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Technical Requirements for On-site Thermal Desorption of Solid Media Contaminated with Hazardous Chlorinated Organics (TD-2)

EXECUTIVE SUMMARY

In 1994, the Western Governors' Association convened a meeting of western regional regulators to discuss ways to increase cooperation among states on the review, permitting, and evaluation of promising new remediation technologies. This group, the Interstate Technology and Regulatory Cooperation Work Group (ITRC), has since been expanded to states outside the region and includes federal, industry, tribal and public advisors as well.

The ITRC Low Temperature Thermal Desorption (LTTD) Work Team previously developed a document which blends diverse state technical requirements for a proven technology, low temperature thermal desorption, used for treatment of nonhazardous soils. The LTTD Work Team considered requirements from nine states to develop their draft document and circulated the document for review, comment and concurrence to all member states of the ITRC.

The work team expanded its scope to address technical requirements for use of thermal desorption on solid media contaminated with hazardous chlorinated organics. Using the first document as a template for the second, requirements for chlorinated organics were “layered” onto the original text to address some of the more complex issues of treating hazardous wastes. All ITRC member states, as well as interested stakeholders and tribal and federal partners were asked to review and comment on these requirements. The team discussed and integrated many of the comments into the final requirements. This document will now move through the ITRC Concurrence Process to determine the degree of concurrence by ITRC member states on the technical and regulatory guidelines presented within this document.

In keeping with the full ITRC, the LTTD Work Team views stakeholder involvement as a key element, when selecting new technologies for the cleanup of contaminated sites. The Work Team has adopted, in principal, the concepts put forward in “A Guide to Tribal and Community Involvement in Innovative Technology Assessment”, developed by the participants o the DOIT Tribal and Public Forum on Technology and Public Acceptance.

In producing this product, the general goals of the LTTD Work Team were:

- to produce a model set of technical requirements which would serve as a format for states;
- to improve market conditions for thermal desorption technology providers by providing a degree of consistency in technical requirements;
- to further the process of interstate cooperation directed toward enhancing implementation of innovative technologies;

Thermal desorbers remove organic constituents from solids by raising the temperature of the contaminated material to a sufficiently high level to effect contaminant volatilization and transfer to a gas stream. Technical requirements focus on achieving contaminant removal, fugitive emissions control, mechanical operability of the primary treatment equipment and efficient fuel combustion (where appropriate).

This document specifies minimum technical requirements for the permitting/approval to operate thermal desorption. The requirements presented in this document are directed toward relatively small, short term, on-site projects as opposed to permanent treatment, storage and disposal (TSD) facilities. Although the document may touch on some regulatory requirements regarding hazardous waste, it is **not intended to summarize or interpret existing state or federal regulations**.

It is important to note that state regulations may be more restrictive than the minimum technical requirement included in this document and that compliance with those more restrictive regulations is required unless a specific waiver pursuant to CERCLA or some other state statute is involved. Therefore, approval of the use of a thermal desorption unit at a site in one state should not be construed as approval to use the technology at another site in either the same or a different state.

This document has been developed for units used for the treatment of material contaminated with hazardous substances, as well as hazardous wastes which have been assumed to be subject to Resource Conservation and Recovery Act (RCRA) Part 264, Subpart X requirements. For purposes of establishing minimum technical requirements, some technical requirements have been drawn from Subpart O. **However, this document does not attempt to address whether any particular thermal desorption unit/or afterburner is classified as an incinerator.** That determination, along with associated requirements, will be made by individual states and states are still free to regulate a unit under Subpart O.

Technical requirements in this document are provided for the following areas:

- Pre-treatment Sampling
- Feed Soil Limitations
- Treatment Verification Sampling
- Soil Handling and Stockpiling
- System Operating Requirements
- Process Monitoring
- Automatic Shutdown
- Proof of Process (POP) Performance Testing for Air Pollution Control Systems
- POP Testing Frequency for Units Treating Contaminated Media
- Emissions Monitoring
- Water Discharge Monitoring
- Record Keeping
- Quality Assurance/ Quality Control
- Health and Safety
- Cost and Performance Reporting Requirements

On some sites, states may choose to go beyond this set of requirements. It is the responsibility of operators to find out from regulators whether there are additional or alternate requirements applicable; and it is in the states' best interest to allow variances from these technical requirements based on specific technology applications. Variances also should be considered to allow for the use of appropriate alternative sampling or analytical methods.