



EPA-305-X-04-002

# **Polychlorinated Biphenyl Inspection Manual**

August 2004

Office of Compliance  
Office of Enforcement and Compliance Assurance  
U.S. Environmental Protection Agency  
1200 Pennsylvania Avenue, NW (MC 2224-A)  
Washington, D.C. 20460

<http://www.epa.gov/compliance/resources/publications/monitoring/manuals.html>

# Appendix J

## Chemical Waste Landfills

According to §761.75, the owner or operator of a chemical waste landfill used for the disposal of PCBs and PCB Items must obtain written approval from the EPA Regional Administrator prior to use of the landfill for PCB disposal. The landfill must meet technical operating requirements, but the Administrator, based on a finding of no unreasonable risk, may grant a waiver from one or more of the technical requirements. To obtain approval, the landfill owner/operator must submit to the Regional Administrator an initial report containing such items such as landfill location, description of site, an engineering report describing how the landfill complies with PCB regulations, and an operations plan. The inspector should obtain from the facility the approval document and refer to it during the inspection. The inspector should verify compliance with the approval document as well as the regulations.

Landfills must meet various requirements, including provisions pertaining to synthetic membrane liners, flood protection, groundwater monitoring wells, and the development of an operations plan. A landfill approval document from EPA may include the following items:

- Technical requirements
- A list of persons authorized to operate the landfill
- Any additional requirements, at the discretion of the Regional Administrator, where s/he finds that such requirements are necessary to protect human health and the environment
- The period of time for which the approval is valid (if limited)
- Waivers (if any).

### Acceptable for Disposal

The following list provides selected PCB and PCB-contaminated wastes acceptable for disposal at chemical waste landfills:

- Liquid PCBs (in concentrations of 50 to 500 ppm) that are from incidental sources, such as precipitation, condensation, leachate, or load separation, and are associated with PCB Articles or non-liquid PCB wastes if information is provided to the landfill owner/operator showing that the PCB level does not exceed 500 ppm and they are not ignitable wastes. §761.60(a)(3)

- PCB Transformers, if drained, filled with solvent, allowed to stand for 18 hours, and then thoroughly drained. Solvents may include kerosene, xylene, toluene, and other solvents in which PCBs are readily soluble. (Precautionary measures should be taken to ensure that the solvent flushing procedure is conducted in accordance with applicable safety and health standards as required by Federal or State regulations.) §761.60(b)(1)(i)(B)
- PCB articles (excluding transformers, capacitors, hydraulic machines, or PCB-contaminated electrical equipment) with PCB concentrations  $\geq$  500 ppm, if free-flowing liquid is drained prior to article disposal. §761.60(b)(4)(ii)
- PCB containers that have not been decontaminated if they have PCB concentrations  $\geq$  500 ppm and if liquid PCBs are drained prior to container disposal. §761.60(c)(1)(ii)

#### Not Acceptable for Disposal

- Liquid PCBs (in concentrations  $\geq$  500 ppm). §761.60(a)
- Liquid PCBs in concentrations  $<$  50 ppm that are the result of dilution of liquid PCBs  $\geq$  50 ppm. §761.60(a)
- Large PCB Capacitors with high- and low-voltage that contain 500 ppm or greater PCBs (after 3/1/81) unless the Administrator finds that the capability for incinerating PCB Capacitors is not available, or that such incineration will significantly interfere with incineration of liquid PCBs, or that other good cause is shown. §761.60(b)(2)(iii)(B), §761.60(b)(2)(v)
- PCB small capacitors (after 3/1/81) owned by manufacturers of PCB Capacitors or PCB equipment and acquired in the course of such manufacturing. (Other small capacitors may be disposed of as municipal solid waste.) §761.60(b)(2)(iv)

The following tables provide an overview of the regulatory requirements and inspection procedures related to chemical waste landfills used to dispose of PCBs.

Regulatory Requirements	Inspection Procedures
<b>Notice Requirements (§761.60)</b>	
<p>When operating under a landfill waiver pertaining to the disposal of dredged materials and sludges, owners/operators must give State or local governments within whose jurisdictions the disposal will take place written notice at least 30 days before conducting disposal activities. §761.60(f)(2)</p> <p>Each operator of a landfill shall give the State and local government within whose jurisdiction the disposal facility is located at least 30 days notice before a facility is first used for disposal. §761.60(f)(1)(i)</p> <p>At the request of any State or local government, owners/operators must provide <u>annual notice</u> of the quantities and general description of PCBs disposed of during the year not more than 30 days after the end of the year covered. §761.60(f)(1)(ii)</p>	<p>Check correspondence file for compliance with notification requirements.</p>

