Greener Cleanup Metrics
Q&As

What Are Greener Cleanup Metrics?

Greener cleanup metrics quantify portions of the environmental footprint attributed to activities directly involved in cleaning up a contaminated site. The environmental footprint characterizes the extent to which energy, water and materials are used, waste is generated, and ecosystems or air quality are affected during a cleanup project. These aspects correspond to the five core elements addressed in EPA's ***Greener Cleanup Principles***, which apply to projects conducted under Superfund, RCRA, brownfield and voluntary cleanup programs. Each EPA regional office maintains a **greener cleanup policy** that facilitates implementation of the principles in ways best meeting a region's particular needs and priorities.

What is the Purpose of Greener Cleanup Metrics?

The metrics provide an optional means for regulators, private industry and other cleanup partners to collect and track site-specific footprint information across multiple sites in a uniform and transparent manner. On a project level, use of the metrics is anticipated to help the cleanup stakeholders identify best management practices (BMPs) that could be implemented to minimize the footprint. Use of certain metrics by cleanup service contractors may be required under the Superfund Remedial Acquisition Framework. To assure utility of the metrics, the Greener Cleanups Subgroup of EPA's Engineering Forum collaborated with EPA's Office of Land and Emergency Management (OLEM) and Office of Research and Development in identifying, pilot testing and formalizing the metrics.

Which Project Data Are Captured in the Metrics?

The metrics quantify the total amounts of materials, waste, water or energy that are used or generated during the life or particular portion of a cleanup project.

Category	Metric	Unit of Measure
Materials	**Refined materials used or conserved**	tons
	Unrefined materials used or conserved	tons
Waste	**Hazardous waste generated or avoided**	tons
	Non-hazardous waste generated or avoided	tons
Water	**Public water used or conserved**	million gallons
	Groundwater used or conserved	million gallons
	Wastewater generated or avoided	million gallons
	Other water used or conserved	million gallons
Energy	**Grid electricity used or conserved**	megawatt hours
	Diesel used or conserved for equipment	gallons
	Diesel used or conserved for transportation	gallons
	Gasoline used or conserved for equipment	gallons
	Gasoline used or conserved for transportation	gallons
	Other energy used or conserved	(variable)

How Do Greener Cleanup Metrics Differ from Other Metric Sets?

These 14 universal greener cleanup metrics uniquely apply to site cleanup projects. To a limited extent, some of the metrics may correspond to those used in other EPA programs or private-sector sustainability initiatives that broadly address materials, waste and energy conservation or preservation.

Is a Tool Available to Facilitate Use of the Greener Cleanup Metrics?

EPA developed an Excel-based *Greener Cleanup Metrics Workbook* that may be used to document and report the metrics for a specific cleanup project. The needed input typically exists in project planning and implementation documents or supporting records. The output depends on predetermined delineation of the timeframe in which selected activities occur, such as one or more cleanup phases or calendar years. To download the workbook, visit https://clu-in.org/greenremediation/greenercleanupmetrics.

How Can Other Aspects of the Environmental Footprint Be Evaluated?

EPA's *Spreadsheets for Environmental Footprint Analysis* (SEFA) may be used to gain more details about the footprint associated with use or generation of materials, waste, water and energy during a cleanup. For example, use of SEFA can help decisionmakers understand the percent of onsite-generated waste that is recycled or reused, or the amount of onsite-generated renewable energy that is used to directly power cleanup equipment or offset use of grid-supplied energy. SEFA also may be used to quantify the footprint contribution associated with activities that generate onsite or offsite air emissions. To date, EPA has evaluated the environmental footprint associated with the "land and ecosystems" core element of a greener cleanup on a qualitative rather than a quantitative basis. SEFA consists of three integrated Excel workbooks requiring more detailed input, which may involve collecting new data. No single SEFA workbook mirrors the *Greener Cleanup Metrics Workbook*. To learn more about SEFA, visit https://clu-in.org/greenremediation/SEFA.

Can the Greener Cleanup Metrics Be Used to Apply the ASTM *Standard Guide for Greener Cleanups*?

EPA regional offices and cleanup program offices are encouraged to use the **ASTM *Standard Guide for Greener Cleanups*** (E2893-16) to identify, prioritize and select BMPs that could reduce the environmental footprint of site-specific cleanup activities. Quantified information gained through use of the greener cleanup metrics is anticipated to inform the BMP evaluation and associated documentation process outlined in the standard guide.

For more information about the greener cleanup metrics, contact:
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