

Green Up Your Cleanup

Using the ASTM Standard: A Primer



Deb Goldblum, EPA Region
3
Greener
Cleanups

Clu-In Webinar
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Myths and Truths

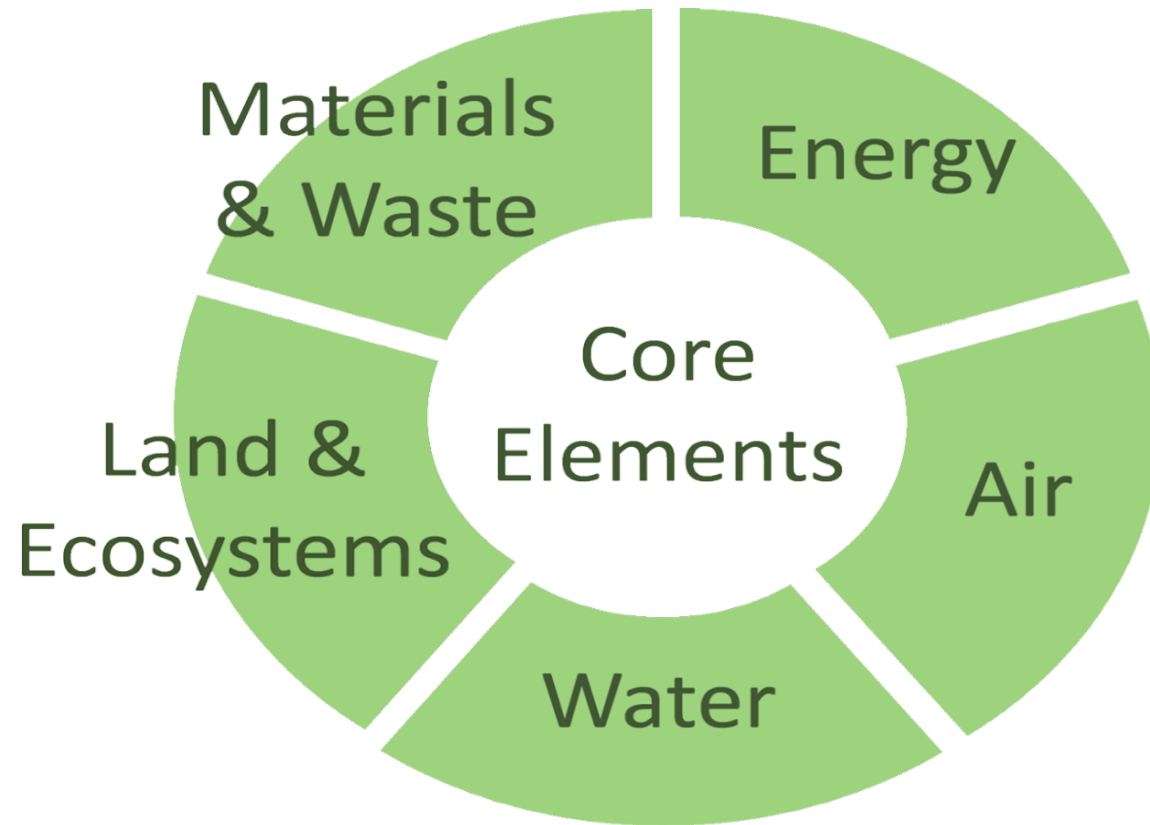
Greener Cleanups Are....

