



Waste Disposal Options Workshop

January 26, 2012

CITIZENS ADVISORY BOARD

PRE-DECISIONAL

Tonight's Objectives

**Walk through of the Waste Disposal
Options CERCLA Feasibility Study
Evaluation**

**Discuss key criteria of general landfill
design requirements**



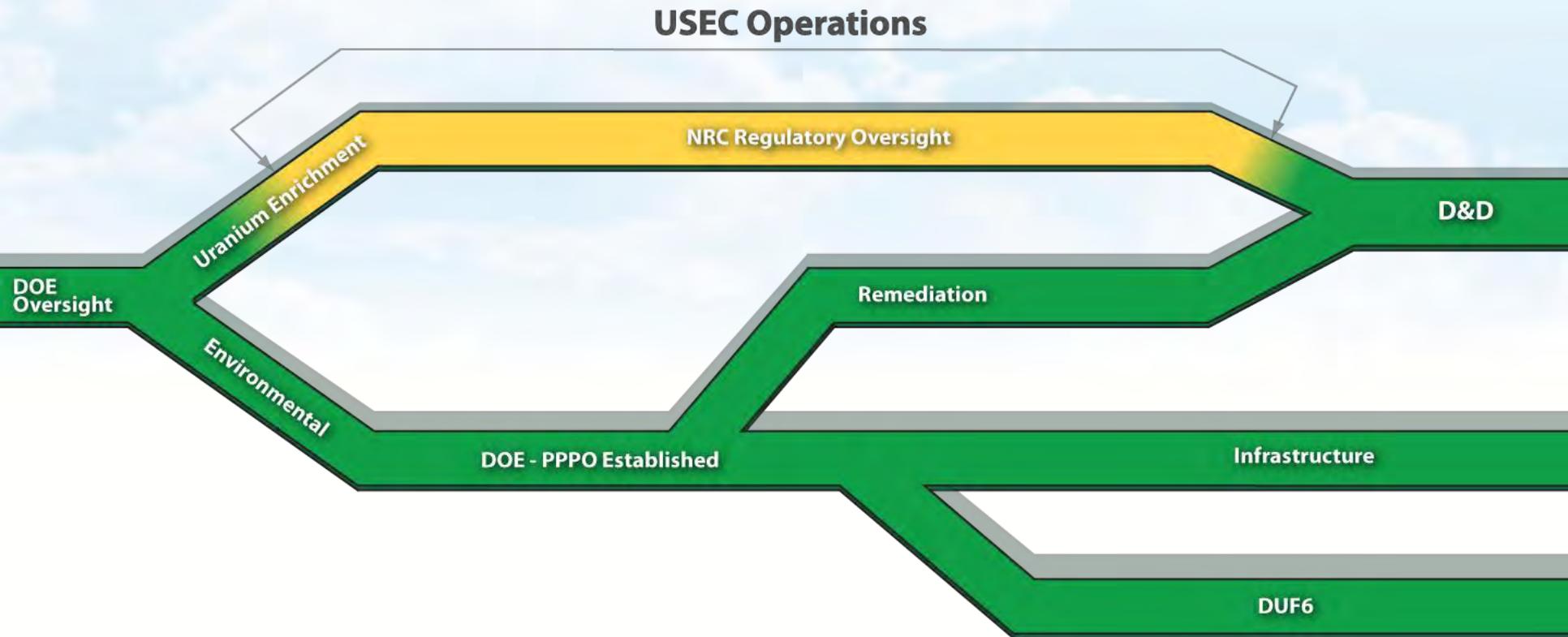
CITIZENS
ADVISORY BOARD

- **Introduction – Ralph Young, Paducah CAB**
- **Site Overview – Reinhard Knerr, DOE**
- **Project Overview – Rob Seifert, DOE**
- **CERCLA Overview – Turpin Ballard, EPA**
- **WDO FS Evaluation – Elizabeth Wyatt, LATA Kentucky**
- **Landfill Design – Todd Mullins, Commonwealth of Kentucky**
- **Landfill Key Elements – Various**





