
Presented to: RPIC
Presented by: Jason Wilkins

MAY 2012
Agenda

- Project Objectives
- Green Remediation Evaluation Framework
- Sikanni Pilot Project
- Next Steps
Project Objectives

- Partner with PWGSC to develop a green remediation evaluation framework
- Identify a suitable remediation project
- Evaluate Remedial Options with additional green aspects
Our Project Approach

1. Literature Review
2. GR Evaluation Framework Development
3. Application of the Framework to Sikanni
4. Moving Forward and Lessons Learned
GR Evaluation Framework

- GRIs Database Development
- GRIs Evaluation Methodology
- Application of GRIs in Remedial Options Evaluation
Applying the Framework

Select GRIs & Assign Weights

Set specific boundary conditions

Data Collection & Reduction

Raw GRI results

Scale GRI results

Apply to Remedial Options Evaluation
Option 1: Excavation + Offsite Disposal

Option 2: Excavation + Onsite Conventional Biocell Treatment

Option 3: Excavation + Onsite Phytoremediation Treatment

Option 4: Excavation + Onsite Conventional Biocell & Phytoremediation Treatment

Option 5: Green Excavation + Offsite Disposal
Green Remediation Indicators (GRIs)

- GHG
- Air Toxins
- Community Public Benefits of Future Land Use
- Potable Water Consumption
- Groundwater Consumption
- Surface Water Consumption
- Solid Waste Generation
- Hazardous Waste Generation
- Impacts on Media
- Impacts on Ecosystem
- Quality of Public and Worker Lives
- Cultural Impact
- Traffic Impacts

GRI Framework
Select GRIs & Assign Weights

GHG Emissions: 10%
Water Consumption: 5%
Waste Generation: 5%
Impact on Media: 5%

Cost: 15%
Complexity: 10%
Stakeholder Acceptance: 10%
Reliability: 15%
Time Frame: 10%
Regulatory Acceptance: 10%
Set Specific Boundary Conditions

- GHG Emissions
- Water Consumption
- Waste Generation
- Impact on Media

- Materials
- Equipment
- People

Sikanni Site Boundary

Waste
Equipment
People
Set Specific Boundary Conditions

Construction Phase

Monitoring Phase

Decommissioning Phase
## Raw GRI Results

<table>
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<tr>
<th>Option</th>
<th>GHG Emissions (tCO2 e)</th>
<th>Water Consumption (Litres)</th>
<th>Waste Generated (tonnes)</th>
<th>Impacts on Media (higher score, less impact)</th>
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# Scale GRI Results

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<th>Waste Generated (tonnes)</th>
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Next Steps

1. Incorporate Green Remediation Activities in Technical Specification
2. Track GRIs During Remediation
3. Expand GRI Evaluation Tool
4. Test the Framework in other sites
5. Set up a Working Group and Update the Framework
Conclusion

- Implementing the GRI Framework can influence the decision making matrix.
- The developed GRI Framework can potentially be applied to any and all sites.
- Implementing Green Remediation Best Management Practices during remediation can reduce the overall environmental footprint of the project.
Questions? Thank You!

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