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Can State Funds Promote Green Technologies

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Green Remediation Concept

- > Green remediation is the practice of considering the environmental impact of remediation at every stage of the remedial process in order to maximize the net environmental benefit of the clean-up.

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What Does it Mean to Go Green?

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- Eliminating the negative environmental effects that accompany standard remedial options.
- Limiting the degree and/or extent of a remedial action.
 - Cost and time as with any remedial option evaluation greatly affect the selection of Green Remedial Options.
 - Green remedial options do not always need to involve physical response actions.

What Does it Mean to Go Green?

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> Maximize sustainability, cleanup, and reuse options.

> Cost savings derived from energy efficient options.

> Conservation of water and other natural resources.

> Regional employment opportunities associated with renewable energy businesses formed at revitalized sites.

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Some Negative Green Perceptions From the Nameless

- > “More excuses to do long-term remediation by committee and blow the cost up, promote the inefficient bio processes, etc.”
- > “Phytoremediation is the only semi-established “green” remediation.”
- > “Any time somebody starts using words like “environmental justice” and “stakeholders” I know its going to get deep.....and not allow design based on sound engineering principles.”
- > “If they used my extremely fast, thorough, easily performance monitored ISCO processes there would be NO NEED for looking at “green” energy sources for long-term O&M.”
- > “State Funds ought to stop killing trees and allow more widespread electronic filings.”

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The Role of the State Fund

- > Provide Reimbursement to Responsible Parties conducting Response Actions
 - Ensure that costs are properly disbursed
 - Act as a fiduciary with respect to the funds allocated for reimbursements

- > Provide a means of Financial Responsibility

- > Ensure that cleanups are performed in accordance with regulatory requirements

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Considerations by State Funds for Going Green?

- > Consider expanding types of reimbursable categories?
- > Consider Increases to certain costs?
 - Going green does not mean cheaper?
 - Greater latitude in approving “greener remediation initiatives”?
- > Will a decision to go Green insulate you from attacks by the cynics?

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Is There Anything Wrong With the Use of Conventional Cleanup Approaches

- Uncontrolled air emissions resulting from excavation of volatile organic compound impacted or metal-containing soil
- Fossil fuel air emissions from waste disposal transportation
- Energy consumption from long term treatment systems
- Secondary impact to ground and surface water resources via injection of nutrients that result in rapid growth of unwanted plants
- Is the decision of when to stop remediation well defined?
 - Does it make sense to continue with only incremental gains remaining?
 - *80% of remedial cost is spent dealing with 20% of contamination*
- Ecological impacts resulting from active remedial actions
 - Will removal cause more harm than good?

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Green Remedial Options In Use Already No Need to Promote

- Bioremediation
- In Situ Air Sparging/Multi-Phase Extraction
- Chemical Oxidation
- Use of Pug Mill asphalt encapsulation on site to avoid off-site transportation related fuel emissions
- Engineered wetlands to control excess nutrient addition in support of bioremediation projects
- Monitored Natural Attenuation

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Risk Based Corrective Action

The Ultimate Green Remedial Tool?

- Risk based corrective action (RBCA) methods incorporate Risk Characterization to determine whether sites need to undergo extensive, active remediation.
- Demonstration of the absence of risk can be used to define the limits of remedial actions as well as determine whether active remediation is even warranted.
- Since it doesn't require any electrical system or heavy equipment, nor associated with negative environmental impacts, Risk Characterization could be viewed as the Greenest Remedial option available.

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Should A Claimant Have Concerns?

- > Site has been actively going through conventional cleanup process for years.
- > A new approach is being considered.
- > What will a State Fund Do?
 - Approval of Past Costs
 - Cost Effective and Reasonable

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Green Remediation- Procurement

> State Funds Might Consider Giving Preference to Certain Cleanup Approaches

- Products with recycled content
- Water efficient, energy-efficient products
- Biobased products
- Alternative fuels
- Hybrid and alternative vehicles
- Non-ozone depleting substances
- Renewable energy