Regulatory Requirements	Inspection Procedures
<b>Recordkeeping Requirements (§761.180 &amp; 75)</b>	
<p>Owners/operators of chemical waste landfills must establish and maintain for at least 20 years after the landfill is no longer used for the disposal of PCBs the following <u>records</u>:</p> <ul style="list-style-type: none"> <li>• All records and the annual document log required by §761.180(b) and (d) for disposal facilities. Required records include signed manifests, certificates of disposal, water analyses, and operations records with three-dimensional burial coordinates. §761.180(d)</li> <li>• Water analysis data for PCBs, pH, specific conductance, and chlorinated organics obtained in accordance with §761.75(b)(6)(iii). §761.180(d)(1)</li> <li>• PCB concentration in liquid wastes and three-dimensional burial coordinates. §761.75(b)(8)(iv). §761.180(d)(2)</li> </ul> <p>Prior to <u>transferring ownership</u> of a chemical waste landfill, the owners/operators must notify EPA 30 days before the transfer and provide a notarized affidavit stating that the transferee agrees to abide by the EPA approval document. §761.75(c)(7)</p>	<p>Check facility records against regulations for all required records including: the annual document log, signed manifests, certificates of disposal, water analyses, operations records with three-dimensional burial coordinates, water analysis data, PCB concentration in liquid wastes, and three-dimensional burial coordinates.</p> <p>Determine adequacy of water analysis data.</p> <p>Check for records of PCB concentration in liquid wastes. These may be kept in the same place as records required under §761.180.</p> <p>Check for transfer document in EPA Regional files.</p>

Regulatory Requirements	Inspection Procedures
<b>Facility Requirements (§761.75)</b>	
<p><u>Soils</u>. The landfill site should be located in thick, relatively impermeable formations, such as large-area clay pans. Where this is not possible, the soil should have a high clay and silt content with the following parameters: §761.75(b)(1)</p> <ul style="list-style-type: none"> <li>• In-place soil thickness of 4 ft or compacted soil liner thickness of 3 ft</li> <li>• Permeability (cm/sec) equal to or less than <math>1 \times 10^{-7}</math></li> <li>• Percentage of soil passing No. 200 Sieve &gt; 30</li> <li>• Liquid Limit &gt; 30</li> <li>• Plasticity index &gt; 15.</li> </ul> <p>When the Regional Administrator requires <u>synthetic membrane liners</u>, they must provide permeability equivalent to the soil parameters in §761.75(b)(1), be compatible with PCBs, and be at least 30 mils thick. §761.75(b)(2)</p> <p>When a landfill has a <u>liner</u>, the owners/operators must take precautions, including providing adequate soil underlining and soil cover, to ensure that the liner does not rupture. §761.75(b)(2)</p> <p>The <u>bottom of the landfill liner system or natural in-place soil barrier</u> must be above the historical high groundwater table by at least 50 ft, and the site must avoid <u>floodplains, shorelands, and groundwater recharge areas</u>. §761.75(b)(3)</p> <p>There must be no <u>hydraulic connection</u> between the site and any standing or flowing surface water. §761.75(b)(3)</p>	<p>Review engineering plans and site tests to determine compliance with soil parameters and liner or soil barrier requirements in §761.75(b)(1).</p> <p>Check approval document for membrane liner requirement. Acquire sample of membrane liner if the Regional Administrator required synthetic membrane liners.</p> <p>Verify compliance of the placement of the bottom of the landfill liner system or natural in-place barrier at least 50 ft above the historic high groundwater table when the landfill is initially approved.</p> <p>Verify that there is no hydraulic connection when the landfill is initially approved. Check for hydraulic connection to surface water.</p>

Regulatory Requirements	Inspection Procedures
<b>Facility Requirements (§761.75)</b>	
<p>The site shall have <u>monitoring wells</u> and <u>leachate collection</u>. §761.75(b)(3)</p> <p>If the landfill site is below the 100-year flood elevation, there must be surface water <u>diversion dikes</u> around the perimeter of the site at least 2 ft above the flood evaluation. §761.75(b)(4)(i)</p> <p>If the landfill site is above the 100-year flood elevation, the owners/operators must provide structures that are capable of diverting all of the <u>surface water runoff</u> from a 24-hour, 25-year storm. §761.75(b)(4)(ii)</p> <p>The landfill site shall be located in an <u>area of low to moderate relief</u> to minimize erosion and to help prevent landslides or slumping. §761.75(b)(5)</p> <p>A 6-foot woven mesh <u>fence, wall, or similar device</u> must be located around the site to prevent animals or unauthorized persons from entering. §761.75(b)(9)(i)</p> <p>The owners/operators must maintain <u>roads</u> to and within the site that are adequate to support the operation and maintenance of the site without causing safety or nuisance problems or hazardous conditions. §761.75(b)(9)(ii)</p>	<p>Determine from company records the presence of monitoring wells and the leachate collection system.</p> <p>Determine the 100-year flood evaluation from U.S. Geological Survey or U.S. Army Corps of Engineers records prior to the inspection. During the inspection, determine the elevation from facility records. Compare these records to requirement to determine compliance. Measure adequacy of diversion dikes when needed.</p> <p>Determine from records and actual measurement (if necessary) that the water diversion structures are capable of diverting all of the surface water runoff from a 24-hour, 25-year storm.</p> <p>Determine if the containment structure meets the height requirement and is located around the entire perimeter of the site.</p> <p>Physically inspect roadways to determine that they are adequate to support the operation and maintenance of the site without causing safety or nuisance problems or hazardous conditions.</p>