- NOT just about GHG
- NOT about the greenest technology
- The same as green remediation
- Integral to more sustainable cleanups

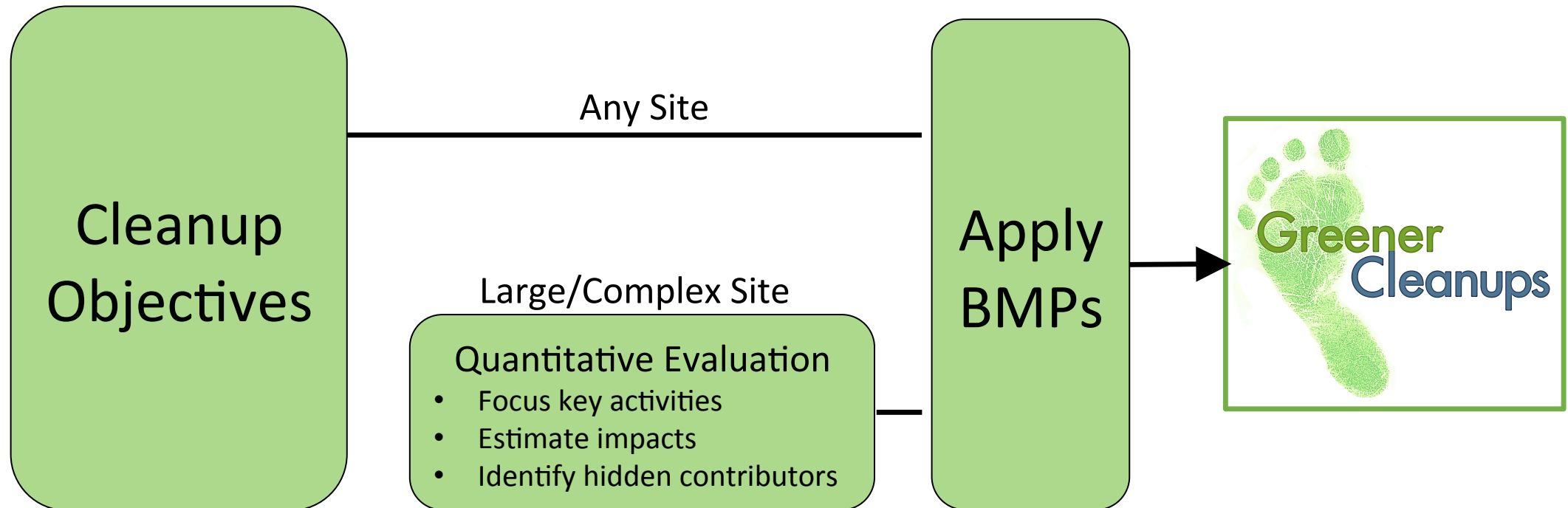
Broader View



EPA Greener Cleanup Principles



Two Approaches: Same Endpoint

