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### Guide to the NEB Remediation Process

December 2010

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## Outline

- ✓ Purpose of the Guide
- ✓ Reporting Contamination
- ✓ Remediation Process
- ✓ Regulators
- ✓ Environmental Site Assessment
- ✓ Remediation Criteria
- ✓ Contamination Scenarios
- ✓ Remedial Action Plan
- ✓ Remediation Closure
- ✓ Reclamation



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## Purpose of the Guide

- Guidance under NEB Act and COGOA on:
  - The process for submitting remediation information.
  - How to document successful remediation.
- Scope includes:
  - Soil and groundwater contamination
  - All types of contamination events
- Scope excludes:
  - Initial cleanup
  - Off shore contamination
  - Reclamation of land surface
  - Abandonment

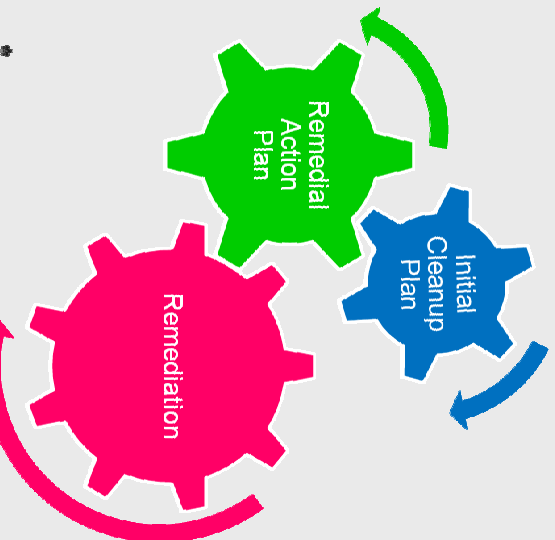


## Reporting Contamination

- Reportable Liquid Release (Incident)
- Notification Situations (Non-Incident)
  - Below reportable limit but may cause adverse effect.
  - Non-liquid and may cause adverse effect.
  - Occurred in a previously reported incident.
  - An accumulation of contaminants over time
- Notification to identify either:
  1. Cleanup is easily conducted and details will follow; or
  2. An ESA is required and a Remedial Action Plan (RAP) will follow.



# Initial Cleanup Plan



- An approved Initial Cleanup Plan (ICP) allows obvious remediation needs to be addressed while required ESA's are completed.
- The approved Remedial Action Plan (RAP) will phase in as the ICP phases out.
- The ICP could be the RAP if the ESA has no new findings



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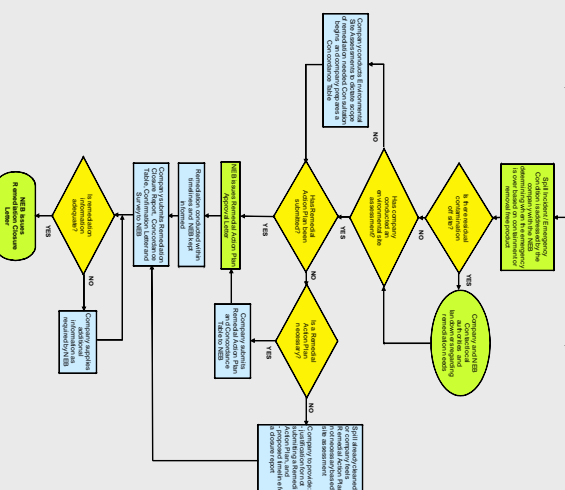
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# Remediation Process Flowchart

National Energy Board - Remediation Process Guide

1. Should a new Initial Cleanup/Remediation be Developed?



If a contaminant will have an adverse effect on groundwater or soil including soil vapour the site is contaminated and remediation is necessary and the NEB remediation process is to be followed



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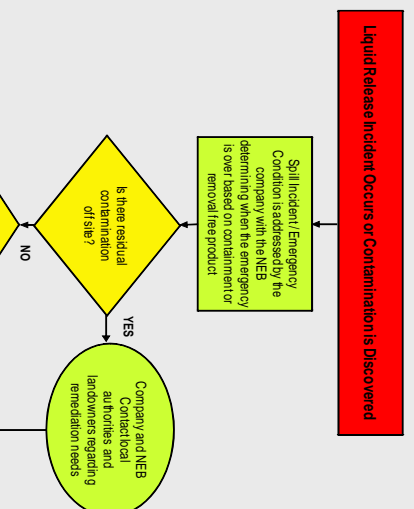
# Remediation Process

