



ENVIRONMENTAL AND
HYDROGEOLOGY CONSULTANTS

STATEMENT OF QUALIFICATIONS

ENVIRONMENT



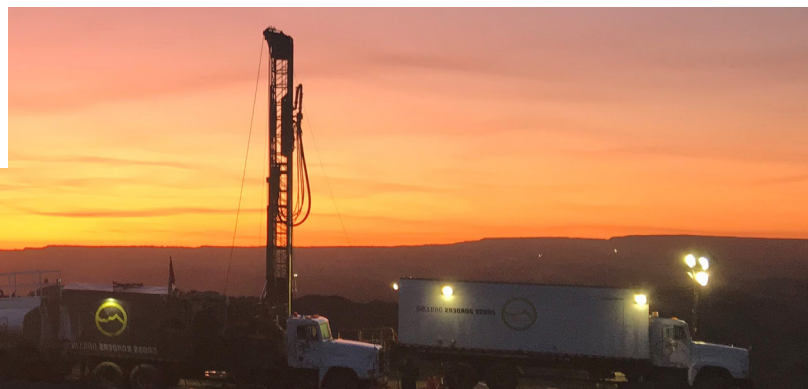


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COMPANY PROFILE

Waterline Resources Inc. offers comprehensive groundwater resource and environmental consulting services to the mining and energy sectors, government, municipalities, Indigenous groups, contractors, and commercial and industrial operations.

OUR MISSION

Waterline's mission is to provide practical and scientifically defensible solutions to a diverse range of environmental challenges, delivered by knowledgeable people who are focused on continued professional development, quality service, and being trusted partners with our clients.

Origins

Waterline was formed in 2000 by Mr. Darren David, (M.Sc., P.Geo.), Mr. Jamie Wills (M.Sc., P.Geo.), and Mr. Steve Foley (M.Sc., P.Geo.) Mr. Eric Pringle (M.A.Sc., P. Eng.) joined Waterline in 2007 and brings over 30 years of environmental and hydrogeological consulting experience to the team. Ms. Michelle Taylor (M.Sc., P.Eng.) joined Waterline in 2016 and brings 25 years of experience in both industry and consulting with a

focus on liability management and environmental site assessments.

Today, Waterline's team consists of over 80 scientists, engineers, and other technical specialists in three main offices and multiple regional offices across Alberta and British Columbia. The Waterline team offers the most comprehensive hydrogeological expertise in Western Canada.

Senior Management

MICHELLE TAYLOR M.Sc., P.Eng.
President

Principal Environmental Engineer

- 25+ years of experience both in industry and consulting
- Experience focused on contaminated site assessment and liability management, with specific areas of experience covering environmental site assessment, risk management, remediation, regulatory approvals, and regulatory compliance management
- Works with all service teams to achieve strategic plan goals
- Oversees marketing and external relationships that are critical for success including ensuring quality of service and technical excellence

ERIC PRINGLE M.A.Sc., P.Eng.

Vice President & COO

Principal Hydrogeological Engineer

- 30+ years of environmental and hydrogeology consulting experience
- Environmental site assessment, impact assessment, compliance based monitoring programs
- Contaminant fate and transport modelling, natural attenuation assessments, landfill siting, landfill operation and design, remedial design and liability assessment and management
- Contributions to physical hydrogeology projects include aquifer testing and evaluation, well performance testing, municipal well head protection, well capture delineation and analytical/numeric modelling of groundwater flow



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SENIOR STAFF EXPERTISE

Waterline's senior staff have completed thousands of successful projects in the hydrogeological and environmental disciplines, and provide continual technical mentorship to Waterline's project-level staff. Simply put, **the Waterline team offers the most comprehensive hydrogeological expertise in Western Canada.**

MICHELLE TAYLOR M.Sc., P.Eng.

President

Principal Environmental Engineer

Experience: 25+ Years

ERIC PRINGLE M.A.Sc., P.Eng.

Vice President & COO

Principal Hydrogeological Engineer

Experience: 30+ Years

BRENT LENNOX M.Sc., P.Geol.

Division Manager

Senior Hydrogeologist

Experience: 15+ Years

Technical Expertise: Compliance and due diligence based soil and groundwater assessment and monitoring, risk/remedial action plan and conceptual site model development, in-situ and ex-situ remediation.

CORY SOMMER R.T. (Ag)

Division Manager

Senior Environmental Scientist

Experience: 21+ Years

Technical Expertise: Liability management and closure, environmental site assessments, remediation, risk based closure, risk management, regulatory compliance, reclamation.

JUSTIN BUIS M.Sc., P.Eng.

Team Lead

Senior Hydrogeological Engineer

Experience: 10+ Years

Technical Expertise: Site-specific guideline development, salinity-impacted sites, site closure, risk/remedial action plan and conceptual site model development, ex-situ remediation.

