

Working Title	Name
Contaminant Hydrogeologist	

Position Number	Reports to Position Number	Division, Branch/Unit	Ministry
		Regulatory Assurance, Regulatory Programs, Contaminated Sites and Remediation	Environment and Protected Areas

Present Classification	Requested Classification
Engineering and Related Level 2	

Dept ID	Program Code	Project Code (if applicable)

**PURPOSE:**

Reporting to the Contaminated Sites and Remediation Unit Manager, the Contaminant Hydrogeologist provides serves as a provincial expert in contamination management. The position has oversight and regulatory expectations for complex issues that do not align with or where no provincial guidance is available. The position provides input and support to the policy development process and serves in an advisory capacity while responding to Regulatory Assurance, Compliance, Environmental Enforcement, and complex, non-standard issues related to areas of hydrogeology (groundwater quantity, quality, and movement). Knowledge is based on expertise in areas of hydrogeology, geoscience, and/or environmental engineering as it relates to contamination management. The Contaminant Hydrogeologist works closely with CS Soil Specialists as well as surface water and risk assessor personnel to ensure the protection of soil, surface and groundwater quality in a holistic management of the environment. The position provides expert guidance for complex, non-routine issues to ensure a consistent approach to providing and interpreting regulatory expectations to all contaminated sites owners.

Overall responsibility is to ensure that contaminated sites are properly assessed, managed and remediated based on required outcomes, department priorities and policies. The primary role of the Contaminant Hydrogeologist involves risk informed management expressed through advice, recommendations and regulatory directions, and works with the Unit Manager on priorities and discusses actions on files as required. Specific activities include reviewing site assessments, remedial action plans, risk management plans, guideline modifications proposals and remedial reports. Work involves risk informed reviews of complex, non-standard contaminated sites, and detailed technical reviews of complex, high priority contaminated sites, and communicating outcomes and regulatory expectations to site owners and consultants. Support to the Regulatory Assurance Program involves review of complex, non-standard soil monitoring and management proposals, particularly where sites are managing contaminants of concern that do not have applicable provincial criteria as well as support to compliance-lead investigations and enforcement activities. Recommendations are provided to the Regulatory Assurance team as requested.

The Contaminant Hydrogeologist identifies policy gaps and works to collaborate on solutions, including the development of new policy, operational policy and other innovative solutions. This position also provides direction and mentorship to junior hydrogeologists, soil specialists to provide policy interpretations and support to addressing complex, routine reviews. The Contaminant hydrogeologist must maintain a system perspective to promote consistency and clarity in program delivery, and should be current on new and emerging remediation technologies and practices.

Communications are undertaken considering an education framework aimed at promoting partnership, stewardship and awareness of desired environmental outcomes. The Contaminant Hydrogeologist must communicate regulatory expectations for a range of audiences from small business owners to consultants with subject matter expertise such that all parties clearly understand requirements and outcomes related to contaminated sites management. The Contaminant Hydrogeologist is expected to provide portfolio management and work with industry contacts on prioritization, sequencing

**PURPOSE:**

and management to ensure good regulatory oversight for all sites associated with the portfolio, that remediation is advanced on priority sites, and that lower priority sites have suitable risk management to protect human health and the environment. The position ensures reporting requirements adhere to regulatory requirements based on sound scientifically based principles and practices. The position is responsible for ensuring that applicable contaminant management policy, regulations, standards, guidelines, and compliance follow-up are applied as appropriate.

The position requires a full scientific understanding and working knowledge of applicable regulatory frameworks and policies, environmental assessments and remediation technologies, regulatory reporting requirements and environmental management measures to resolve soil, groundwater and surface water contamination issues. The Contaminant Hydrogeologist will support the Regulatory Assurance program by interacting with stakeholders or assisting the Department at meetings and hearings. The position acts as a senior subject matter expert and expert witness related to contaminated soil remediation and management.

The work performed is within the current mandate of the Department and the provisions of the *Environmental Protection and Enhancement Act* (EPEA), *Water Act*, associated regulations and provincial and national standards/guidelines for the protection of the environment and human health, and restoring land to productive uses.