- Initial Cleanup Plan
- Environmental Site Assessment
- Remedial Action Plan (RAP)
  - Includes consultation and concordance table
- Approval of RAP
- Remediation
- Remediation Closure Report
  - Includes survey and confirmation letter
- NEB Remediation Closure Letter



# Contamination Scenarios

- Section 5.7 of the Guide includes contamination scenarios and expected actions.
- Generic soil remediation criteria not able to be met
- Reportable releases
- Non-reportable releases
- Historic contamination
- Notifications



# Contamination Scenarios

## National Energy Board Regulated Facility Contamination Scenarios and Expected Actions

Scenario	Expected Action
1. A liquid release occurs that meets reporting requirements.	Immediately report the release as an incident to the NEB and other regulators in accordance with company Environmental Protection Program (EPP), begin clean up in consultation with the assigned NEB Environmental Specialist (ES) and conduct an Environmental Site Assessment (ESA).
2. A liquid release occurs that does not meet reporting requirements but has the potential for an adverse effect on the environment e.g. gasoline is spilled on course grained soil where the groundwater table is near the surface.	Immediately inform the NEB and other regulators in accordance with company EPP, clean up accessible contaminants in consultation with the assigned ES and conduct an ESA.



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# Contamination Scenarios

## National Energy Board Regulated Facility Contamination Scenarios and Expected Actions

Scenario	Expected Action
3. A liquid release occurs that does not meet reporting requirements and does not appear to have the potential for adverse effects on the environment.	Record details of the release as a performance indicator and clean up any contaminants.
4. Contamination is encountered that has occurred either at a location of a previously reported incident or is not the result of an obvious release.	Inform the NEB of the discovery and advise if it was a previous incident. Identify what action will be undertaken to mitigate the contamination. Work with the assigned ES to address the appropriate approach.



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# Contamination Scenarios

## National Energy Board Regulated Facility Contamination Scenarios and Expected Actions

Scenario	Expected Action
5. The NEB is notified of a contaminated site and the initial ESA identifies that the contaminants are not mobile and are easily accessible for clean up.	Inform the assigned ES of the situation and discuss remediation plans. Then produce a closure report within a specified timeline documenting the remediation project. A site survey is expected as well.
6. The NEB is notified of a contaminated site and the ESA demonstrates that contaminants are mobile and that remediation will take considerable effort.	Inform the assigned ES of the situation and immediately begin containment and recovery operations. At the same time produce a Initial Cleanup Plan for approval by the NEB.



# Contamination Scenarios

## National Energy Board Regulated Facility Contamination Scenarios and Expected Actions

Scenario	Expected Action
7. The NEB is notified of a contaminated site and the ESA demonstrates that remediation will take considerable effort and that generic soil remediation criteria may be used.	Inform the assigned ES of the situation and compile an ICP for approval by the NEB. Consideration of the Remedial Action Plan (RAP) should begin to utilize the most stringent remediation criteria applicable at that location.
8. The NEB is notified of a contaminated site and the ESA demonstrates that generic soil remediation criteria cannot be used.	Inform the assigned ES of the situation and produce a proposal for a risk assessment to identify site-specific objectives. Once the approach is approved by the NEB then a RAP will be required.



## Regulators and Interested Parties

- NEB is lead agency
- Other Government Agencies engaged when:
  - Contamination is off the right of way, and
  - Contamination has potential for off site migration.
- Company to engage others to:
  - Communicate status of project, and
  - Address concerns and determine outcome.



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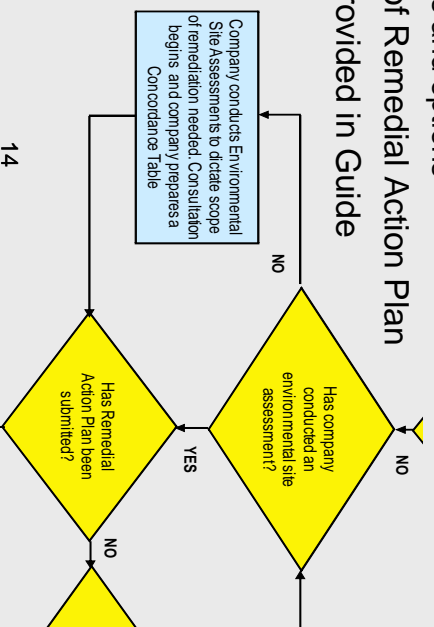
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## Environmental Site Assessment