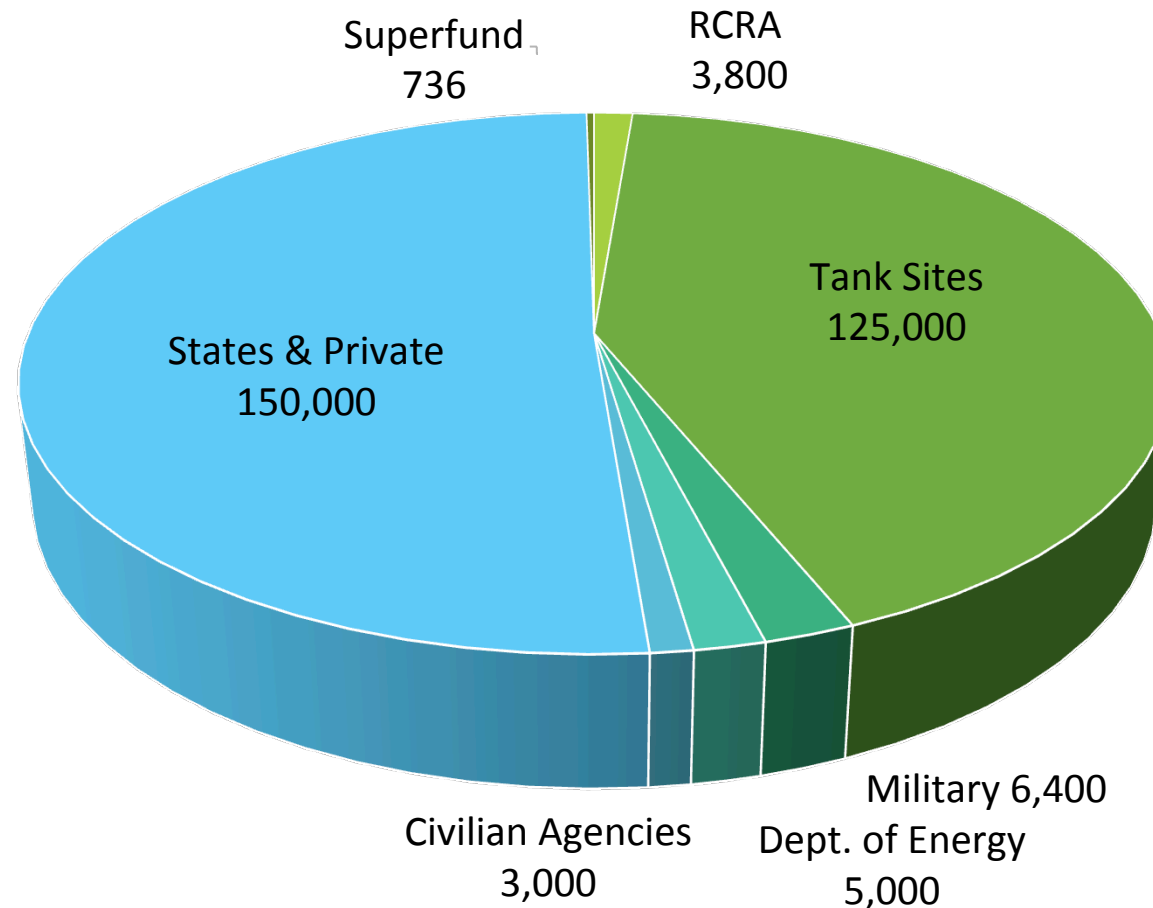


ASTM's Standard Guide for Greener Cleanups

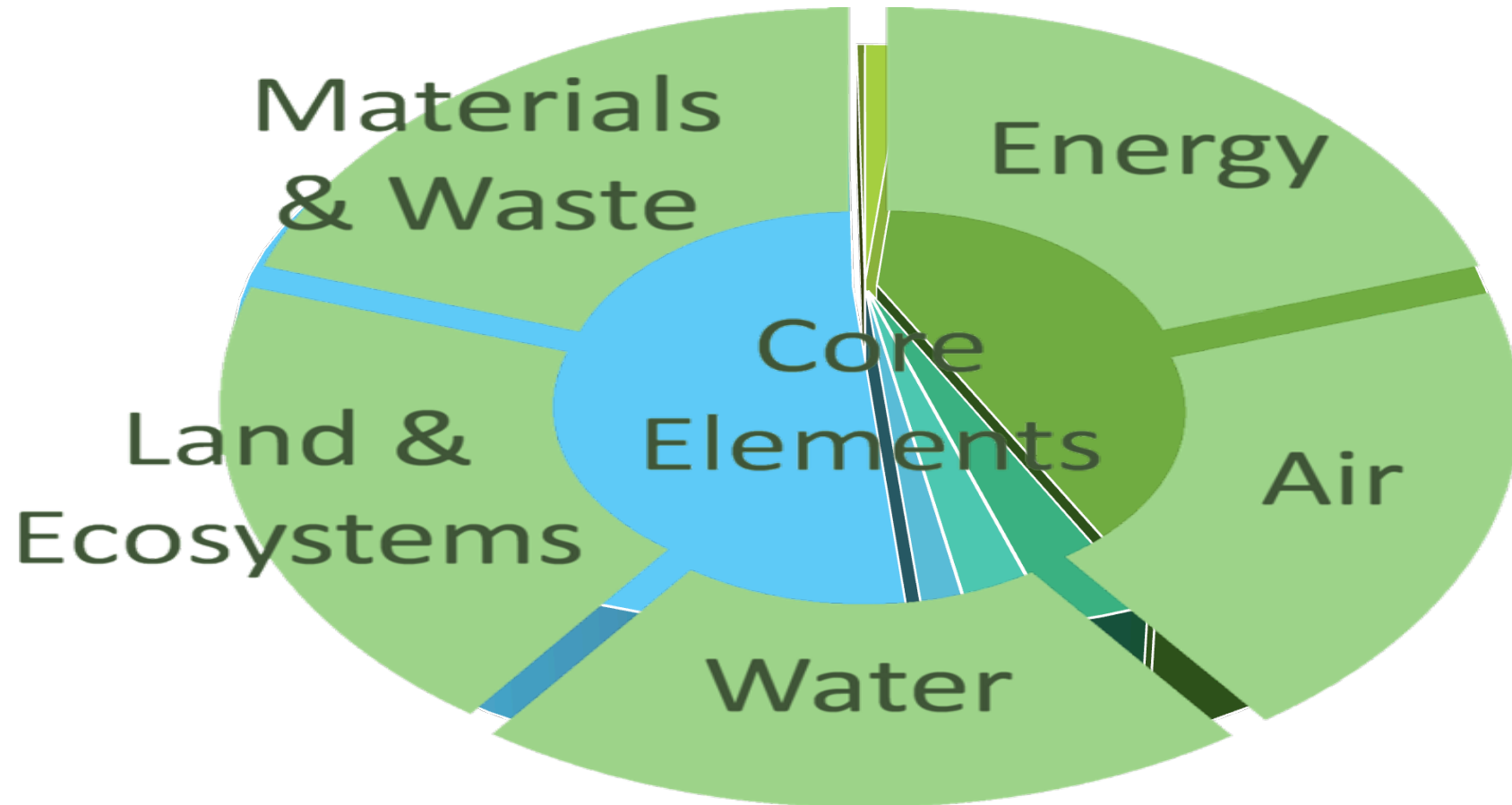
- Supports the tenets of EPA's Greener Cleanup Principles
- Applicable to individual or multiple phases of a cleanup
- Identifies and employs best management practices "BMPs"
- Offers an option for a quantitative evaluation
- Promotes transparency through a robust reporting structure

Estimated Number of Contaminated Sites = 294,000

(United States, Cleanup horizon: 2004 – 33):