BONNIE DERKSEN M.Sc., P.Geol.

Team Lead

Senior Hydrogeologist

Experience: 20+ Years

Technical Expertise: Compliance and due diligence based soil and groundwater assessment and monitoring, liability management, risk/remedial action plan, in-situ and ex-situ remediation.

BEN McCAFFERTY B.Sc., P.Geol.

Team Lead

Senior Hydrogeologist

Experience: 12+ Years

Technical Expertise: Compliance and due diligence based groundwater monitoring, risk action plans, conceptual site model development, in-situ remediation.

SIMONE LEVY M.Sc., P.Ag.

Senior Environmental Scientist

Experience: 19+ Years

Technical Expertise: Site closure, environmental site assessments, remediation, soil chemistry, compliance and diligence based soil monitoring and management programs, stakeholder communication.

ANDREI ZAWADZKI M.Sc., P.Geo.

Senior Hydrogeologist

Experience: 25+ Years

Technical Expertise: Preliminary and detailed contaminated site investigations, remediation, conceptual site model development, numerical modelling, groundwater resource evaluation, regulatory liaison, litigation support, First Nations involvement and project management.



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HEALTH, SAFETY & CONDUCT PROGRAM

Waterline believes a strong culture of safety is an essential part of the services we provide clients. As such, we have developed a Health, Safety, and Conduct Program that all employees and contractors follow when involved with Waterline's projects. Our Program is COR Alberta certified, and audited by ISNetworld, Avetta, and Complyworks. Waterline is registered and in good standing with WorkSafeBC.



Key Components

Safe Work Practices and Job Procedures

Waterline works with clients, contractors, and colleagues to identify and mitigate hazards in the workplace. Our policies and guidelines are reviewed and updated annually to remain current with regulatory updates and operational changes.

Health and Safety Statistics

We believe in making decisions based on data. Waterline's Project health and safety statistics are compiled quarterly and reported through monthly H&S meetings and third-party health and safety management systems.

Environmental Sustainability

Waterline strives to minimize our impact on the environment in all aspects of our work and supports environmental initiatives in our communities.

First Nations Relationship Building

Waterline is committed to working with Indigenous peoples in a respectful and communicative manner and embraces the Truth and Reconciliation Commission of Canada's Calls to Action.



CONTAMINATED SITES MANAGEMENT AT ACTIVE INDUSTRIAL AND COMMERCIAL FACILITIES

Waterline is a full service, trusted provider for industrial and commercial facilities that require soil and water monitoring, assessment, remediation, water management and environmental liability assessments, with a proven track record amongst our clients and regulators alike.

Expertise

Experience

Our experienced approach to managing contaminated sites has led clients to often retain Waterline for the majority of their sites with regulatory oversight (e.g., EPEA, CSU, CEPA). Waterline is routinely involved with sites with off-site plumes that extend significant distances, deep impacts in bedrock, impacted receptors, co-mingled impacts, sites where stakeholder liaison is required, and contentious spills with post-spill response requirements.



Waterline uses our experience in site assessment, remediation, reclamation, risk management and regulatory liaison to create optimized liability assessments, which allows for continuity throughout all aspects of environmental management activities.

Expert Advice, Expert Recommendations

Using the collective experience of our team, Waterline runs efficient field programs, optimizes activities, and makes informed recommendations that satisfy regulatory and client requirements for soil and water monitoring, assessment, and remediation. Waterline routinely:

- Avoids unnecessary duplication of previous work;
- Uses realistic guidelines (E.g., Tier 2 and site-specific guidelines);
- Saves time for clients and regulators alike, using efficient, short-form reporting; and,
- Recommends practical and experienced solutions.

Find Answers Quickly

Waterline's proprietary web application complements our reporting, allowing for our clients to interact with regional and site data with features such as:

- Geospatial mapping;
- Time-concentration charts;
- Automated figures and routine deliverables;
- Database driven tables;
- Automated QA/QC reviews of water quality; and,
- Client project management modules.



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ENVIRONMENTAL SITE CLOSURE SERVICES

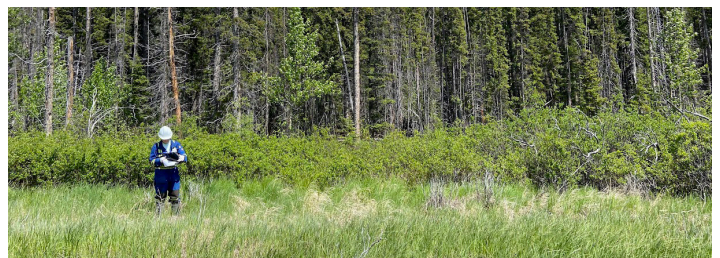
Waterline leverages its decades of experience in contaminated sites assessment, site-specific guideline development and project management to help our clients reach regulatory closure at inactive facilities using an efficient and technically defensible approach.



