Sustainable and Healthy Communities National Research Program
2015 ACHIEVEMENTS
A cross the country, thousands of former industrial sites, waste operations, and other lands have been contaminated with harmful chemicals and other toxics, threatening human health, disrupting or diminishing ecosystem services, and limiting the productive use of the land. SHC researchers are providing the innovative solutions needed to clean up and rehabilitate such sites and help restore them back into community assets.

In 1987, EPA established three engineering Technical Support Centers to match Agency expertise with the needs of Agency Program and clean up, and releasing contaminated sites for reuse. The centers are strategically located in close Development research laboratories and are dedicated to serving the Agency and its clients by supplying high-quality, quick-response technical support services. Together, the centers respond to hundreds of technical support requests from contaminated sites.

The three Technical Support Centers, their locations, and web sites for more information are:

Research to Advance the Clean-up and Rehabilitation of Contaminated Sites

EPA’s Engineering Technical Support Centers for Contaminated Sites
The Engineering Technical Support Center
Cincinnati, OH.
Web:

The Ground Water Technical Support Center
Ada, OK
Web:

The Site Characterization and Monitoring Technical Support Center
Athens, GA
Web:

The three centers listed above work closely with two other centers, the Superfund/Human Health Technical Support Center and the Ecological Risk Assessment Technical Support Center, which are supported by EPA’s Human Health Risk Assessment national research program.

In coordination with the work of the Engineering Technical Support Centers, SHC researchers also work closely with communities, and other partners to characterize the complex interactions of contaminants, soil, groundwater, and air (vapor intrusion). The overriding goal is to provide innovative solutions and tools that lower risks, protect human health, and help rehabilitate contaminated sites.

Agency researchers are building sophisticated computer models and other tools to better understand contaminant transport and “contaminant plumes” between (to and from) groundwater aquifers and different types of underlying and surrounding substrates, and to and from surface waters. They are also developing, testing, and assessing technologies and techniques for monitoring contaminants in soil, water, and air.

Site managers and remediation specialists use research results and resources to monitor and assess cleanup activities, and design long-term strategies for protecting public health. Such innovative tools are helping revitalize communities and advance sustainable waste and materials management.

Recent research results and publications include the following.

(Contaminated Groundwater Research)


(Contaminated Sediments Research)

Fernandez LA, Lao W, Maruya KA, and Burgess: Persistent organic pollutants between sediments and the water column on the Palos Verdes Shelf Superfund site using polymeric passive samplers. Environmental Science and Technology, 48(7), 3925-3934.

Sustainable Approaches for Contaminated Sites

http://go.usa.gov/cH4fJ
Sustainable Approaches for Vapor Intrusion

Supporting Preparedness, Emergency Response, and Clean Up of Oil and Fuel Spills

Air monitor EPA researchers use to study vapor intrusion inside a former pre-1920 home.

Oil spill dispersant released in response to the BP oil spill in the Gulf of Mexico 2010.

http://go.usa.gov/xYTGH
That work includes exploring novel methods to spur the biodegradation of biodiesel and diesel blends of fuel, developing techniques and technologies to inform the Agency's National Contingency Plan Product Schedule (dispersants and other products available for use on oil spills), and advancing the monitoring and assessment of leaking underground storage tanks.

Recent accomplishments from EPA research include the following.


Even as EPA researchers advance novel techniques to help the cleanup of contaminated lands, monitor and mitigate vapor intrusion, and respond to releases of oil and fuel into the environment, they recognize that the ultimate solution to such challenges is to eliminate or prevent pollution at its source. They are leading the charge to usher in new a generation of cleaner, more sustainable materials management.

Working with partners and stakeholder throughout the Agency, other federal and state agencies, and private industries, SHC researchers are working to minimize environmental impacts associated with products, sparking new ways to reduce consumption and increase reuse and recycling.

This work includes developing and demonstrating new Life Cycle Assessment (LCA) paradigms to identify, monitor, and quantify the true environmental impacts of consumer products across the full spectrum of production, use, and disposal.

To further such efforts, Agency researchers updated The Waste Reduction Model (WARM), a tool that estimates greenhouse gas emission reductions from different waste management practices (including source reduction, recycling, combustion, etc.) in an international-standards-based format compatible with LCA studies and models. It is available for use (web-based) and downloading (via a spreadsheet) at https://www.epa.gov/warm.

In addition, Agency researchers are exploring ways to help communities turn the waste streams that result from high energy, resource intensive productions, such as secondary aluminum processing resources. Innovation applied to such industries and practices has the potential to dramatically reduce the consumption of water and non-renewable fuels, and spark economic growth.

Sustainable Materials Management

http://go.usa.gov/ctBvJ

http://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=P100NRFR.txt