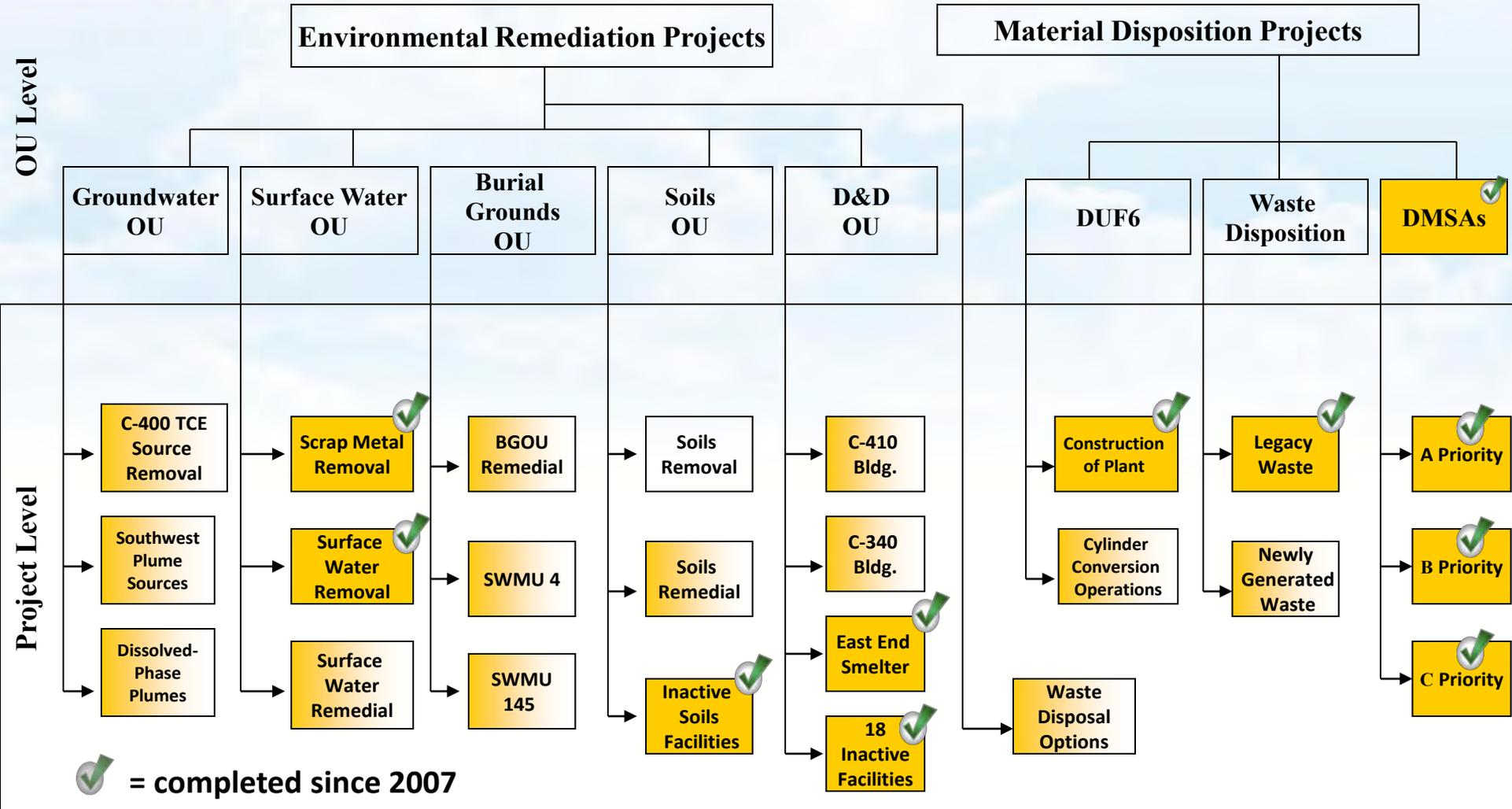
History



PRE-DECISIONAL



Current Remediation Scope



Pre-Shutdown Scope

NOTE: Each environmental project is expected to have a corresponding CERCLA decision document (i.e., ROD, AM)



