



Residuals stockpiled for use on landfill closure (left). Landfill gas monitoring is conducted to determine barrier layer requirements (right).

EVALUATION OF PAPER MILL SLUDGE FOR USE AS A LANDFILL COVER BARRIER

Client: Howe Sound Pulp and Paper Limited

Howe Sound Pulp and Paper Limited Partnership (HSPP) was interested in beneficially using pulp and paper residuals generated by their facility in Port Mellon, BC in landfill closure. Pulp and paper mills generate sludge as a by-product of the wastewater treatment process. Typically pulp and paper sludge is high in organic matter and moisture and has a low hydraulic conductivity. Due to its low hydraulic conductivity pulp and paper sludge has been used as a barrier layer in landfill final cover systems in North America since 1975.

To facilitate use of pulp and sludge in landfill closure, SYLVIS worked with HSPP to complete a detailed assessment of the use of paper mill sludge as a barrier layer in the final landfill cover system. SYLVIS staff completed a site assessment and collected samples to assess the characteristics and quality of the pulp and paper sludge including hydraulic conductivity, organic matter, moisture, physiochemical properties and shear strength.

Using computer simulation SYLVIS assessed the performance of final cover systems with different barrier layers: clay, sludge and a geomembrane over a clay layer. Based on the results SYLVIS concluded that both systems would make effective barrier layers in the final cover system.

SYLVIS designed a fabricated soil layer for use in closure composed of residuals generated by the mill: wood, sludge and ash. Landfill closure using residuals generated on site provided significant cost savings for Howe Sound Pulp and Paper.

AREAS OF EXPERTISE

> Applied Research

- Consultation & Education
- Operational Management
- Options Assessment & Development
- Policy & Practices

RESIDUALS

> Ash

- Biosolids
- Effluent and Leachate

> Pulp and Paper Residuals

- Unique Residuals
- Water Treatments Residuals

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