Expertise

Waterline is a full-service environmental consulting company that has the experience and expertise to progress sites to closure and offers the following services:

- Initial background reviews (Phase I and Stage 1 ESAs);
- Initial and supplementary soil, groundwater, and soil vapour assessments (Phase II and Stage 2 ESAs) to assess potential sources, the extent of impacts, develop remedial plans, develop site-specific guidelines, etc.;
- In-situ and ex-situ remediation of soil and groundwater impacts;
- Conceptual site model development;
- Risk and remedial action plans;
- Remedial option assessments; and,
- Reclamation and restoration, including reclamation plans and monitoring, landscape restoration, vegetation and weed assessment and management, and erosion and sediment control.





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ENVIRONMENTAL MONITORING & SAMPLING

A considerable number of Waterline's clients use our monitoring and sampling expertise to fulfill regulatory monitoring obligations and site closure. **Waterline has coordinated and completed over a thousand environmental monitoring programs** to meet site regulatory compliance objectives over 20+ years of operations.



Expertise

Soil and Water Data Collection

Waterline believes that soil and water monitoring programs should consider the environment as a whole and we are considered subject matter experts in environmental monitoring and sampling programs by clients and regulators. Waterline routinely collects soil samples, measures groundwater levels and collects groundwater and surface water chemistry samples for monitoring programs across Western Canada.

Quality Assurance Quality Control (QA/QC)

Data collected from field programs must be of high quality to allow for defensible and meaningful interpretations. Waterline's sampling protocols conform to the most stringent regulatory QA/QC requirements.

Data Management

All monitoring and sampling data is stored in Waterline's proprietary online data management and geospatial mapping application, Enviro Web Services (EWS). Our system allows for easy online access, interactive mapping, and graphical visualizations for all your project data.



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SITE-SPECIFIC GUIDELINE DEVELOPMENT & RISK ASSESSMENT

Waterline specializes in difficult-to-close contaminated sites with non-routine pathways to closure and sites that require a component of risk management due to the presence of active facilities, the extent of impacts, etc. Generic or site-specific guidelines (i.e., remedial and/or risk end-points) are considered for every project that Waterline is involved in.



Expertise

The following site-specific guideline development approaches are routinely employed:

- Background justifications and development of local background concentrations in soil and groundwater;
- Pathway exclusions;
- Guideline adjustments (e.g., dilution factor calculations);
- Subsoil Salinity Tool (SST) for Alberta;
- Analytical and numerical modelling;
- Surface water-groundwater interaction assessments;
- Ecological and human health risk assessment;
- Non-routine technical rationalization; and,
- Regulatory liaison.

Waterline has realized significant cost savings for our clients by developing optimal guidelines for contaminated sites that require remediation and/or risk management and uses a practiced, scientifically defensible approach that is protective of the environment.

Contact Waterline if you're interested in innovative, scientifically defensible guidelines and program design for site closure and/or long-term risk management projects prior to remediation being initiated.



GROUNDWATER MODELLING

Waterline offers hydrogeological conceptual, analytical and numerical modelling services for groundwater flow and contaminant transport studies to support mining and oil & gas development, environmental impact assessment, water resource supply and aquifer protection, as well as groundwater contamination/remediation and risk management. We use various platforms to develop conceptual models and run numerical models depending on client and project requirements. We strive to deliver services in the best quality and with the best value to help our clients clearly communicate results to regulators to obtain regulatory approvals and permits.