- ESA recommended in all cases
- Phase II ESA usually triggers remediation
  - Delineates contamination,
  - Sample results,
  - Calculates volumes of contaminated media,
  - Identifies objectives and options
- Guides preparation of Remedial Action Plan
- “Self Assessment” provided in Guide



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# Remediation Self Assessment

Screening Question	Assessment	Comment
<b>Prescreening</b>		
1. Is the spill less than 1.5 cubic metres or if it is North of the 60 <sup>th</sup> parallel, less than 100 litres in volume?	Yes ___ No ___	If Yes, normal cleanup is expected with documentation of location.
2. Has a detailed Incident Report or NT-NU Spill Report been submitted?	Yes ___ No ___	If No, company should supply it.
3. If the spill is greater than 1.5 cubic metres or greater than 100 litres in the North, has it already been appropriately cleaned up or remediated?		If Yes, company should submit a report certified by a company official that the site has been remediated to applicable standards, with a survey of the spill site, or that contaminated materials have been removed and appropriately disposed.
<i>Note: clean-up means removing all free product and/or material from surface of soil, water, snow, ice or impermeable site.</i>	Yes ___ No ___	
4. Have environmental site assessment(s) been done?	Yes ___ No ___	If No, the company should explain why not.
5. Is there sufficient information to not do environmental site assessment(s)	Yes ___ No ___	If No, the company should conduct environmental site assessment(s).

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# Remediation Self Assessment

Screening Question	Assessment	Comment
<b>Need for a Remedial Action Plan</b>		
6. Are there contamination exceedances based on: <ol style="list-style-type: none"> <li>CCME environmental quality guidelines,</li> <li>equivalent provincial/territorial guidelines/standards in lieu of (a) for a specific chemical, or</li> <li>toxicity benchmarks for chemicals not covered in (b)?</li> </ol>	Yes ___ No ___	
7. Is there evidence of impact to humans at the site or off-site due to spill migration?	Yes ___ No ___	
8. Is there evidence of significant impacts to ecological receptors (vegetation, wildlife)?	Yes ___ No ___	
9. Is the size of the affected area greater than 2 hectares, 1000 square metres, if it is in the North or does it extend beyond the property boundary?	Yes ___ No ___	
10. Are there indicators of adverse environmental effects at the spill site (hydrocarbon sheen, stressed biota or presence of contaminants in soil)?	Yes ___ No ___	
11. Is there a potential for contamination to reach groundwater based on depth to groundwater, depth to confining layer, soil permeability etc.?	Yes ___ No ___	
12. Is there a potential for contamination to reach surface water based on distance to a waterbody, ditches, soil permeability, conduits etc.?	Yes ___ No ___	
13. Does the top 1.5 metres of soil contain contaminants that cannot easily be removed?	Yes ___ No ___	
14. Is there a potable surface water or groundwater source within 300 metres?	Yes ___ No ___	
15. Are there any utility conduits through or under the spill site that will remain in contact with any contaminant?	Yes ___ No ___	

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# Remediation Self Assessment

Screening Question	Assessment	Comment
<b>Screening Assessment</b>		
16. Were any of the Screening answers (Q6-15) Yes?	Yes ___ No ___	If Yes, company prepares a Remedial Action Plan.
17. Were any of the Screening answers (Q6-15) not able to be answered?	Yes ___ No ___	If Yes, the company needs to acquire and provide appropriate information.
18. Were all of the Screening answers No?	Yes ___ No ___	If Yes, company must submit a company certified report that either, the site has been remediated to standards with a survey of the spill site, or remediation is not necessary as contaminated materials have been removed and appropriately disposed.



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## Remediation Criteria

- Company is to remediate to more stringent of:
  - Provincial/territorial remediation criteria, or
  - CCME standards (National).
- Remediation criteria must be based on:
  - Type of soil, and
  - land use.
- Site Specific Remediation Soil Objectives may be developed if generic criteria do not apply.