**RESPONSIBILITIES AND ACTIVITIES:**

**Contaminated sites policy**

*Provides subject matter expertise to inform policy development by contributing an operational perspective and considerations in developing new policies and in updating existing policies. This position is also responsible for interpreting program policy to support consistent review and application of policy to the Contaminated Sites and Remediation Program, apply policy intent in complex, non-routine contaminated sites to determine appropriate site management, and identifying gaps in operational application of policies and collaborate on solutions.*

- Serve as a subject matter expert to interpret policy requirements to support operational delivery
- Work closely with Lands Policy and Programs branch, and Water and Waste Policy Branch to develop new and amend existing policies impacting contaminated sites management
- Provide subject matter and operational perspective to policy committees
- Identify policy gaps, and propose and collaborate on resolutions
- Present new and amended policies to a range of audiences including executive, industry and other stakeholders
- Participate in stakeholder engagement to support policy development
- Leverage a systems approach to support policy conversations
- Track new and emerging remediation technologies and practices to understand applicability in Alberta; where appropriate, recommend changes to policy to support these practice changes

**Contaminated Sites Management**

*Uses professional knowledge and technical expertise to evaluate and advise on complex, non-routine contaminated sites that require site-specific interpretations and where existing policies do not exist or are not appropriate. This includes environmental assessments, remedial action plans and risk management proposals, or where the department identifies groundwater concerns; ensures regulatory outcomes are achieved and adverse effects to human health and the environment are mitigated.*

- Innovate and seek solutions where problems may be partially known, and solutions are unknown
- Work through consensus with site owners and responsible parties on sites that do not fit into guidance to find innovative and appropriate remediation and site management options to achieve operational outcomes.
- Consider recommendations and decisions taking into account social, economic, and environmental considerations to provide holistic, outcome focused direction
- Serve as a provincial expert to support policy interpretation and program delivery
- Interpret policy to support operational outcomes to support soil, contaminant hydrogeology, and risk assessment reviews

## RESPONSIBILITIES AND ACTIVITIES:

- Collaborates with Unit Manager to prioritize and address file review and response related to contaminated sites issues.
- Completes technical review of site assessments, remedial action plans and risk management plans, ensuring regulatory outcomes are achieved.
- Confirms appropriate groundwater, soil and non-standard vapour sampling methodologies are used in the completion of environmental site assessments.
- Assesses appropriateness of source control, identification of contaminants of concern and delineation of groundwater and soil to enable appropriate management or remedial strategies are undertaken at the site.
- Confirms environmental site assessments and remedial action proposals are relevant and based on regulatory requirements, or scientifically defensible knowledge/principles.
- Confirms that the applicable human health or environmental management endpoints accurately reflect the risk and outcomes of the program.
- Accepts Alberta Soil and Groundwater Guideline adjustments
- Meet with proponents to proactively engage on and discuss regulatory expectations related to remediation and contamination management.
- Complete complexity and priority screening for contaminated sites including periodic updates to ensure the review is correctly triaged and reviewed. This may be either through direct support to the Program Coordination Unit (PCU) or through periodic review of sites assigned to the regional unit.
- Where a statutory decision is required, the Contaminant Hydrogeologist provides the manager designated through Ministerial Order with analysis and recommendations that allow the Decision Maker, on behalf of the Ministry, to reach an objective and informed decision regarding the site.
- Where acceptance of a risk assessments and risk management plans is required, the Contaminant Hydrogeologist may accept these on behalf of the Department.
- Provide portfolio management of sites and collaborate with the proponent/owner of the sites to prioritize and manage sites such that sites are properly risk managed and progressing towards remediation.
- Ensures that timely actions are undertaken by the person responsible according to program procedures, and that non-compliance with required actions are triaged to Regulatory Assurance for further compliance actions.
- Ensures applicable documentation exists on file throughout the regulatory assessment of activities.
- Reviews requests for closure/no further action letters, some of which may require signoff by the Statutory Decision Maker.