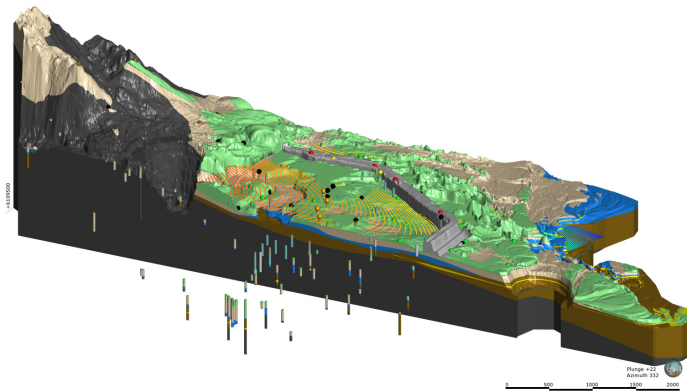
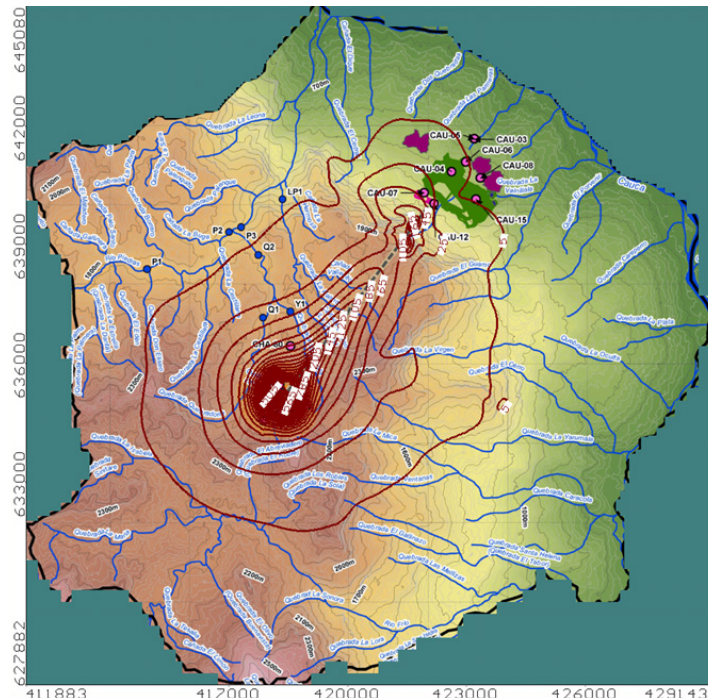
Expertise

Hydrogeological Conceptual Modelling

Waterline develops 2D & 3D conceptual models of hydrogeological systems using tools such as GIS, Leapfrog, Hydro GeoAnalyst, and Visual MODFLOW Flex. These tools allow us to compile and use available data in almost any format from any group involved to best represent the site conditions of a project.

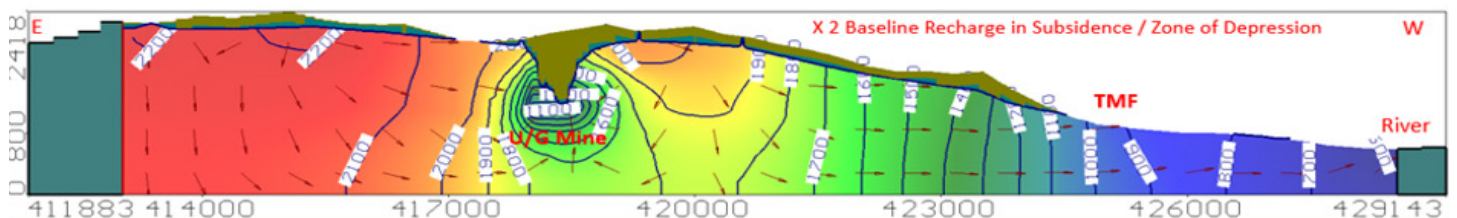
Groundwater Analytical and Numerical Modelling

Waterline has extensive experience in development of analytical groundwater models, and 2D & 3D numerical groundwater and integrated ground/surface water models for flow and solute transport simulations, using tools such as Groundwater Vistas, Visual MODFLOW Flex, MODFLOW-SURFACT, FEFLOW, SEEP/W, HydroGeoSphere, etc.



Model Applications

Waterline offers modelling service for applications in mining, oil & gas, landfills, water supply, construction dewatering, contamination/remediation, regulatory closure for contaminated sites, and risk assessment.