Post USEC Shutdown

- **Full Scale D&D**
 - **Number of Buildings**
 - **Number of Acres**
- **Environmental Remediation**
 - **TBA**
- **S&M Deposit Removal and Deactivation Activities**



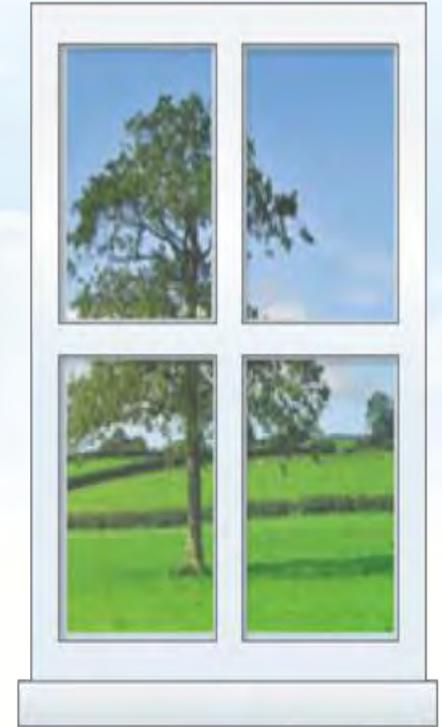
D&D Planning

Baseline planning begins many years prior to actual cleanup activities to determine:

- **Approximate cost**
- **Funding needs**
- **Additional Information Needed**
- **Resource allocation**
- **Project Schedules**

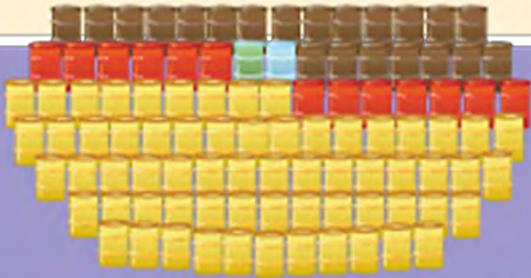
Multiple sources are used for planning purposes:

- **Existing Site Information**
- **Lessons Learned (Oak Ridge and Portsmouth)**
- **DOE Orders**
- **State and Federal Regulations**
- **Kentucky and EPA input (regulatory discussions)**
- **Internal Planning Workshops**





Key Decision Impact

Soils	Contaminated surface soils	WASTE GENERATED BY PROJECTS
Surface Water / Sediments	Plant and creek remedial	
Groundwater	TCE Source Removal Southwest Plume Sources Dissolved-phase Plumes	
Burial Grounds	60+ Acres of Materials (Potential accelerated area)	
Remaining Facilities <small>(Post-GDP D&D depends on closure of DUF₆ conversion plant and USEC decision to close the enrichment plant)</small>	Pre-GDP D&D Post-GDP D&D	
Waste Disposal Evaluation <small>(Waste materials generated by removal or environmental risks must be disposed)</small>	Waste generated by all projects Up to 4.0 million yd ³	
		

