Assessment and Remediation of Chloride Impacted Groundwater: A Case Study

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VERTICAL CHLORIDE DISTRIBUTION MAP



Remediation Objective

Protect wetland from further impact by:

1) Capturing chloride impacted groundwater and prevent elevated chloride from discharging to the wetland.

2) Removing dissolved chloride from the subsurface









GROUNDWATER INTERCEPTION TRENCH Predicted Groundwater Production Rate



GROUNDWATER RECOVERY SYSTEM PROCESS AND INSTRUMENTATION DESIGN

Malmer Solutions Inc.

Remediation System Performance



- System has been in operation since July 2002.
- Initial groundwater recovery rate of approximately 5 m³/day.
- Recovered groundwater has an average concentration of 9,000 mg/L.
- Average chloride recovery rate of 50 Kg/day.
- Future work includes establishing site specific remediation criteria.

Assessment and Remediation Review

- Clearly identify the purpose of the project:
 - Fresh groundwater
 - Aspen stand
- Detailed assessment proved invaluable throughout each stage of the project:
 - Explore possibility of natural attenuation
 - Trench and well depth and locations
 - Recovery rates
- Simple numerical simulation is a valuable tool for:
 - Evaluation of the remediation system
 - Estimate of capture zones
 - Estimation of recovery rates for pump and line sizing