GROUNDWATER - SURFACE WATER INTERACTIONS

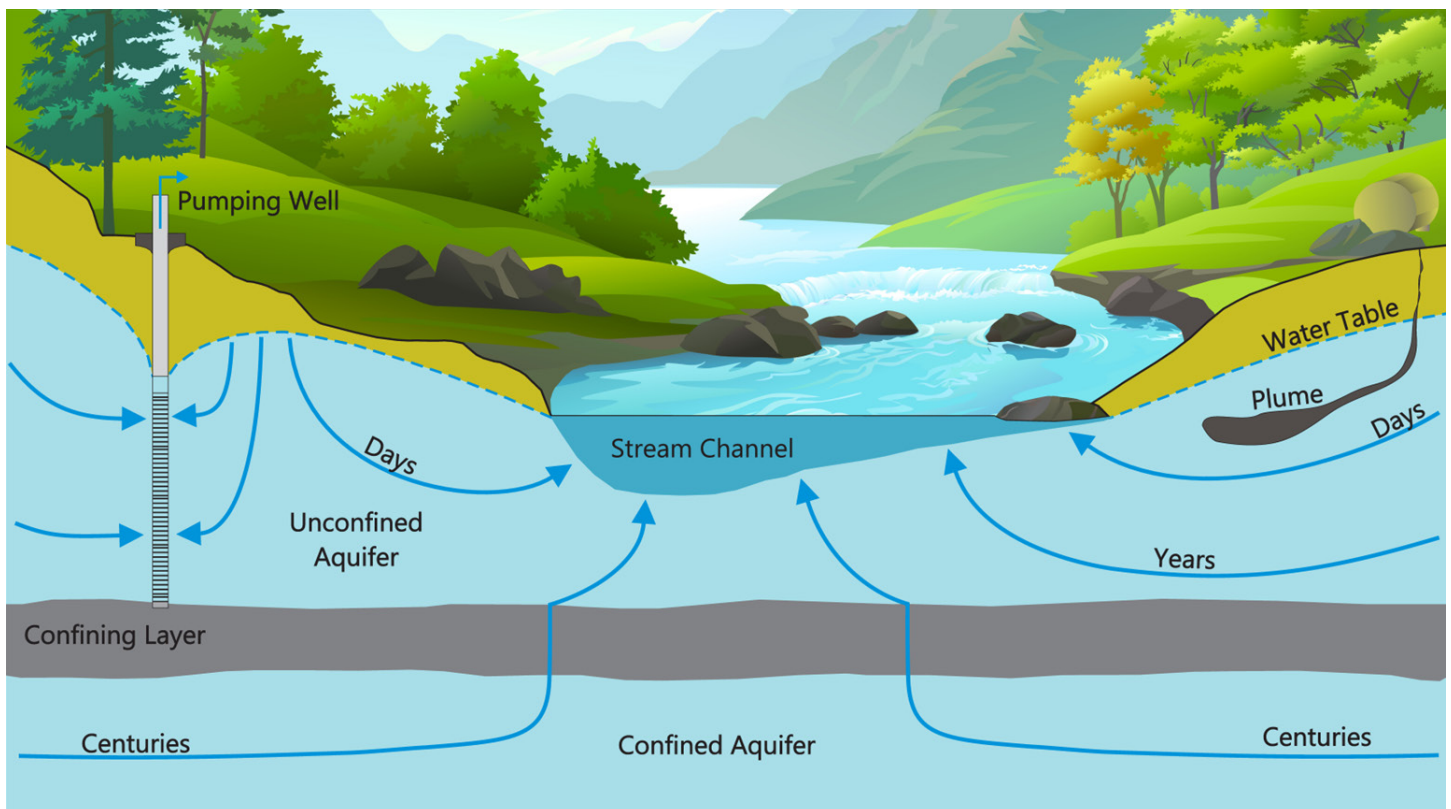
Groundwater and surface water systems are intrinsically connected and impacts to one system often results in impacts to the other. Understanding the interaction between these systems is critical to the successful management of contaminated sites and water resources. **Waterline has extensive experience measuring, identifying, and assessing interactions between groundwater and surface water and evaluating how these systems affect or are effected by environmental change.**



Expertise

Contaminant Groundwater Pathways

Groundwater flow pathways are common routes for spilled or improperly stored contaminants to enter stream or lake environments. Waterline has extensive experience conducting environmental impact site assessments to determine if or when a contaminant plume will move towards a nearby surface water environment. This expertise has frequently been applied when developing site-specific guidelines, conceptual site models, remedial options assessments, and remedial/risk action plans for contaminated sites.





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REMEDIAL EXCAVATIONS

Waterline leverages its decades of experience in contaminated sites assessment, site-specific guideline development and project management to develop risk-based remedial endpoints, select optimal solutions, and execute soil remediation programs.



Expertise

Waterline's approach to soil remediation involves:

- Effective, focused project management;
- Establishing realistic remedial objectives before remediation is initiated using guidelines that are fit-for-purpose and effective workplan design;
- Protecting the environment and conserving soil;
- Considering alternatives to landfilling soil (e.g., on-site treatment or risk-based approaches);
- Aid our clients with soil reuse and relocation;
- Optimizing remediation and/or site management timelines with effective project management, technological innovation, and practical recommendations; and
- Ensuring that overall site management costs are effectively managed.

When completing remedial excavations, Waterline uses a practiced approach to ensure that safety is upheld, progress is clearly communicated, budgets are respected and environmental risks are effectively addressed.

IN-SITU REMEDATION

Waterline is experienced with in-situ remediation programs and uses our expertise in hydrogeology to design intelligent, practical in-situ remediation programs, remedial options assessments, and remediation performance monitoring programs.

Expertise

Waterline has experience with applying in-situ remediation methods to achieve site remedial goals, which may include soil vapour extraction, multi-phase extraction, oxidant injections, sparging, thermal/steam injection, enhanced biodegradation/bioaugmentation, belt skimmers, pneumatic skimmers, constructed subsurface treatment cells, interceptor trenches, and cutoff barriers. Alternate power sources, such as windmill and solar, can also be used to power remediation systems.