### **Regulatory Assurance Support**

*Uses professional and technical knowledge to assess and evaluate remedial and management of complex, non-routine contamination at sites operating under approvals and authorizations; and to support emergency response actions by Compliance and Environmental Enforcement.*

- Provides subject matter support to the Regulatory Assurance Program related to groundwater monitoring and management in response to contaminant release reporting and remediation requirements specified within an EPEA approval or authorized site for complex, non-routine sites that do not fit within existing provincial policies.
- Provides subject matter support the Compliance Program to support investigations and enforcement activities, related to complex, non-routine contamination affecting soil remediation and management for complex, non-routine sites that do not fit within provincial policies.
- Provides support to the Environmental Enforcement Program on expectation for remediation and contamination management related to a release of contaminant(s) not covered under provincial criteria.
- Provides professional groundwater based support for purposes of resolving contaminated site or groundwater quality concerns, or cumulative impact issues.
- Facilitate conversations in complex, politically sensitive settings and between multiple impacted parties to find an appropriate response to manage contamination while working within cost constraints, public expectations, and in some cases, technology limitations
- Acts as an expert reviewer for complex environmental impact assessment reviews regarding impacts to the groundwater, soil, landscape and ecological receptors. Acts as an expert witness for the department where applicable.
- Contributes to the development of shared environmental outcomes and applicable clauses for EPEA approvals.

**RESPONSIBILITIES AND ACTIVITIES:**

- Prepares reviews for disputed sites or in response to public complaints that are professional, unbiased, and understandable by all parties and can be used if required to support Environmental Appeals or other public appeal venues.
- Accepts Alberta Soil and Groundwater Guideline adjustments

**Support to Department Initiatives**

*From time to time, the Contaminant Hydrogeologist may provide professional and technical expertise to the delivery of government programs related to groundwater sciences. Other duties as required are listed, but not limited to, the items below:*

- Act as an expert reviewer for complex environmental impact assessment reviews regarding impacts to groundwater, landscape and ecological receptors.
- Review and assess reclamation requirements for complex, non-routine sites for alignment with government regulations and applicable requirements.
- Serve as an expert witness for the department for Environmental Appeals Board proceedings and provide technical support to the Statutory Decision Maker.
- Lead communities of practice, task teams and other groups that support program delivery and collaboration.
- Represent the government of Alberta on external committees at the local, provincial and national level, as required.
- Support the provincial response to natural disasters
- Interprets regulatory goals and requirements and provides written responses to the public and industry on inquiries or complaints.

**Contaminated Sites Program Support**

*Supports the continuous improvement of the contaminated sites program through the development and application of operational procedures and policy. Interprets and communicates regulatory objectives pertaining to contaminated sites management to AEP staff, public, industry, consultants, other government departments and municipalities to ensure that adverse risks to human health and the environment are minimized.*

- Responds to action requests, briefing notes, communication inquiries and FOIP requests providing accurate information and detail in a timely manner.
- Manages information according to government standards for permanent and transitory records management.
- With support from Unit Manager, organizes and presents training sessions/workshops to interested parties on issues relevant to soil and contaminated site assessment, site remediation, and risk management.
- Depending on level of experience, provides guidance, on-the-job training and mentoring to other junior and intern staff working on contaminated sites.

**SCOPE:**

- Reviews and evaluates environmental issues related to soil, surface water, groundwater and soil vapour assessments and site remediation with respect to established policies, procedures and guidelines.
- Work is performed within provincial legislation and regulations, considering accepted scientific principles.
- Within the context of this position, there is the requirement for considerable professional judgement, interpretation and technical expertise to resolve site-specific contaminant issues utilizing risk-based assessment and management principles.
- In consultation with the Unit Manager, decisions are made and directions given that directly impact an industry's operations and activities by setting terms and conditions for assessing, managing, remediating and reclaiming lands adversely impacted by releases or spills where substances have the potential to adversely impact on human health and the environment.
- Impact of the work can have significant financial consequences to industry, government and individual stakeholders by requiring remediation, compliance standards, and sampling protocols to be met where contamination issues have been identified. The position requires the ability to apply scientific principles to

**SCOPE:**

varied situations with consideration for policy, economic, legal and social impacts of actions being taken (i.e. big picture perspective).

