

## Greener Cleanups Task Force, Strategy Document 1: Implementing Greener Cleanups in the States

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The Association of State and Territorial Solid Waste Management Officials (ASTSWMO) established the Sustainability Subcommittee in July 2007. In October 2007, it created the Greener Cleanups Task Force (GCTF), one of four task forces under the Sustainability Subcommittee.

GCTF members are cross-program staff, representing CERCLA, Brownfields and Voluntary Cleanups, RCRA, Federal Facilities, and Tanks. Our work transcends regulatory cleanup goals and conventional site cleanup practices; we evaluate the impact that remedial choices have on the environment. Decisions related to energy usage, greenhouse gas emissions, water consumption and waste generation, for example, affect site sustainability.

There are no laws or regulations for green remediation and no set performance metrics. The GCTF is helping to create a framework for this emerging field. We will identify best practices and incentives for greener cleanups and support State programs in their efforts to integrate these approaches into State remedy selection processes. We are working to strengthen partnerships between the States and U.S. EPA to improve greener cleanup capacities, and expect to operate as a technical resource for other task forces and subcommittees.

### **Greener cleanups and their benefit to the environment**

The GCTF defines green remediation as the consideration of sustainability principles in all phases of remediation in order to maximize the net environmental benefit of a cleanup.

Greener cleanups:

- Conserve natural resources
- Improve energy efficiencies
- Reduce waste material requiring off-site disposal
- Reduce carbon emissions and other greenhouse gases

For specific examples of greener cleanup practices by the States, please refer to Appendix A. To learn more about greener cleanups generally, please refer to U.S. EPA's Green Remediation Primer: <http://www.cluin.org/download/remed/Green-Remediation-Primer.pdf>

### **State policy drivers**

State involvement in greener cleanups is motivated by diverse influences. Among GCTF members, we have identified the following policy drivers:

- Governor and legislative priorities on sustainability and renewable energy
- State technical capacity and acceptance of innovative technologies
- Regulatory pressures, such as clean air requirements, landfill bans, or energy use restrictions

- Innovative site owners and responsible parties
- State acceptance of risk-based cleanups and institutional controls
- The regional economy, such as fuel costs and pricing for salvaged metals and materials.

### **Data gaps and limitations**

Identification of best practices for greener cleanups requires an understanding of the sustainability trade-offs among remediation choices. For example: Is it better to dig and haul contaminated soil or manage waste in place? Consider the air and water impacts:

- Heavy equipment usage on site
- Vehicle miles traveled
- Dust, volatilization and erosion management
- Transferring pollutants vs. contaminant destruction

Site-specific data and an understanding of the intended site reuse are frequently needed to make the most sustainable decision. Baseline data on the environmental impact of remedial options are also critical, but this kind of quantitative information is generally unavailable. Much more research, including pilot studies, will be necessary to effectively compare the sustainability of various remedial options.

Additional and related limitations include: uncertainty about performance metrics, few funding sources, no regulatory authority to spend more for more sustainable remediations, and not enough staff at the State level with time to explore greener cleanup opportunities.

With regard to the private sector, limitations include: a lack of awareness of greener technologies; reluctance to deviate from conventional cleanups (risk aversion); financial disincentives for certain environmental consultants, such as dig and haul contactors; and no external rewards for site owners, such as public recognition at completion of cleanup, incentives, or greener cleanup standards.

### **Role of the Greener Cleanups Task Force**

The GCTF mission is to facilitate cleanup decisions that increase the net environmental benefits of remediation, and in doing so, contribute to site and environmental sustainability.

In developing its work plan proposal, the GCTF selected four target areas: strategy papers, outreach, partnerships, and tracking.

This document is strategy paper number one. The others will be released in coming months and are organized as follows:

- Creating Incentives
- Barriers to Greener Cleanups
- Incorporating Greener Cleanups into Contract Language
- Incorporating Greener Cleanups into Post Remedy and CERCLA 5-Year Reviews
- Incorporating Greener Cleanups into Supplemental Environmental Projects (SEPs)
- Incorporating Greener Cleanups into Environmental Management Systems (EMS)

- Greener Cleanups Toolkit and Checklist

The papers will be made available on ASTSWMO's website and presented where possible at ASTSWMO meetings.

Outreach to the States is a major priority for the task force. We established a webpage of greener cleanup resources, including links to specific state initiatives, at: [http://www.astswmo.org/resources\\_sustainability\\_greenercleanups.html](http://www.astswmo.org/resources_sustainability_greenercleanups.html). Updates are made as needed. We are also working to create a companion webpage calendar that will identify upcoming training, seminars and other events related to greener cleanups.