Waterline is also experienced with alternatives to active remediation such as monitored natural attenuation, LNAPL recovery using sorbent socks, passive bailers, etc.



When selecting and implementing sustainable, cost-effective, and technically appropriate in-situ remediation technologies, Waterline:

- Leverages our expertise in long-term site management programs and site-specific guideline development to select the optimal approach;
- Develops realistic, anticipated outcomes and timelines prior to implementing in-situ remediation technologies with our collective experience and tools such as groundwater modelling;
- Considers other approaches such as monitored natural attenuation or soil excavation;
- Takes a step-wise, flexible approach that is informed by performance monitoring results; and,
- Continually evaluates the environmental benefit and long-term spend to ensure that the program meets program objectives.

DATA MANAGEMENT WITH ENVIRO WEB SERVICES

Waterline's proprietary online data management and geospatial mapping application, Enviro Web Services (EWS), provides Waterline staff and our clients with easy online access to a compiled and mapped suite of publicly-available environmental datasets from across Western Canada. EWS also provides clients with a secure and private platform to store, manage and visualize project-specific datasets.

EWS Applications

Data Integration

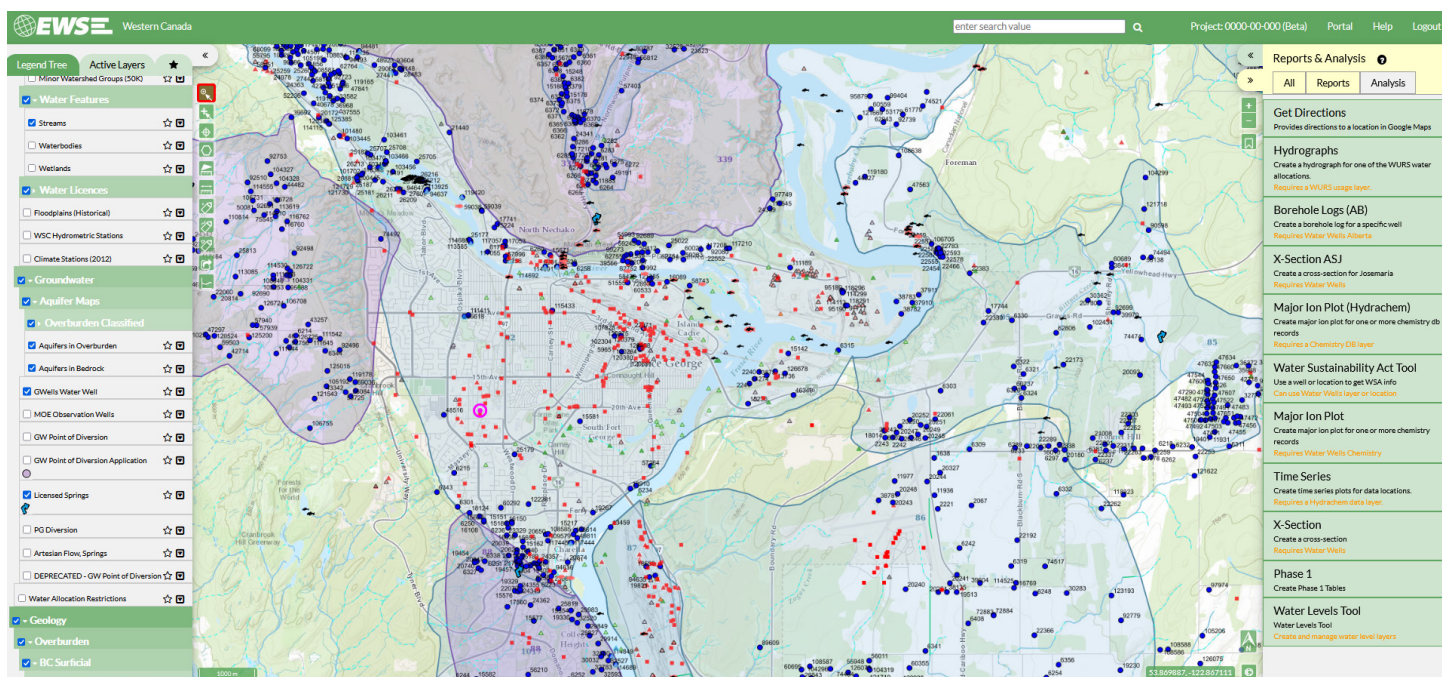
Waterline has combined public datasets from across Western Canada into one online system. Data sources include provincial water well databases, BC Contaminated Sites Registry, Federal Contaminated Sites inventory, aquifer maps, geological survey maps, fish distributions, indigenous peoples information from CIRNAC, parcel property maps and many more.

