

Mine Overlay Site Testing Facility (MOST) – Quick Facts

Our mission is to help industry improve mining system cover design improve risk mitigation at their permanent installations, troubleshoot problems in design, reduce cost and increase accuracy of environmental impact assessment.

The **Mine Overlay Site Testing Facility (MOST)** bridges the critical gap between small scale lab experiments and complex, costly and time consuming large scale constructed hillslope research in mine reclamation cover design. The primary focus of the facility will be cover systems testing for cold regions. The facility is expected to open in October 2015.

The facility is funded through the Western Economic Diversification Canada, the University of Saskatchewan, Global Institute for Water Security and industry partners.



The project is led by Dr. Jeffrey McDonnell, Professor of Hydrology and Associate Director of the Global Institute for Water Security. The multi-disciplinary approach involving specialists in engineering (Dr. S.L. Barbour & Dr. A.M. Ireson), geological sciences (Dr. M.J. Hendry), and O’Kane Consultants provides a starting point to tackle fundamental and applied hydrological issues in engineered hillslopes.

Our Research

Cover system design is complex, expensive and failure can jeopardize the environment. To minimize cost and risk and to develop fundamental hydrological principles, the facility’s goals are to collaborate between industry, research and consultants to:

- Evaluate effective hydrological properties on cover materials
- Assess how these properties evolve over time
- Measure how is water partitioned between runoff, infiltration, etc.
- Evaluate potential contaminant release
- Use key findings to develop and inform site modeling
- Provide insight to regulators and industry based on key findings
- Train highly qualified personnel with expertise in mine cover systems

The MOST facility is the first of its kind to provide pilot scale cover trials with replications of key processes (placement, climate, slope/aspect, vegetation) and the ability to evaluate and characterize the key mechanisms controlling the water dynamics in the cover design.

Spotlight on Cover Systems

The MOST research facility will bring long-term benefits to industry in terms of reductions in time and resources through implementation of effective and efficient mine overlay designs and innovations in operational processes. Typically evolution of field based cover systems under natural conditions occurs over 3-5 years exposing it to multiple freeze/thaws and precipitation events. It is expected that the MOST facility can accelerate what happens in the field over years to a period of mere months using a partially climate controlled environment.



Rendering by Derrill Shuttleworth

The results of experiments conducted at MOST are expected to have far-reaching impacts. The size and importance of the mining industry in Canada demands that our country becomes the world leaders in understanding, monitoring and minimizing the environmental impacts of the minerals industry.



Beginning of the reclamation process, demonstrating healthy vegetation growth, photo by D.Pratt