Regulatory Requirements	Inspection Procedures
<b>Operating Requirements (§761.60 &amp; 75)</b>	
<p>The landfill must comply with all conditions and limitations stated in the written approval by the Regional Administrator for the Region in which the facility is located. §761.75(c)</p> <p><u>Liquid PCBs</u> from incidental sources, such as precipitation, condensation, leachate, or load separation and are associated with PCB articles or non-liquid PCB wastes in concentrations of 50 to 500 ppm must be accompanied by information showing that the liquids do not exceed 500 ppm PCBs. §761.60(a)(3)(ii)</p> <p>Persons must pretreat and/or stabilize (e.g., chemically fix, evaporate, mix with dry inert absorbent) <u>bulk liquid PCBs</u> in concentrations not exceeding 500 ppm to a nonflowing consistency prior to disposal to eliminate the presence of free liquids. §761.75(b)(8)(ii)</p> <p>Prior to disposal, persons must drain <u>PCB Transformers</u> of free-flowing liquid, fill them with solvent, allow them to stand for at least 18 hours, and then drain them thoroughly. §761.60(b)(1)(i)(B)</p> <p>Prior to disposal, persons must drain free-flowing liquid from <u>other PCB articles</u> (excluding transformers) with PCB concentrations of 500 ppm or more. §761.60(b)(6)(i)(B)</p>	<p>Check approval document for special conditions and limitations. Take careful note of operating compliance.</p> <p>Examine labels on liquid PCB containers to determine PCB concentration. Sample if violation is suspected.</p> <p>Determine, through statement from operator, procedures for stabilizing bulk liquid PCBs. Sample if violation is suspected.</p> <p>Determine from operator or employees whether PCB Transformers are properly decontaminated prior to disposal.</p> <p>Determine from operator or employees whether PCB articles were drained prior to disposal.</p>





Regulatory Requirements	Inspection Procedures
<b>Monitoring Requirements (§761.75)</b>	
<p>Prior to disposal operations, the owner/operator must sample <u>groundwater and surface water</u> from the disposal area for use as baseline data. §761.75(b)(6)(i)(A)</p> <p>The Regional Administrator may designate <u>surface water courses</u> that the owner/operator must sample at least monthly when the landfill is being used for disposal operations. §761.75(b)(6)(i)(B)</p> <p>EPA requires at least 3 <u>groundwater monitor wells</u> equally spaced on a line through the center of the disposal area. The line must extend from the highest to the lowest water table elevation on the property. §761.75(b)(6)(ii)(A)</p> <p>Groundwater monitor wells must be cased and the annular space between the monitor zone and the surface must be completely backfilled and plugged with cement to prevent percolation of surface water into the well bore. The well must have a removable cap to provide access and to prevent entrance of rainwater or storm water runoff. §761.75(b)(6)(ii)(B)</p> <p>Before obtaining a sample for analysis, the person sampling must pump the well to remove the volume of liquid initially contained in the well §761.75(b)(6)(ii)(B)</p> <p>Liquid pumped from groundwater monitor wells must be treated to meet applicable State or Federal discharge standards or recycled to the chemical waste landfill. §761.75(b)(6)(ii)(B)</p>	<p>Check water sampling records are kept for the amount of time required.</p> <p>Check for monthly sampling records (if required by Regional Administrator).</p> <p>Check engineering plans to determine the locations of the groundwater monitoring wells.</p> <p>Determine the procedures that the facility uses for taking samples and for disposing of samples after analysis.</p>

Regulatory Requirements	Inspection Procedures
<b>Monitoring Requirements (§761.75)</b>	
<p>The owner/operator must install a <u>leachate collection system</u> above the chemical waste landfill and monitor it monthly for the quantity and physicochemical characteristics of the leachate produced. §761.75(b)(7)</p> <p>Leachate must be treated to acceptable limits for discharge in accordance with State or Federal permits or disposed of by another State or federally approved method. §761.75(b)(7)</p> <p><u>After final closure</u> of the disposal area, the owner/operator must sample surface water courses designated by the Regional Administrator no less than once every 6 months. §761.75(b)(6)(i)(C)</p> <p>The laboratory must analyze all <u>water samples</u> for PCBs, pH, specific conductance, and chlorinated organics, and the owner/operator must maintain all data and records as required in §761.180(d)(1). §761.75(b)(6)(iii)</p> <p>Sampling methods and analytical procedures must comply with 40 CFR 136, as amended. §761.75(b)(6)(iii)</p>	<p>Check engineering plans to verify that the facility installed a leachate collection system above the landfill and monitoring records to verify that the collection system is monitored monthly for quantity and characteristics of the leachate.</p> <p>Check procedures for treatment and disposition of leachate samples.</p> <p>Check monitoring records for water sampling if applicable.</p>