

# Remediation and Reclamation

## **Mandate**

The committee will support industry's desire for shared research development to develop credible and relevant information to address knowledge gaps in the understanding and management of high priority environmental and social matters related to the assessment and management of exploration and production sites as related to geo-environmental protection, soil and groundwater remediation and reclamation, excluding water use, conservation and resource issues.

This collaborative approach will engage subject matter experts, from industry, government, and academia, to identify, prioritize, and manage knowledge gaps resulting in research projects. These research projects will help in development of smart regulations, and best practices, and identification of potential technologies to find cost effective approach in managing and mitigating environmental footprint of suspend, abandoned, remediated, and reclaimed wells.

## **Focus**

This committee prioritizes sustainable opportunities for environmental liability management of upstream oil and gas sites as they relates to soil and groundwater assessments, remediation and reclamation, excluding

water use and resource access issues.

## 2018 Remediation and Reclamation Public Policy Issues and Knowledge Gaps with Associated Projects

Public Policy Issue	Associated Knowledge Gap(s)
<p><b>Regulatory</b>  <b>Guidelines/Directives/Policies/Criteria</b>  The degree of conservatism current in some regulatory guidelines can be linked to some unnecessary remedial efforts throughout the petroleum industry. The development of accepted risk and science based studies to protect the environment and reduce remediation costs.</p>	<p><b>Organics (PHC)</b></p> <ul style="list-style-type: none"> <li>• Fate and transport mechanisms (e.g. GW based soil guidelines)</li> <li>• Understand appropriate protection of various exposure pathways</li> <li>• Clarity on AB Guideline assumptions (e.g. continuous source)</li> </ul>
	<p><b>Inorganics (salinity, metals)</b></p> <ul style="list-style-type: none"> <li>• Fate and transport mechanisms (e.g. GW based soil guidelines)</li> <li>• Background metal and salinity database</li> <li>• Understand appropriate protection of various exposure pathways</li> <li>• Clarity on SCARG criteria (e.g. EC, SAR)</li> <li>• Outcome-based soil quality guidelines for inorganics (surface/subsoil)</li> </ul>
	<p><b>Other</b></p> <ul style="list-style-type: none"> <li>• Understand Phase I ESA calculations for Drilling Waste (link to soil/GW guidelines)</li> <li>• Outcome -based reclamation criteria (e.g. appropriate cut/fill reclamation)</li> </ul>
<p><b>Risk Assessment</b>  Identify areas for broad application of risk assessment strategies that protect the environment and reduce the required management/remediation efforts.</p>	Understanding risk assessment of receptors
	Standardized approach of risk assessment based on residual mass vs numerical endpoints (Tier 2C)
	Software tools to aid in the standardized application of Tier 2 guidelines using appropriate site-specific data.

<p><b>Reclamation and remediation technology advancement</b></p> <p>Technology improvements and finding new applications of existing technologies should reduce reclamation and remediation costs.</p>	<p>Petroleum hydrocarbon in fractured bedrock – effective remedial methods, associated risks, assessment effectiveness and relevance to environmental risk.</p>
	<p>Practical remedial options for petroleum hydrocarbons, salinity, and metals impacts in wetland environments.</p>
	<p>Effective in-situ/ex-situ groundwater treatment system(s) for petroleum hydrocarbon and salinity impacted sites.</p>
	<p>Technologies that address specific issues: small volumes, longer remediation timeframes (e.g. 10+ years), modified endpoints.</p>