

Environmental Geochemistry and ARD/ML Assessment Services

Trinity Consultants is a leading global environmental consulting firm that brings 50 years of experience providing services and solutions in the EHS Regulatory Compliance, Water & Ecology, Built Environment, and Life Sciences markets. Trinity has the technical expertise, industry depth, and specialized capabilities to help clients achieve their goals across the natural and built environments.

Minnow and Ecofish, both Trinity Consultants companies, are recognized leaders in environmental assessment and monitoring, offering key services to industry, government and First Nations. With extensive experience gained from hundreds of successful project assignments, and a unique perspective gained by writing environmental guidelines on behalf of government, we offer proven problem-solving expertise to the mining, energy, forestry, LNG, linear development, and ecological restoration sectors.

Our Environmental Services team provides cost effective geochemistry and acid rock drainage/metal leaching (ARD/ML) assessment services. We provide geochemical services for all stages of the mining life-cycle, including geochemical baseline assessments for greenfield and brownfield projects, support to engineering designs, assistance with adaptive mine waste management throughout operations, prediction studies as part of site expansions and/or design of closure strategies, and specialized investigations at decommissioned sites. Our geochemistry studies are customized to focus on the specific needs of the project to assist with prediction, control, and management of mine site drainage. Through this approach, we develop 'fit-for-purpose' studies that satisfy technical and regulatory requirements while providing added-value by balancing practical and proven methods with innovative approaches.

Our Expertise

- ▶ Isotope Chemistry: Stable Isotopes, Radioactive Isotopes, and Age Dating
- ▶ Radiochemistry, Radionuclide Mobility, and Radioactivity Studies
- ▶ Forensic Geochemistry and Chemical Fingerprinting

- ▶ Cyanide Chemistry and Degradation Modeling
- ▶ Nitrogen Species Chemistry: Nitrate, Nitrite, and Ammonia
- ▶ Explosive Residue (Ammonia/Nitrate) Management Plans
- ▶ Quarry and Borrow Material Geochemical Suitability
- ▶ Methylmercury Bioaccumulation Studies

Our Services

- ▶ ARD/ML Assessment and Prediction
- ▶ Mineralogy and Solid-Phase Characterization
- ▶ Rock Core, Tailings, and Mine Rock Sampling Plan Development and Field Implementation
- ▶ Laboratory Programs: Static and Kinetic Testing
- ▶ Mine Rock and Tailings Field Test Program Design, Instrumentation, and Monitoring
- ▶ ARD Management and Mine Waste Monitoring Plans
- ▶ Site-Specific Geochemistry Operational Procedure Development
- ▶ Geochemical Source Term Development
- ▶ Site-Wide Water Balance and Water Quality Modeling
- ▶ Geochemical Speciation and Reactive Transport Modeling
- ▶ Groundwater and Pore Water Hydrogeochemistry
- ▶ Sediment Geochemistry, Sediment Water Exchanges and Diagenetic Processes
- ▶ Treatment Solids Characterization
- ▶ Regulatory Approvals and Permitting Support
- ▶ Automated Compliance Screening of Water and Sediment Quality Laboratory Data
- ▶ Automated Real-time Compliance Monitoring and Screening of Continuous in Situ Water Quality Data (e.g., pH, Turbidity, TSS, Dissolved Oxygen)
- ▶ Automated Notifications (Email, SMS) if Customizable Trigger Concentrations are Met

For more information about our Environmental Geochemistry and ARD/ML Assessment Services, contact us today!

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