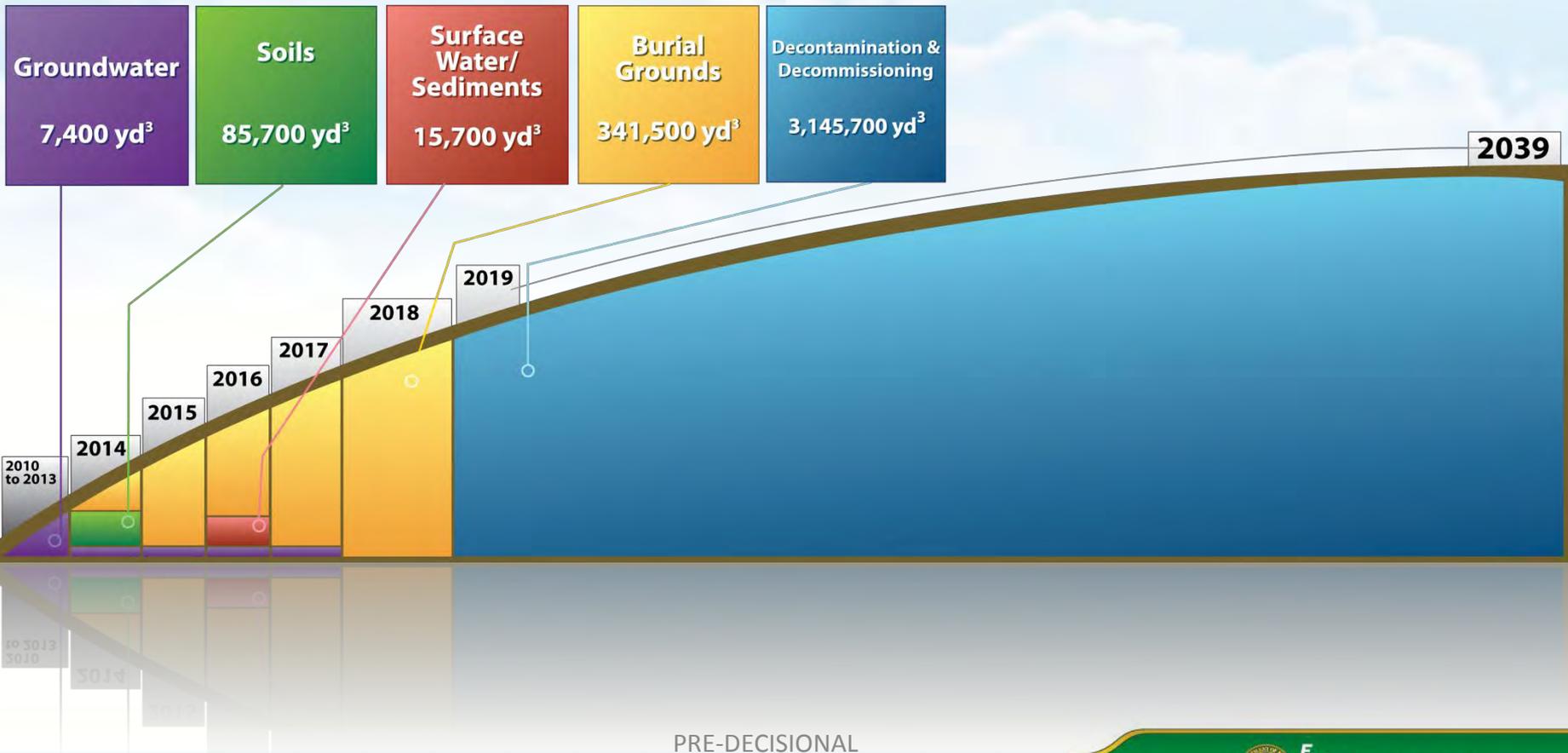
PRE-DECISIONAL



EM Environmental Management
safety ♦ performance ♦ cleanup ♦ closure



Waste Generation Forecast



PRE-DECISIONAL



Current Disposal Options



Paducah wastes are currently disposed at the on-site U-landfill, Utah and Nevada disposal sites. Potential future options include the Andrews, TX, disposal facility and an on-site CERCLA cell.