GCTF members have been building a contact list to create a network of State environmental professionals able to share information and exchange new information on green remediation. We support the inclusion of green remediation speakers and panel sessions at ASTSWMO meetings and symposiums and at other venues, such as U.S. EPA conferences.

The GCTF is open to collaboration with other ASTSWMO task forces and focus groups as well as outside parties interested in advancing green remediation practices for State programs. Specific partnerships are detailed in the section below.

Tracking of publications, tools and emerging technologies is another priority for the GCTF and an on-going challenge as interest in this field gains momentum. The GCTF would like to serve as a green remediation clearinghouse for ASTSWMO members, but will surely need help from other task forces and focus groups in keeping up with all of the new developments.

### **Partners in Greener Cleanups**

From the start, the GCTF has benefited from partnerships with like-minded environmental professionals.

#### U.S. EPA

U.S. EPA is a strong proponent of greener cleanups and has formed multiple work groups under the Office of Solid Waste and Emergency Response (OSWER). In nearly all instances, these groups are cross-program. The GCTF has exchanged ideas and swapped speakers with the following:

- Green Remediation, Revitalization, and Reuse "Tiger" Team
- Climate Change and Contaminated Lands (CCCL) Workgroup
- HQ-Technology Innovation Program Green Remediation Effort
- Superfund Green Remediation Workgroup
- Technical Support Project Green Committee led by the Engineering Forum
- Region 3 Pilot Project on Green Cleanup Standards
- Region 9 Cleanup-Clean Air Initiative

#### Other ASTSWMO groups

At the 2008 Mid-Year and Annual ASTSWMO meetings, the GCTF partnered with the CERCLA and Brownfields Subcommittee and the Tanks Subcommittee, respectively, to offer panel sessions on greener cleanups. We hope to continue this practice and expand our collaborations with the other Subcommittees at future meetings and symposiums. We would like to identify longer-term joint projects with other task forces and focus groups. When our work overlaps, as is the case with our strategy paper on CERCLA 5-Year Reviews, we will request input from the appropriate group.

#### Interstate Technology and Regulatory Council (ITRC)

In 2009 ITRC plans to launch a new Green Remediation Team to develop a technology overview. As proposed, its goal is to determine a process for factoring environmental, economic and social aspects of sustainability into the remedy selection and implementation process. GCTF looks forward to working with this group and expanding the number of States involved in green remediation activities.

The GCTF also has links to the Sustainable Remediation Forum (SURF). SURF defines itself as “a collaborative forum to develop the ability to use sustainable concepts in remedial action decision making.” Members include State and federal agencies, industry, consultants, academics and public stakeholders. SURF is chaired and facilitated by DuPont, meets quarterly, and posts its meeting materials and presentations online for anyone to access. SURF is working now on a White Paper titled, *Integrating Sustainability Principles, Practices and Metrics into Remediation Projects*. GCTF member states are contributing to the White Paper and participating in SURF meetings. Private sector SURF members are helping to cultivate pilot projects in State cleanup programs, creating the opportunity for future case studies.

#### **Expected Progress**

Besides fulfilling its own work plan, the GCTF is looking more broadly at how it can contribute to work underway in the three areas described below.

#### Certification standards

The Region 3 Pilot Project on Green Cleanup Standards is working toward a national voluntary verification program for green remediation. While still led by Region 3, this workgroup has expanded to five subcommittees: Process, Technical, Communication, State Involvement and Legal. The subcommittees are staffed with members from OSWER program offices at Headquarters and the Regions and the GCTF. Participation on the subcommittees is open to any State.

#### Performance metrics

New green remediation data and evaluation tools are appearing regularly. Sustainability indicators and metrics are being developed too, and will most likely emerge as part of the certification standards project. The GCTF intends to give States an early voice in deciding which environmental outcomes should be measured in determining the effectiveness of greener cleanups.

Stronger tie to climate change mitigation

The GCTF regards green remediation as a valid way to help States meet anticipated action by the federal government on climate change. The best practices we are advocating should be useful to States looking to demonstrate progress in renewable energy use, decreased greenhouse gas emissions, and carbon sequestration through soil amendments and revegetation of contaminated land.

