in decision making as part of these frameworks together with guidance and collaboration from internal and external stakeholders.

Direct or indirect impacts of decisions:

Recommendations made by the Water Quality Specialist as part of environmental assessments or regulatory approvals have direct implications to regulated facilities with respect to additional monitoring or information that must be collected and submitted to the department; the procedures that facilities must follow to monitor, evaluate and report wastewater monitoring and effluent data to the department; and what water pollution abatement equipment is installed at facilities. The impact of these decisions provide benefits to public and environmental health through improved water quality and the assurance that facilities are abiding by best practices for monitoring and managing for water quality. Tradeoffs to these decisions exist, however, whereby recommendations on monitoring systems and water pollution abatement equipment present additional costs to regulated facilities. The Water Quality Specialist must balance these tradeoffs with strong technical knowledge and a pragmatic implementation of provincial legislation, policy, and objectives.

Advice and recommendations made by the Water Quality Specialist may affect the design and delivery of water quality monitoring programs and studies, which enable a better understanding of ambient water quality or of identified water quality issues. Monitoring network design impacts the public and

departmental understanding of local- to regional-water quality, which may indirectly influence decisions on how regulated facilities are managed based on the local water quality context. Monitoring systems and knowledge of water quality issues also affects how water quality frameworks are developed and implemented, which impacts how internal and external stakeholders work together to address water quality issues.

Key Relationships

Major stakeholders and purpose of interactions:

Resource Managers: the position supports the regional Resource Manager in managing regional water quality to identify and resolve place-based water quality issues, and may support other regional Resource Managers and the provincial Director of Air and Watershed Resource Management in areas of provincial priority.

Approvals and Compliance Coordinators: the position has regular interaction with approvals and compliance coordinators as part of the assessment, approval and compliance actions required for regulated facilities under EPEA or other pertinent legislation.

Environmental Management Framework Teams: the position supports the Science & Technical Committee and/or the Management Response Committees of regional water quality management frameworks on a monthly to quarterly basis.

Lands Planning: the position supports the development of regional water quality management frameworks and leads the implementation of management responses to water quality issues identified under regional frameworks.

Water Quality Advisory Committees: the position leads multi-stakeholder advisory committees that oversee sub-regional water quality management frameworks or management responses (e.g., Water Management Framework for the Industrial Heartland and Capital Region)

Watershed Planning and Advisory Councils: the position supports the Technical Committees of regional WPACs, advising on special projects and management actions on a monthly to quarterly basis.

Water Policy: the position provides technical support to the development and implementation of provincial-scale regulations, directives and policies for water quality management.

Required Education, Experience and Technical Competencies

Education Level	Focus/Major	2nd Major/Minor if applicable	Designation
Bachelor's Degree (4 year)	Science	Engineering	

If other, specify:

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

A related degree plus 6 years related experience. Additional related education considered in lieu of experience on a one-for-one basis.

Requirements for the position are:

- Working knowledge of water quality monitoring, water quality assessments, industrial and/or municipal effluent characterization, water pollution control technologies and impacts of water pollutants on aquatic ecosystems and human health.
- Broad understanding, current training, and working experience in water quality impact assessments and procedures to estimate concentrations and impacts of pollutants in water resources
- Knowledge of provincial and federal legislation, regulations, policies and procedures to support regulatory referrals (e.g, Environmental Protection and Enhancement Act) and the assessment of ambient water quality (e.g., Environmental Quality Guidelines for Alberta Surface Waters, Canadian Environmental Quality Guidelines)
- Leadership and program management skills are required to lead and provide oversight on the implementation of regional frameworks, the successful execution of focused studies, and to drive for change through management actions.
- Effective communication skills are crucial to work with internal and external stakeholders.

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"/>	<p>Engages the community and resources at hand to address issues:</p> <ul style="list-style-type: none"> Engages perspective to 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 	The Water Quality Specialist balances strategic outcomes for regional water quality management frameworks in the region, provincial-scale water quality policy and programming, and regulatory processes of individual facilities, which requires creative problem solving to address conflicting direction and to capitalize on opportunities.
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"> 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 	The Water Quality Specialist must be aware of changes to provincial policy and programming that may affect regional management approaches. The position must be informed of stakeholder perspectives and have sound knowledge of external issues and management actions and issues that may affect regional management approaches.
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"> Looks broadly to engage stakeholders Open to perspectives towards long-term goals Actively seeks input into change initiatives Maintains stakeholder relationships 	The Water Quality Specialist works collaboratively with internal and external stakeholders to address place-based water quality issues, often with limited policy or regulatory guidelines to follow. The position must develop and maintain stakeholder networks to drive change and management of regional issues.
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"> Identifies alternative approaches and supports 	The Water Quality Specialist implements place-based management frameworks, which require flexibility and

		<p>others to do the same</p> <ul style="list-style-type: none">• 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	<p>adaptability of approaches to local contexts or stakeholder requirements. Policy gaps may be identified that the position works to reconcile within the department or across ministries.</p>
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