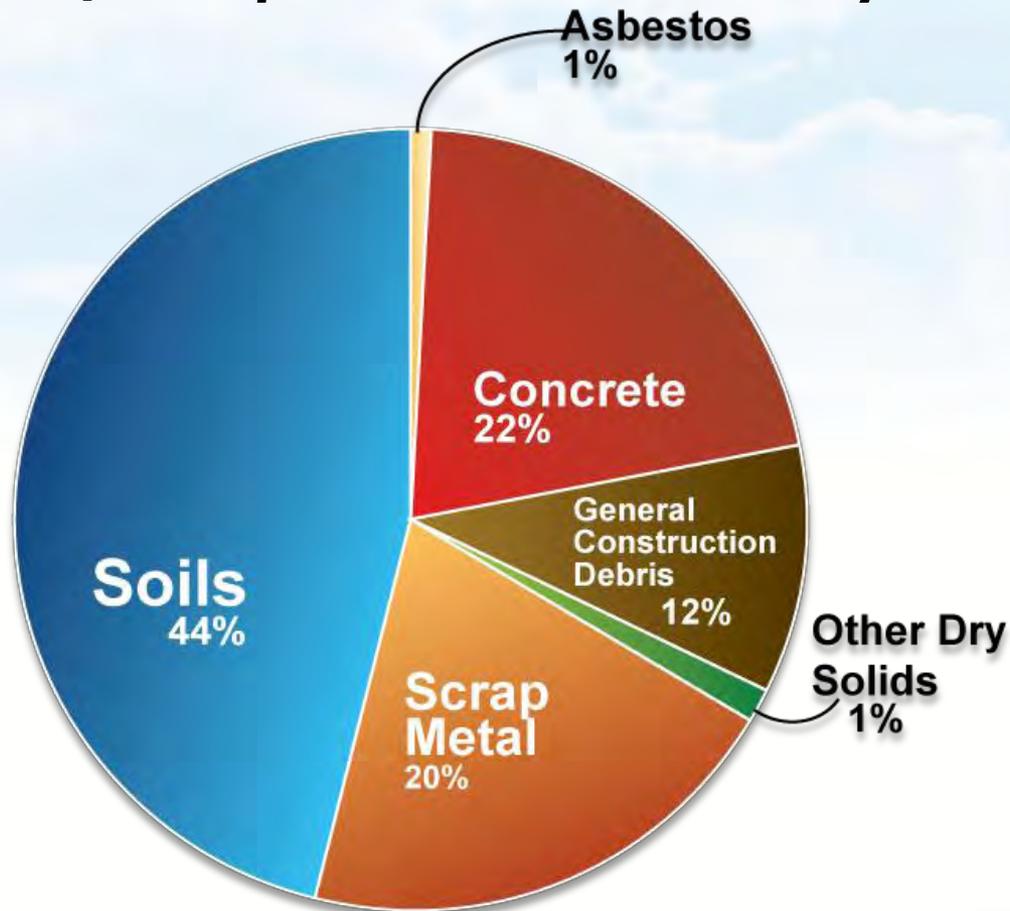
* past shipments include disposal sites that are used for minor or specific wasted disposal (such as Bear Creek in Oak Ridge)

PRE-DECISIONAL



What Type of Waste?

**Types of projected waste
for disposal based on 3.6M yd³**



PRE-DECISIONAL



EM Environmental Management
safety ♦ performance ♦ cleanup ♦ closure



WDO Alternatives

Alternative 1 – No action

- Continue making decisions *project-by-project*

Alternative 2 – Off-site

- Continue to dispose of nonhazardous waste in existing industrial landfill (RCRA Subtitle D)
- Ship remaining waste to licensed off-site disposal facilities

Alternative 3 – On-site

- Design, build, and operate CERCLA cell or waste disposal facility (RCRA Subtitle C)
- Evaluate continued use of existing industrial landfill