**For more information, please contact:**

Heather Nifong, GCTF Chair  
Illinois EPA

[heather.nifong@illinois.gov](mailto:heather.nifong@illinois.gov)

217-785-4729

Kerry Callahan, Staff Associate  
ASTSWMO

[kerryc@astswmo.org](mailto:kerryc@astswmo.org)

202-624-7884

## Appendix A: State Activities Relative to Greener Cleanups

California	Established a <i>Green Remediation Team</i> in Cal/EPA's Department of Toxic Substances Control (DTSC) February 2007.
	Developing a Green/Sustainability Evaluation Matrix for clean-up technologies and applications based upon a life-cycle approach for identifying impacts of resource consumption and environmental stressors.
	Creating a Green Remediation Guidance for DTSC's Remedial Project Managers.
	Hosting a Symposium on Green Remediation February 4, 2009. Topics include: metrics, tools and technical references for use in sustainability assessments; international perspectives; the consideration of sustainability in regulatory-driven environmental impact assessments; and sustainable remediation pilot projects, demonstrations and incentive programs.
Illinois	Created the matrix, How to Maximize the Environmental Benefits of Site Remediation.
	Developing criteria for a green remediation prototype for LUST sites. Focusing on the tank program because of the similarity between sites, the large volume of sites, and the opportunity to incentivize greener cleanup choices due to UST Fund reimbursement of assessment and cleanup costs.
	Developing a pipeline release protocol using greener cleanup principles with support from EPA Office of Superfund Remediation and Technology Innovation (OSRTI).
	Conducted a one-day green remediation training for Illinois EPA Bureau of Land managers with assistance from EPA Region 5.
	Encouraging the conversion of methane gas to energy at landfill sites.
	Increasing ecological restoration efforts by using native prairie plants on landfill caps and, at one site, relying on goats to trim vegetation.
Massachusetts	Investigating ways to incorporate "green" technologies at large NPL sites that are now in long term O&M implemented and funded by the state. In particular, ways to reduce power usage and reliance on the electrical grid.
	Including green cleanup concepts into its discussions and settlement negotiations with PRPs and EPA at NPL sites. (Suggest that EPA HQ develop incentives for the regions to include these concepts in settlements).
	Incorporating green cleanup concepts into its contracts with state funded cleanup contractors.
	At a MA funded O&M Superfund site, the state is pursuing the use of Combined Heat and Power (CHP) technology in place of more inefficient Granulated Activated Carbon (GAC) adsorption as well as accounting for the GHG equivalent emissions associated with the use of various treatment chemicals and their transport.
	MA is working to match municipal Brownfields sites with renewable energy developers to implement financially viable renewable energy facilities on contaminated land that could generate electricity for on-site, behind the meter use through net metering. This type of "third party financing" leverages large federal depreciation and tax credit incentives that are otherwise not available to municipalities and other non-profits.
New York	NYSDEC Division of Environmental Remediation is in the process of drafting a directive from Division management regarding incorporating green remediation concepts into all aspects of remediation (OM&M, Remedial Action, Remedial Design, and Remedy selection). This directive would apply to all the various remedial programs.
	NYSDEC is also drafting guidance specifically to address optimizations of remedies which will include green remediation concepts.
	NYSDEC has begun educating staff on green remediation concepts.
	Drivers include consistency with the Governor's and Commissioner's priorities, which are: conserving natural resources; recycling; reducing pollution and waste; increasing energy efficiency and using renewable energy sources; reducing greenhouse gas emissions; encouraging low-carbon design technologies; fostering green and healthy communities; and preserving open space and working landscapes.

Wisconsin	Established the <i>Wisconsin Initiative for Sustainable Cleanups (WISC)</i> July 2007.
	Compiling comprehensive list of green options/aspects to be applied to cleanups.
	Developing meaningful performance measures and considering possible incentives, including a formal recognition program.
	Assessing how initiatives elsewhere in Wisconsin can help: <ul style="list-style-type: none"> <li>• Governor’s Green House Task Force</li> <li>• Cooperative Environmental Assistance – Green Tier, EMS Approaches</li> <li>• Waste and Materials – Waste CAP Connection</li> </ul>
	Evaluating alternative energy use and sustainable remediation activities at seven State-Funded Response and Superfund sites: <ul style="list-style-type: none"> <li>• Contractor selected to perform evaluations</li> <li>• Report due spring 2009</li> <li>• Will contain specific proposals for modification of existing remedial systems</li> <li>• Added benefit: fits well with optimizing O&amp;M costs, a key issue for cleanup programs.</li> </ul>
Vermont	Encouraging the conversion of methane gas to energy at landfill sites (WSI Moretown).
	With Air Pollution Division, developed prototype spreadsheet that evaluates the GHG impact of thermal desorption vs. landfilling of petroleum-contaminated soils, factoring in transportation energy costs.
	Created a Climate Change organizational unit that will be the lead on climate change/GHG reduction initiatives for the Agency of Natural Resources.
	Pending participation in ITRC “Green Remediation” Team.