- Some of the projects handled are scientifically complex, politically sensitive and involve the resolution of conflicts between contaminated site owners and other stakeholders.
- Position may provide expert advice on environmental hydrogeological matters and serves other government departments or agencies, industry and municipal representatives to facilitate an understanding of departmental requirements and to influence outcomes that comply with these requirements.
- Critical assessment skills are applied in the review to establish relevance of and interpret the significance of technical information. A variety of industry types, land uses and receptor scenarios are involved.
- May be involved in development of internal procedures and external policy development, requiring clear understanding operational and policy initiatives with a strong scientific knowledge base.
- Responsible for sites that are located within the Unit as assigned by the Manager, but may be required to assist with other Unit's workload within the Contaminated Sites and Remediation Section.
- Duties as assigned by the Unit Manager to achieve the required outcomes of the Contaminated Sites and Remediation Section.

**KNOWLEDGE, SKILLS & ABILITIES:**

- University degree in Engineering or Applied Science, or Geology or Geophysics plus five years related experience. Additional education may be considered in lieu of experience.
- Must be eligible for membership with APEGA.
- Working knowledge in a variety of issues related to overall environmental quality, i.e. human health, land conservation, land management, air, and soil and water quality.
- Ability to interpret data from research, technical reports, environmental site assessments, risk management and remediation programs.
- Thorough knowledge and understanding of applicable field and laboratory evaluation, testing, monitoring, sampling and QA/QC procedures to determine, assess and validate reported soil and groundwater quality conditions.
- Thorough knowledge and understanding of general and organic chemistry, environmental chemistry, transport and fate of contaminants in environmental media (soil and groundwater),
- Working knowledge of soil science, contamination remediation technologies, sedimentology and stratigraphy, human health and ecological risk assessment and risk management principles.
- Extensive knowledge of the environmental legislation, regulations and guidelines related to contaminated site assessment and remediation including: EPEA (Part 5); Alberta Contaminated Sites Policy Framework; Alberta Soil and Groundwater Remediation Guidelines (2019 as amended), and other relevant regulations, codes of practice, and guidance.
- Highly developed interpersonal, negotiation and conflict resolution skills to deal with industry, public, government and other agencies on often sensitive, conflicting and financially significant issues.
- Strong organizational skills
- Effective written and verbal communication
- Computer proficiency including Microsoft Office suite
- Familiarity with records management

**CONTACTS:**

This position may interact with:

- Department executive leadership (Executive Director, Assistant Deputy Minister) to provide briefings related to specific contaminated sites
- May interact with the Environmental Law Team on specific sites where legal direction is required

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

- Subject matter experts within Environment and Parks including:
  - limnologists (to seek professional input to assess impacts to surface water bodies),
  - approval coordinators (to provide recommendations for contaminant management at regulated sites); and
  - environmental protection officers (to provide recommendations for contaminant management to support release response and corrective actions)
- External stakeholders such as:
  - site owners (to provide regulatory direction; Site owners may have limited knowledge in contamination management and may have significant financial liability associated with remediation and long-term site management);
  - designated site contacts (to provide regulatory direction; Typically environmental professionals at regulated sites); and
  - environmental consultants (to provide regulatory direction; Typically technical experts)
  - Municipal contacts (to provide regulatory direction; includes both technical experts and municipal leaders for smaller municipalities)
  - Federal government (where contamination overlaps federal and provincial jurisdiction; to provide regulatory direction for contamination affecting provincial land while ensuring appropriate alignment with federal regulatory requirements)
  - Environmental Appeal Board proceedings (provides technical advice to the Approval Manager to support mediation and environmental appeals)
- Other GoA representatives
  - Typically designated contacts with the Departments of Transportation; Municipal Affaires; and Forestry, Parks and Tourism.

**SUPERVISION EXERCISED:**

May supervise junior contaminant hydrogeologist (Eng 1)  
May supervise interns or summer students if assigned to the program area

**CHANGES SINCE LAST CLASSIFICATION REVIEW:**

The job description has been updated to reflect new organizational changes including the creation of a Contaminated Sites and Remediation (CSR) Section with focused mandate to provide regulatory oversight for contaminated sites management in the province. Scope of work has been updated to reflect the principles and expectations in the Regulatory Assurance Framework, implementation of the Digital Regulatory Assurance System, and to clarify the CSR section's role in supporting Approvals and Compliance in delivering on department mandates. Greater emphasis is placed on communicating regulatory expectations, broad knowledge in human health and ecological risk assessment, and providing subject matter expertise to the Policy areas to develop and update provincial guidelines and program guidance.