



## **Brian Ayres, M.Sc., P.Eng. (SK)**

*Senior Geoenvironmental Engineer*

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## **Employment History**

### **LePoudre GeoEnvironmental Group**

Senior Geoenvironmental Engineer

(Feb 2026 – Present)

### **BHP – Legacy Assets**

Principal Closure Engineer

(Jun 2024 – Jan 2026)

Manager, Integrated Closure Planning

(Sept 2022 – May 2024)

Technical Study Manager

(Jun 2021 – Aug 2022)

### **SNC-Lavalin Inc.**

Principal Geoenvironmental Engineer

(Sept 2015 – May 2021)

### **O’Kane Consultants Inc.**

Chief Operating Officer

(Jan 2014 – Jun 2015)

Senior Geoenvironmental Engineer

(Jan 2010 – Dec 2013)

Geoenvironmental Engineer

(Jun 2000 – Dec 2009)

### **Orano Canada Inc. (formerly COGEMA and AREVA Resources)**

Geoenvironmental Engineer –

Corporate Office

(Aug 1997 – May 2000)

Environment Technician –

McClellan Lake Operation

(Jan 1996 – July 1997)

## **Profile**

Mr. Ayres is a Senior Geoenvironmental Engineer at LGG Inc., and is a senior-level professional, possessing an M.Sc. in Geotechnical Engineering and over 30 years of experience including 21 years in consulting and 9 years in industry.

Mr. Ayres has knowledge of geotechnical, hydrogeology, and geochemistry principles to support developing scientifically rigorous closure plans for mine rock / tailings storage facilities (MR/TSFs), coupled with practical experience to optimize costs for implementation. He is an internationally recognized SME in the design, construction, and performance monitoring of MR/TSF final landforms / cover systems, having published 15 papers in the field.

Mr. Ayres’ passion is design of sustainable landforms for closure of MR/TSFs, striving to return the disturbed landscape to a productive end land use while mitigating potential risks to human and ecological receptors to acceptable levels over the short, medium & long terms.

## **Expertise**

- Closure | rehabilitation planning for MR/TSFs including site and material characterization programs, mined materials handling strategies, landform construction, and surface water mgmt.
- MR/TSF final landform and cover system design including considerations for potential influence of physical, chemical, and biological processes & resulting evolution of the as-built system.
- Development of construction plans for MR/TSF closure designs including IFC drawings / technical specs and QA/QC programs.
- Risk assessment of MR/TSF closure strategies via FMEA workshops involving engineering, operations, and corporate personnel to quantify risks, develop mitigation measures, and scope investigations to lower residual risks to acceptable levels.
- Life cycle cost analysis for MR/TSF closure design alternatives.
- Development of decommissioning & reclamation plans and associated costs to support financial assurance provisioning.
- Options analysis of MR/TSF closure designs using a Pugh matrix (weighted alternatives analysis).
- Extensive knowledge of geomembranes and geotextiles for use in various MR/TSF closure elements.
- Scope development and oversight of numerical modelling programs required for predictions of net infiltration and seepage.
- Design of performance monitoring systems for field trial and full-scale reclaimed MR/TSF landforms.
- Strong communicator due to scoping, leading, and managing 70+ projects with budgets up to \$10 million, multidisciplinary teams, and stakeholders with varying interests and technical backgrounds.



## Education

1998: M.Sc. Geotechnical Engineering,  
Univ. of Saskatchewan

1994: B.Sc. Civil Engineering,  
Univ. of Saskatchewan

## Professional Memberships

Professional Engineer – P.Eng. (SK)

Landform Design Institute Member

## Key Publications / Presentations

2023: Lessons learned from 20+ years  
post-closure care of BHP's legacy mine  
sites in N. America (Mine Closure 2023)

2023: Mine closure planning: Past and  
present trends and key experiences  
from 27 years in the industry (Keynote  
address, SK EPB Annual Meeting)

2023: TSF closure, landforms, and  
cover systems (lecture for Tailings  
Center TC1 Spring 2023 short course)

2021: Cover systems and landforms for  
rehabilitation of mine waste storage  
facilities: Practical insights (CIM Journal)

2018: Geosynthetics for waste  
containment – Overview and latest  
research findings and product  
developments (SustainTech 2018)

2013: Mine waste cover systems:  
An international perspective and  
applications for mine closure in New  
Zealand (AusIMM NZ Branch conf.)

2006: Incorporation of natural slope  
features into design of final landforms  
for waste rock stockpiles (4<sup>th</sup> ICARD)

1998: Field monitoring of soil-  
atmosphere fluxes through uranium  
mill tailings and natural surface soils at  
Cluff Lake, Saskatchewan (M.Sc.  
thesis, Dept. of Civil Engineering, Univ.  
of Saskatchewan)

## Experience / Career Highlights

- Conducted rigorous reviews as part of BHP Legacy Assets technical team, involving synthesizing internal and external information regarding practical and regulatory context for potential application of MR/TSF final cover systems at Copper Cities, Globe-Miami, AZ and Carson Hill, CA legacy mine sites.
- Inaugural manager of BHP Legacy Assets Integrated Closure Planning team that involved recruiting five Closure Planning Principals and setting initial framework for stewarding closure management process across 20 closed sites in North America to support achieving optimized closure outcomes & objectives.
- Senior reviewer for cover system designs and associated consultancy studies to support developing sustainable, cost-effective closure designs for MR/TSFs at BHP's Olympic Dam and Mt. Arthur Coal operations in Australia.
- Technical expert retained by Orano Canada Inc. to support efforts of transferring the Cluff Lake Project (uranium mine/mill complex in Saskatchewan) into the provincial Institutional Control Program (ICP) including provision of expert advice during meetings with federal regulator (CNSC) on performance of the TMA and Claude MRSF cover systems.
- Technical expert retained by International Atomic Energy Agency (IAEA) to be part of 5-person committee tasked with preparing a guidance document related to mitigation of acidic and neutral mine drainage from uranium mine and milling sites.
- Study Manager overseeing various directional studies for Interim Risk Reduction and Long-Term Closure phases for BHP's Quirke TMA near Elliot Lake, ON, as well as preparation of a position paper detailing the current situation and BHP's planned action plan to address tailings dam safety issues.
- Technical expert retained by North American Tungsten Corporation to be their cover / landform SME during a Public Hearing in support of amending Cantung Mine's operating license to move from slurry to dry-stack tailings deposition.
- Senior engineer for updating remediation plans and associated liability cost estimates for two non-uranium abandoned mines in northern Saskatchewan; tasks included data gap analyses, scoping site characterization programs, updating CSMs, and remedial designs to a 60% and 100% design stage.
- Member of ownership and management team of O'Kane Consultants Inc. that grew the company from two employees, one office in 2000 to 60+ employees, nine offices across North America, Australia, and New Zealand in 2015.
- Presenter at multiple conferences and workshops, including keynote addresses at Mine Closure 2022 conference and Saskatchewan Enviro. Protection Branch 2023 Annual Meeting.

A complete list of projects experience, workshops, presentations, and publications is available upon request.