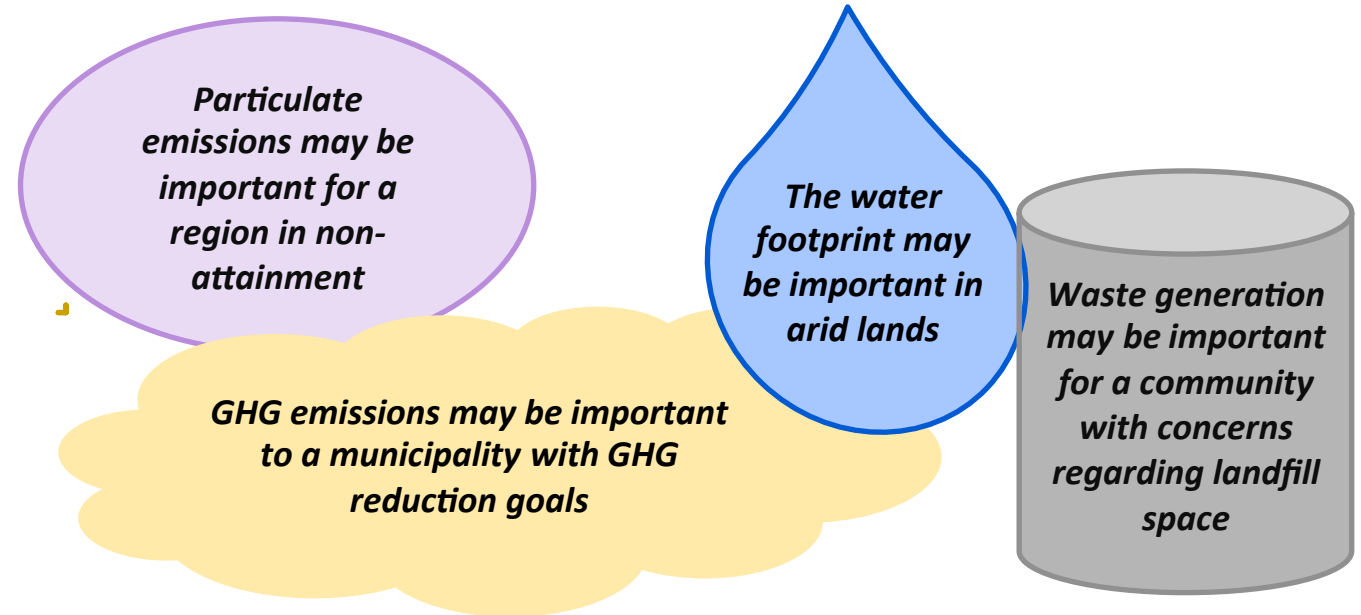


Standard Works at Any Site



Best Management Practice Process

- **Step 1:** Opportunity Assessment
- **Step 2:** BMP Prioritization
- **Step 3:** BMP Selection
- **Step 4:** BMP Implementation
- **Step 5:** BMP Documentation



Step 1 BMP Opportunity Assessment

Appendix X3 BMP Table

1											
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3	Category	Best Management Practice	Core Element Addressed (at Site Level) ¹								
4			Energy	Air	Water	Materials and Waste	Land and Ecosystems	Soil Vapor Extraction	Air Sparging		
41	Power and Fuel	Implement a utility provided demand-response program to reduce use of electricity while responding to power grid needs (for example, Smart AC, real-time consumption meter)	X					X	X		
42	Power and Fuel	Use gravity flow wherever feasible instead of additional pumps to transfer water after subsurface extraction	X			X					
43	Power and Fuel	Use gravity flow to introduce amendments or chemical oxidants to the subsurface when high-pressure injection is unnecessary	X			X					
44	Power and Fuel	Use on-site generated renewable energy such as solar photovoltaic, wind turbines, landfill gas, geothermal, and biomass combustion to fully or partially provide power otherwise generated through onsite fuel consumption or use of grid electricity	X	X				X	X		

Step 1 BMP Opportunity Assessment

Best Management Practice	Applicable
BMP 1	X
BMP 2	X
BMP 3	X
BMP 4	X
BMP 5	X
BMP 6	X

Step 2 BMP Prioritization

Best Management Practice	Priority
BMP 1	High
BMP 2	Med
BMP 3	High
BMP 4	Low
BMP 5	Low
BMP 6	Med

Step 2 BMP Prioritization

Best Management Practice	Priority
BMP 1	High
BMP 3	High
BMP 2	Med
BMP 6	Med
BMP 4	Low
BMP 5	Low

Step 3 BMP Selection

Best Management Practice	Priority	Select/Rationale
BMP 1	High	X
BMP 3	High	Cost
BMP 2	Med	X
BMP 6	Med	X
BMP 4	Low	X – required by law
BMP 5	Low	Effectiveness

Step 4 BMP Implementation



Step 4 BMP Implementation

Best Management Practice	Priority	Select/Rationale
BMP 1	High	X
BMP 3	High	Cost
BMP 2	Med	X
BMP 6	Med	X
BMP 4	Low	X – required by law
BMP 5	Low	Effectiveness

Step 5 BMP Documentation

Best Management Practice	Priority	Select/Rationale
BMP 1	High	X
BMP 3	High	Cost
BMP 2	Med	X
BMP 6	Med	Stuff Happens
BMP 4	Low	X – required by law
BMP 5	Low	Effectiveness

Reporting

Publicly Available: BMP Tables, Outcomes & Self-certification



Uses

Protocol

Tool

Reference

Outcomes

Defines
greener cleanup

Provides
a level playing field

Promotes
culture change