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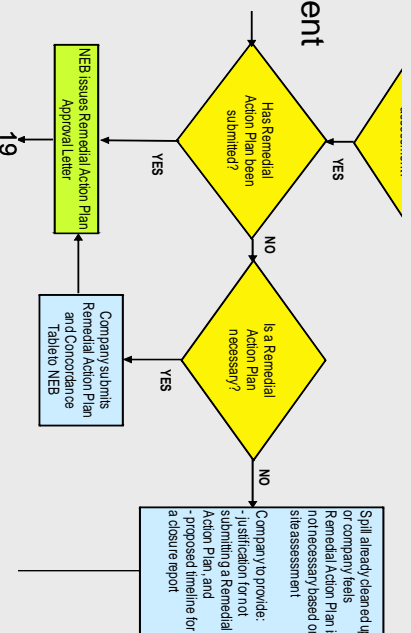
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## Remedial Action Plan

- Details of contaminated site
- Scope of remediation
  - Contaminants of concern and criteria to be used
  - Remediation methodology
  - Monitoring and reporting
  - Contaminant control methods and contingencies
- Schedule
- Concordance Table
- Stakeholder engagement



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## Approval of RAP

- RAP may be phased
- Control of contaminants may occur before approval
- NEB will consult with regulators
- Approval sets out requirements for closure report

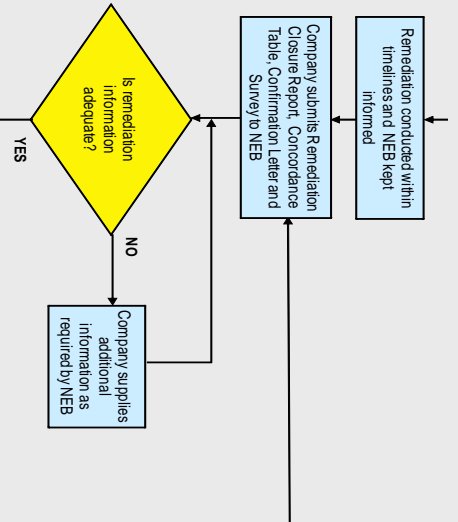


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# Remediation



- The NEB may issue an Order that requires specific filing of information.
- Company expected to identify changes to schedule or need to change RAP.
- Inspections of work progress may occur.
- Stakeholders to be kept informed during remediation and reclamation.
- Document all relevant information for the Closure Report.



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## Remediation Closure

- ❑ Required for both a remediation project and for a cleanup that did not go through this process.
- ❑ Report must include:
  - ❑ Site details with maps
  - ❑ Remediation results
  - ❑ Monitoring results plus proposed ongoing monitoring
  - ❑ Engagement results (measure of success)
- ❑ Confirmation letter from company officer certifying:
  - ❑ RAP was followed and appropriate criteria met
  - ❑ Where not RAP necessary then confirm why.
- ❑ Concordance table demonstrating RAP was met.



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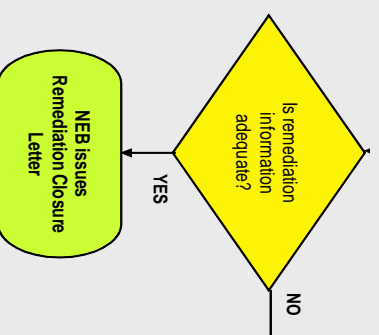
# Concordance Table

Aspect	Potential Impact	Regulatory Requirements	Remediation Results
Oil - Soil Contamination	Vegetation growth, groundwater affected	NEB Act	Soil removed to 3 m. over 50 sq. m. Replaced with clean fill
Free product on Groundwater	Drinking water effects, migration to surface water	CCME specific criteria Provincial specific criteria	
Off-site migration	Other landowner concerns	Contain and recover	
Benzene in Groundwater		CCME specific criteria	
Additional Measures of Success			
Desired Outcome	How Outcome Was Achieved		
Landowners informed and in agreement with planned remediation activities			
Restoration of land capability			



# NEB Closure Letter

- Confirms applicable criteria were met
- Officially closes file
- Provides assurance that site is remediated subject to:
  - Standards not changing
  - Land use change
  - Conditions at the site not changing
  - Recontamination
  - Additional contamination discovered



## Reclamation

- Restoration of land surface, and
- Reclaim to a condition where:
  - Equivalent land capability is achieved.
  - Sensitive environmental settings are restored.
  - Accommodate land use desired by affected persons where reasonable.
- Time required beyond remediation schedule.
- Application for reclamation is optional now.



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