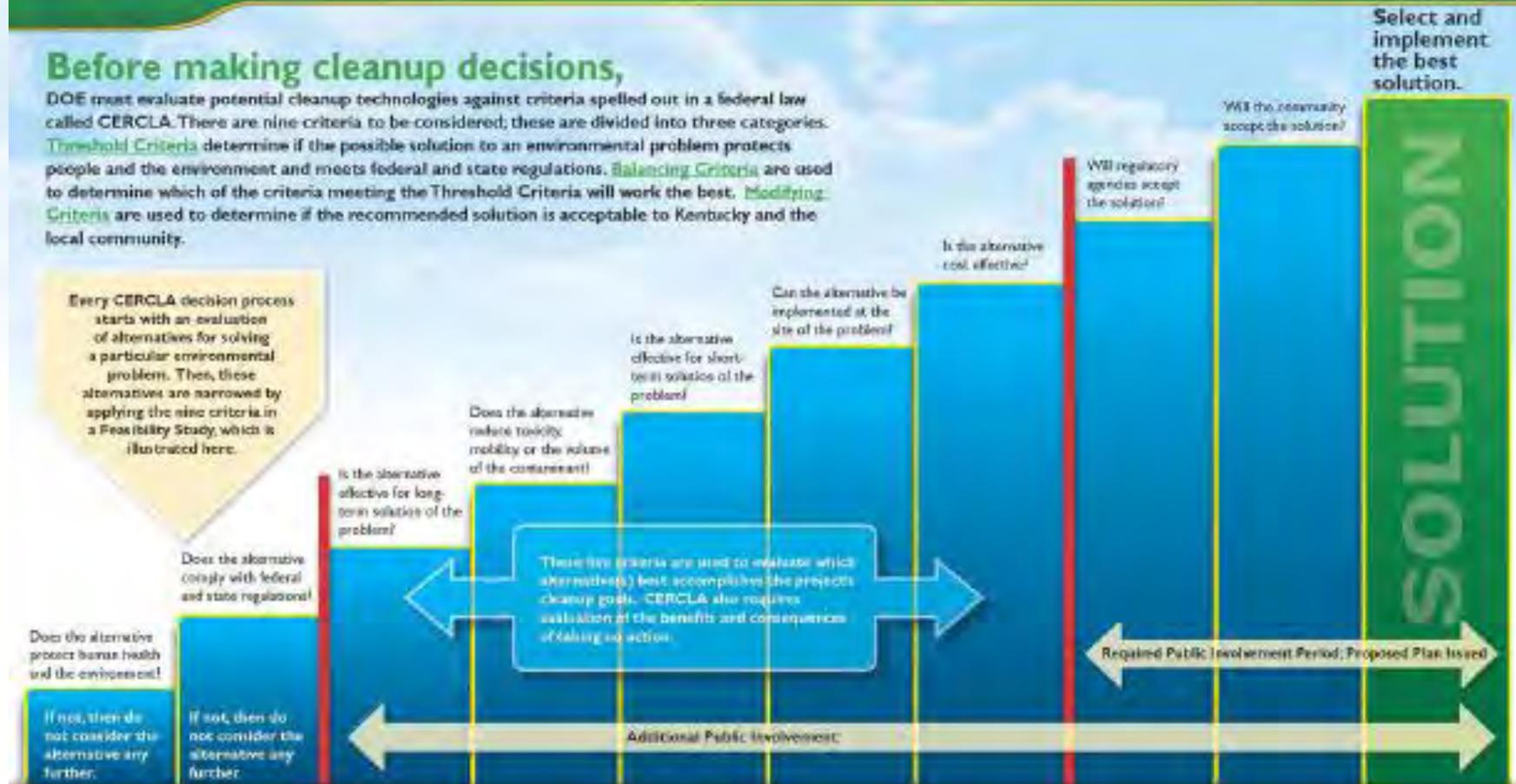


PRE-DECISIONAL

Criteria for Detailed Analysis of Alternatives

Before making cleanup decisions,

DOE must evaluate potential cleanup technologies against criteria spelled out in a federal law called CERCLA. There are nine criteria to be considered; these are divided into three categories. **Threshold Criteria** determine if the possible solution to an environmental problem protects people and the environment and meets federal and state regulations. **Balancing Criteria** are used to determine which of the criteria meeting the Threshold Criteria will work the best. **Modifying Criteria** are used to determine if the recommended solution is acceptable to Kentucky and the local community.





