

# **Systems Analysis and Adaptive Learning for Portfolio Management of Superfund Sites**

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# Research Goal

Develop a decision and policy framework to assist in the establishment of cleanup strategies and determination of future reuse options for individual sites and for portfolios of Superfund sites.



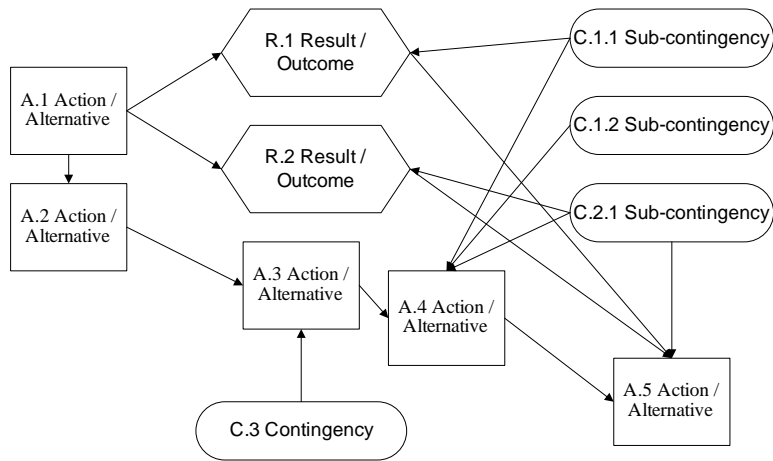
# Objectives

1. Avoid the dead end decisions and back engineering.
2. Understand all contingencies associated with remediation and reuse.
3. Account for costs and benefits from cleanup and reuse for all stakeholders including future generations.
4. Maximize opportunities for learning by considering environmentally impaired sites at two levels.

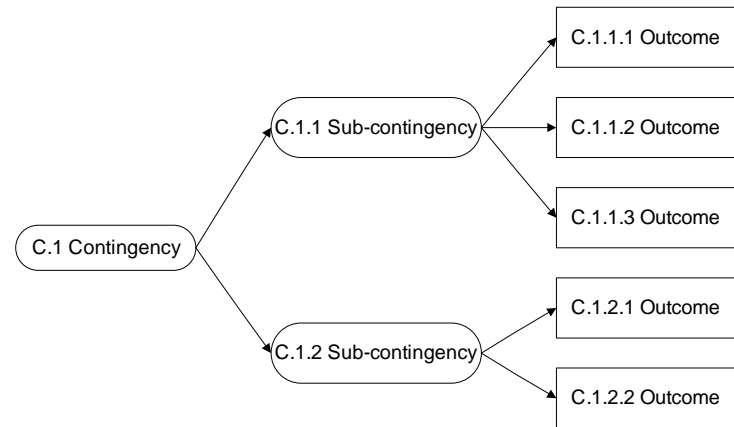


# Methodology Overview

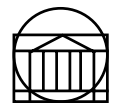
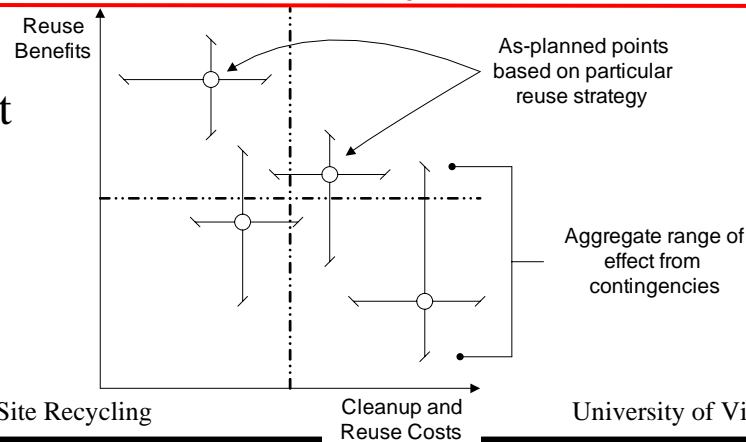
## Process Description



## Contingency Identification



## Portfolio Management



# Summary of Results to Date

- Performed process analysis to depict the Superfund system
  - Recognition to reuse of each site.
- Identified contingencies from review of approximately twenty case studies.
  - Created MS Access DB compatible with CERCLIS.
  - Encourage adaptive learning through deviation mitigation.
- Determined influence of contingencies on actions and outcomes of cleanup and reuse.



# Summary (continued)

- Recognized separation between cleanup and reuse costs and benefits.
  - Viewed cleanup benefits as constraints to achieving reuse.
- Demonstrated potential utility of methodology using examples generated from review of case studies.
  - Provided example for single site reuse determination.
  - Provided example for reuse strategy for a portfolio of sites.



# Future Research Paths

- Identify additional contingencies.
- Determine contingency mitigation techniques.
- Perform thorough study of reuse benefits and costs
  - Collect data and validate model.
- Analyze impact of contingencies on reuse benefits and costs.
- Determine ways to partition portfolio.
  - Examples include: region, similar site characteristics, type of site, etc.



## Related Research

- Estimate local economic impacts of site reuse.
- Predictive, statistical model based on historical data.
- Focus on residential property values, as reflected in home selling prices.