Improved Desktop Study Efficiency

The first step of many hydrogeological studies is to search for and compile available public data in the project area. With EWS, this work has already been completed. When combined with uploaded project-specific data, EWS allows us to quickly develop an understanding of a project site and results in cost savings for our clients.

Project Database

EWS serves as the client database for many of our client's projects, which provides essential continuity for long-term studies, which is maintained regardless of Waterline or client staffing changes. Proprietary client data is stored securely and privately, and remains accessible as long as required by the client.





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AUTOMATED ENVIRONMENTAL REPORTING

Using Waterline's fully integrated, in-house web apps, **Waterline has automated the majority of routine tasks** used to generate groundwater monitoring and Phase II environmental site assessment reports, allowing for our clients to rapidly satisfy program objectives.



Expertise

Find Answers Quickly

Waterline's interactive maps and straight-forward reporting allows for our clients to interact with data in the ways that they want.

High Quality Deliverables

Waterline has automated all of the details, allowing for our experts to focus on conclusions and recommendations and pass the cost savings along to our clients.

To-the-Point

Clients and regulators alike have gravitated toward our information-packed, bullet form style reports that concisely summarize historical data, program results, and conclusions needed to make informed decisions.

Continuity of Service

Unforeseen changes in client business strategies, staff turnover, or economic conditions may result in project delays or perhaps cancellation. Waterline's streamlined workflows allow us to easily pick up where we left off.





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ASSET RETIREMENT PROJECT MANAGEMENT SYSTEM FOR ENERGY ADVISORS

Preserve **corporate memory** and plan for future closure programs in one **easy tool** that can work with other management systems in your organization.



Highlights

Seamlessly switch from map to database view to update project or site status. Easily extract the information you need to create reports and collaborate with stakeholders. Unlock the value in your data by utilizing custom companion tools like Risk Insights and ABC Insights. Pay one simple access fee for unlimited users and sites.

Value Creation

Spend less time recording data in cumbersome spreadsheets and transform your information into high value decision making tools by combining it with public data sets in the mapping interface.

Data-rich Map

Hundreds of data layers available to explore. Regulatory, environment, lands, site setting and energy infrastructure information. Our team can securely integrate your company GIS layers too.



Database & Map

Cloud-based, web-accessible system with intuitive interface and interactive map to manage your closure programs from abandonment to reclamation.

Dashboard

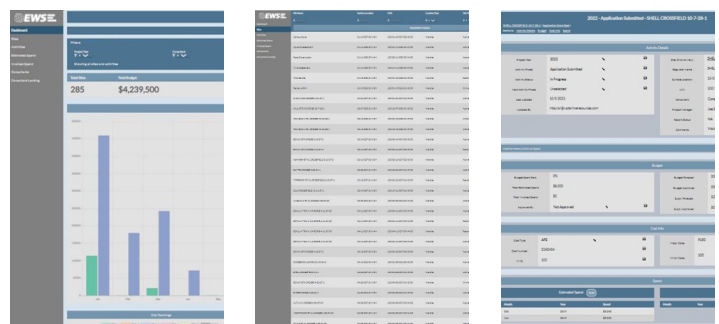
At-a-glance program status which can be filtered or customized by you.

Activity Tracking

Simple, streamlined project control and cost tracking. Consultant interface for timely project updates.

Customize

Customize with your logo and colours. Our in-house development team can create bespoke reporting, map layers or other tools.



