Community Guide to Greener Cleanups

What Is a Greener Cleanup Strategy?

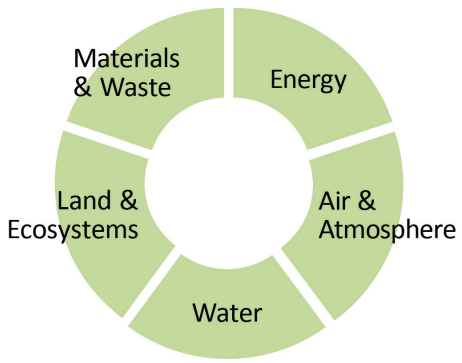
The process of cleaning up a hazardous waste site requires energy, water and other natural or material resources. This process places demands on the environment and creates an environmental "footprint" of its own. A greener cleanup strategy looks at this footprint closely and finds ways to reduce it throughout the life of a project, while achieving cleanup goals and preserving site reuse options. Early consideration of the environmental footprint of a cleanup also can help lead to sustainable reuse or redevelopment of the site.

How Does It Work?

A project team working toward a greener cleanup considers many techniques to reduce the footprint, considering their environmental advantages and disadvantages.

Site conditions vary widely and so do the approaches and methods to making a cleanup greener. To help find ways to reduce a cleanup's environmental footprint, the possible environmental impacts are grouped into five core elements shown in the graphic below. Here are just a few of the examples of activities under each core element that promote greener cleanups:

- **Energy** use can be reduced by assuring all cleanup equipment runs efficiently and is properly sized for the task. For example, an oversized pump might be replaced by one that is more efficient and uses less electricity. Using fuel-efficient trucks can reduce use of diesel fuel. Greener cleanups also power equipment using solar, wind or other renewable energy. The use of renewable energy reduces the electricity or natural gas needed from local utilities.



The core elements of an environmental footprint.

Windmills power equipment to remove oil from contaminated groundwater.

- Impacts on the **air and atmosphere** can be reduced by using less energy from utilities that rely heavily on burning fossil fuels, such as coal or oil. Air pollutants from site activities can be reduced by adding filters to the exhaust systems of heavy machinery and replacing machine engines with newer, cleaner models.

- **Water** used during the cleanup process can be recirculated and reused instead of using fresh water. Water quality can be protected by building soil barriers around a construction area to prevent stormwater runoff, which can carry topsoil to nearby streams and harm fish and other wildlife.

- Taking precautions to protect **land and ecosystems** in the cleanup area can involve relocating animals to safer areas or landscaping with native plants. Restricting truck traffic to paved roads or to defined pathways in unpaved areas avoids unnecessary land disturbance and can protect soil and habitats.

- **Materials and waste** management maximizes material reuse or recycling and minimizes waste.

For example, saving concrete, wood or other demolition materials for later construction activities can significantly reduce a cleanup's environmental footprint.

How Long Will It Take?

Taking the steps to assure a greener cleanup does not need to delay cleanup progress. Simple changes in field procedures such as setting a "no-idling" policy for machinery engines can be made within days. In comparison, changes such as installing a solar energy system can take a year to plan and months to construct while cleanup progresses. Planning for a greener cleanup at the beginning instead of the middle of a project can lead to the biggest reductions in a project's environmental footprint.

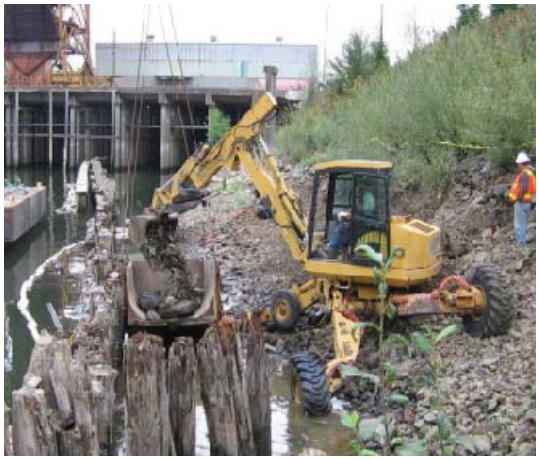
Simple changes in field procedures can reduce a site's environmental footprint.

How Might It Affect Me?

All steps of a greener cleanup are meant to improve the long-term health of a community by protecting the environment in which we live. Many steps may go unnoticed outside of the project team. Some may result in direct benefits to you, such as reduced traffic and noise due to fewer waste-hauling trucks on the roads. Other greener cleanup methods can offer ways for you to become more involved, such as finding local uses for uncontaminated scrap metal, lumber or demolition material.

Why Use A Greener Cleanup Strategy?

As a nation, we value land as a natural, cultural and economic resource. Using a greener strategy is often a smarter way to clean up contaminated land. A greener cleanup strategy can help decrease the use of fossil fuels such as oil and coal. A greener strategy also can lower cleanup costs by reducing the amount of electricity and materials that are used. In general, a greener strategy started during the early stages of a cleanup can set the stage for sustainable reuse or redevelopment of the site.



Heavy machinery used to remove contaminated soil can run on ultra-low sulfur diesel.

Example

Owners of the Apache Nitrogen Products, Inc., Superfund site in Arizona cleaned up contaminated soil and groundwater with many green features.

- A wetland system was constructed to remove contaminants from groundwater through natural processes. The hillside location of the wetland allows water to flow through the system without using pumps.
- Renewable energy powers the equipment that recirculates water through the wetland.
- Treated groundwater is pumped back underground to replenish groundwater supplies, rather than releasing it to creeks or ponds.
- Clay for the soil cap was obtained locally, minimizing transportation impacts.

These features help make a cleanup greener by avoiding chemicals sometimes used to treat contaminants, reducing the energy needed to operate cleanup equipment, and increasing the supply of clean groundwater.

For More Information

- About this and other technologies in the Community Guide Series, visit: https://clu-in.org/cguides or https://www.epa.gov/greener-cleanups
- About use of cleanup technologies at a Superfund site in your community, contact the site's community involvement coordinator or remedial project manager. Select the site name from the list or map at http://www.epa.gov/superfund/sites to view their contact information.

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