WDO Alternatives

Alternative 1 – No action

- Continue making decisions **project-by-project**

Alternative 2 – Off-site

- Continue to dispose of nonhazardous waste in existing industrial landfill (RCRA Subtitle D)
- Ship remaining waste to licensed off-site disposal facilities

Alternative 3 – On-site

- Design, build, and operate CERCLA cell or waste disposal facility (RCRA Subtitle C)
- Evaluate continued use of existing industrial landfill



Comparing the Alternatives

Evaluation Criteria	Off-Site	On-Site
Protects health, environment		
Meets regulations		
Effective long-term		
Reduces toxicity, mobility, or volume through treatment		
Effective short-term		
Implementable		
Cost		



Does the Alternative Protects Health & Environment?

Off-site	On-site
<ul style="list-style-type: none">• Waste would be disposed in a landfill designed for site-specific conditions• The landfills are designed according to regulatory standards of practice• Monitoring data at similar landfills show they are protecting health and the environment	<ul style="list-style-type: none">• Waste would be disposed in a landfill designed for site-specific conditions• The landfills are designed according to regulatory standards of practice• Monitoring data at similar landfills show they are protecting health and the environment



Does the Alternative Meet Regulations?

Off-site	On-site
<ul style="list-style-type: none">• The alternatives each meet Federal and State regulations	<ul style="list-style-type: none">• The alternatives each meet Federal and State regulations• Would need a waiver for the TSCA requirement of a 50-ft buffer between the base of the cell and the water table<ul style="list-style-type: none">• This waiver is routinely granted by EPA



Is the Alternative Effective Long-Term?

Off-site	On-site
<ul style="list-style-type: none">• Is effective in the long-term as waste disposed would need to meet that facility's Waste Acceptance Criteria (WAC)	<ul style="list-style-type: none">• Is effective in the long-term as waste disposed would need to meet that facility's Waste Acceptance Criteria (WAC)• WAC is established to be protective of human health and the environment• The WAC accounts for<ul style="list-style-type: none">• Site-specific conditions (e.g., rainfall patterns, site geology, landfill location, etc.)• Waste types and concentrations• Potential exposure routes• Liner and cover systems• Post-Closure Monitoring



Does the Alternative

Reduce Toxicity, Mobility, Or Volume Through Treatment?

Off-site	On-site
<ul style="list-style-type: none">• Placing waste in a landfill decreases mobility• Further reduction of toxicity, mobility, or volume through treatment would be determined by individual projects• Recycling to reduce volume is being considered	<ul style="list-style-type: none">• Placing waste in a landfill decreases mobility• Further reduction of toxicity, mobility, or volume through treatment would be determined by individual projects• Recycling to reduce volume is being considered



Is the Alternative Effective Short-Term?

Off-site	On-site
<ul style="list-style-type: none">• Receiving facilities are appropriately licensed and have operating experience• Have only minor incremental environmental effects at the existing off-site or on-site facilities	<ul style="list-style-type: none">• Facility design, construction, and operation experience learned at similar DOE and other facilities<ul style="list-style-type: none">• Demonstrate the ability to achieve short-term effectiveness• Would be applied• Minor adverse environmental effects at a disposal facility from construction and operation would be controlled or mitigated



Is the Alternative Implementable?

Off-site	On-site
<ul style="list-style-type: none">• Off-site disposal relies on commercial facilities that are currently in operation	<ul style="list-style-type: none">• Administrative and technical requirements are implementable as demonstrated by other facilities<ul style="list-style-type: none">• Construction and operations are implementable using available materials and technology• Services and materials are available



Cost

Off-site	On-site
<ul style="list-style-type: none">• Costs include packaging, transportation, and disposal fees	<ul style="list-style-type: none">• Costs include scoping, investigation and testing, design, construction, operation, closure, and post-closure monitoring