RAPID RISK ASSESSMENT TOOL

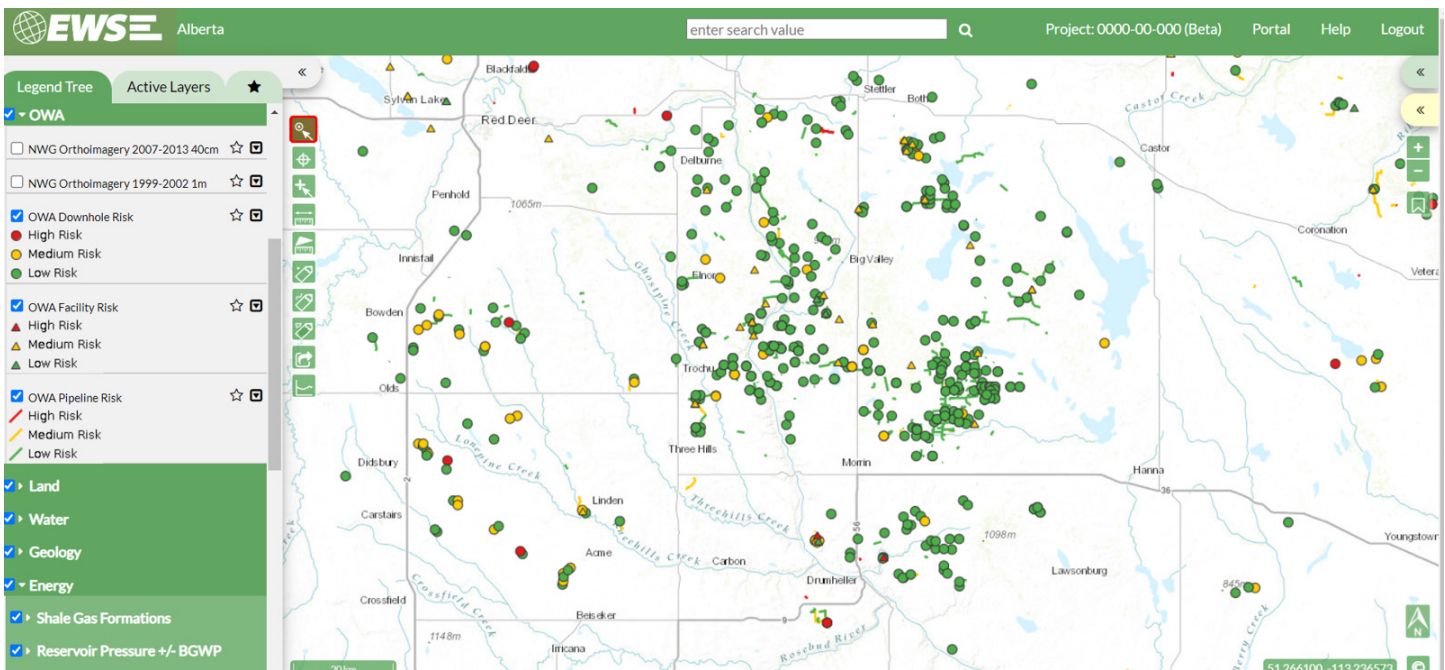
Waterline and DXD Consulting have developed a proprietary method to rapidly assess asset and environmental risk for energy assets including downhole oil and gas well abandonments, pipelines, facility decommissioning, well sites and remediation/reclamation.

Expertise

Waterline and DXD leverage our collective expertise, publicly available datasets, and client environmental information to rapidly understand the risk profile of 10s to 1000s of sites using dozens of risk ranking parameters, which allows our clients to:

- Streamline decision making and focus teams on high-risk sites and project execution;
- Rapidly decide on geographic areas to focus on with our integrated risk ranking and mapping (i.e., area based closure);
- Ensure public safety and environmental safeguarding;
- Meet corporate priorities;
- Proactively prepare for transactions; and
- Demonstrate diligence to regulators and stakeholders.

The Rapid Risk Assessment Tool readily integrates into industry standard client PM software including the Waterline and DXD designed **Asset Retirement Project Management System for Energy Advisors**.





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OUR CLIENTS

Waterline has built a strong reputation for providing high-quality, on-time, and cost-effective solutions to domestic and international clients. **Our success is ultimately dependent on the success of our clients, and on the long-term relationships we build with our clients.** Below are some examples of current and recent clients across various regional and local districts, commercial and industrial operations, and Indigenous groups who rely upon our expertise.



Commercial Development

Cermaq Canada
Crown Isle Resort & Golf Community
EPCOR Water (West) Inc.
Mount Washington Alpine Resort
Neptune Bulk Terminals
Safety-Kleen Canada Inc.
Seward Developments Inc.
Stoddart Creek Water Services Ltd.

Oil & Gas

Canadian Natural Resources Ltd.
Canlin Energy Corporation
Cenovus Energy
Shell Canada Ltd.
Strathcona Resources Ltd.
Suncor Energy Inc.
Syncrude
Tidewater
Whitecap Resources Inc.

Municipal

Capital Regional District
City of Campbell River
City of Delta
City of Okotoks
City of Prince George
Cowichan Valley Regional District
District of Squamish
District of Wells
Regional District of Nanaimo
South Central Regional District
Sunshine Coast Regional District
Town of Cochrane
Town of Gibsons
Town of Golden
Town of Sparwood
Town of Squamish

Pulp & Paper

Brisco Wood Preservers Ltd.
Canfor Pulp Ltd.
Catalyst Paper
Confex Inc.

Indigenous Groups

Gitwangak Band
Halalt First Nation
Ktunaxa Nation Council
Mowachaht/Muchalaht First Nation
Nadleh Whut'en First Nation

Mining

Artemis Gold Inc.
Avanti Kitsault Mining
Barkerville Gold Mines Ltd.
Centerra Gold
Conuma Coal Resources Ltd.
KGHM Ajax Mining Inc.
Lafarge Boulder Creek
Lundin Mining
Mount Polley Mining Corp.
New Gold Inc.
Thompson Creek Metals Company