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Polychlorinated Biphenyl Inspection Manual

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Office of Compliance
Office of Enforcement and Compliance Assurance
U.S. Environmental Protection Agency
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<http://www.epa.gov/compliance/resources/publications/monitoring/manuals.html>

Appendix I

Incinerators

Except as specifically provided by regulation (see §761.60[a]), PCBs at concentrations of 50 ppm or greater must be disposed of in a high temperature incinerator. 40 CFR 761.70 requires high temperature incineration facilities to meet certain technical (e.g., operating and monitoring) requirements. (Technical criteria are discussed in the operating requirements section of the regulatory review, below.) Persons may dispose of any PCBs or PCB Items (e.g., liquid and nonliquid PCBs, PCB articles) by incineration; persons *must* dispose of some items (e.g., liquid PCBs 500 ppm and above) by incineration. The regulations authorize disposal methods other than incineration (e.g., chemical waste landfills) for disposal of PCBs and PCB Items under certain circumstances.

The owner or operator of a PCB incinerator may not dispose of PCBs unless they receive written approval of the appropriate Regional Administrator or, under certain circumstances, the Director of the National Programs Chemical Division (NPCD) (at Headquarters). The owner or operator must include the following in the application for approval: location of the incinerator, engineering reports on facility performance, and available sampling and monitoring equipment. The inspector must obtain the facility's approval document and refer to it during the inspection. The inspector should verify compliance with the approval document as well as the regulations.

The Regional Administrator or the Director, NPCD may require the facility to conduct a trial burn. If so, the Regional Administrator or the Director, NPCD must notify the owner or operator of this requirement. Prior to disposal, the owner or operator must submit a detailed plan for conducting and monitoring the trial burn and receive approval of the plan from the Regional Administrator or the Director, NPCD.

Once the Regional Administrator (or the Director, NPCD) determines that the incinerator meets all regulatory requirements, he will issue a written, signed approval stating all requirements applicable to the facility. The final approval may contain the following items:

- Technical requirements
- Person(s) authorized to operate the incinerator
- Owner(s) of the facility

- Additional requirements (if any) necessary to ensure that the operation of the facility does not present unreasonable risk to health or the environment
- Period of time for which the approval is valid (if limited)
- Waivers (if any) from one or more of the technical requirements if there is a finding, based upon evidence submitted by the owner or operator, that the incinerator will not present an unreasonable risk if one or more of the requirements are not met.

Acceptable for Disposal

- Liquid PCBs 500 ppm and above *must* be disposed of by incineration; other liquid PCBs (with PCB concentrations between 50 and 500 ppm) may be disposed of by incineration or by other methods as allowed by the following regulations:
§761.60(a)
 - §761.60(a)(1) - Mineral oil dielectric fluid may be disposed of in a high efficiency boiler according to § 761.71(a).
 - §761.60(a)(2) - Liquids other than mineral oil dielectric fluid may be disposed of in a high efficiency boiler according to § 761.71(b).
 - §761.60(a)(3) - Liquids from incidental sources, such as precipitation, condensation, leachate or load separation and are associated with PCB Articles or non-liquid PCB wastes may be disposed of in a chemical waste landfill which complies with § 761.75 if information is provided to or obtained by the owner or operator of the chemical waste landfill that shows that the liquids do not exceed 500 ppm PCB and are not an ignitable waste as described in § 761.75(b)(8)(iii).
- All other PCBs and PCB Items are acceptable at an approved incinerator. These PCBs and PCB Items include, but are not limited to, non-liquid PCBs with at least 50 ppm in the form of rags, soil, or other debris; dredged materials and sludges; articles; and PCB containers. §761.60(b) and §761.60(c)

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

Inspectors must be familiar with §§761.60 and 761.70 and conditions of the PCB approval for the incinerator before conducting the inspection. Note that incinerators for PCB liquids must meet all of the requirements specified in §761.70(a)(1)-(a)(9). The inspector should check for any waivers as provided for under §761.70(d)(5).

Regulatory Requirements	Inspection Procedures
Notice Requirements (§761.60)	
<p>Owners/operators must <u>notify</u> the State and local governments, within whose jurisdiction the incinerator is located, at least 30 days before the facility is first used for disposal of PCBs. §761.60(f)(1)(i)</p> <p>At the request of any State or local government, owners/operators must provide an <u>annual notice</u> to the government of the quantities and general description of PCBs disposed of during the year no more than 30 days after the end of the year covered. §761.60(f)(1)(ii)</p>	<p>Check PCB databases at http://www.epa.gov/pcb/data.html to check if facility submitted required notices and check facility files to ensure their records are properly kept.</p>

Regulatory Requirements	Inspection Procedures
Recordkeeping Requirements (§761.180)	
<p>Owners/operators must measure and record <u>the rate and quantities of PCBs</u> fed into the incinerator at least every 15 minutes §761.180(c)(1)(i)</p> <p>Owners/operators must continuously measure and record the <u>temperatures</u> of the incineration process by either:</p> <ul style="list-style-type: none"> • Direct temperature readings (pyrometer) • Indirect temperature readings (wall thermocouple-pyrometer correlations). §761.180(c)(1)(ii) <p>Owners/operators must monitor and record <u>combustion products and incineration operations</u> for the following parameters whenever the incinerator is incinerating PCBs:</p> <ul style="list-style-type: none"> • O₂ and CO Continuous monitoring and recordkeeping • CO₂ Periodic monitoring and recordkeeping specified by the Regional Administrator. §761.70(a)(7) and §761.180(c)(1)(iii) 	<p>Verify and review monitoring records indicating:</p> <ul style="list-style-type: none"> • Rate and quantities of PCBs fed into incinerator • Determine if the temperature of incineration is maintained at 1200°C (± 100°C) for 2-second dwell times or 1600°C (± 100°C) for 1.5-second dwell times. <p>Check facility operations records or facility monitoring logbook for compliance with required monitoring frequency. Use these records to verify that 2% (1.5-second dwell time at 1600°C) or 3% (2-second dwell time at 1200°C) oxygen is maintained in the stack gas and to verify that combustion efficiency (CE) is at least 99.9% using the following equation.</p> $CE = \frac{[CO_2]}{([CO_2] + [CO])} \times 100\%$

Regulatory Requirements	Inspection Procedures
<p>Upon suspension of operations pursuant to §761.70(a)(8), the owner/operator must prepare and submit to the Regional Administrator within 30 days of suspension a document including the date and time of suspension and an explanation of circumstances causing the suspension. §761.180(c)(5)</p> <p><u>Prior to transferring ownership</u> of an incinerator, the owner/operator must notify EPA 30 days in advance of the transfer and provide a notarized affidavit signed by the transferee stating that the transferee agrees to abide by the EPA approval document. §761.70(d)(8)</p>	<p>Check EPA correspondence file for compliance.</p> <p>If applicable, check EPA files for transfer notice and affidavit.</p>

Regulatory Requirements	Inspection Procedures
Operating Requirements for Liquid and Non-Liquid PCBs	
<p>Owners/operators must maintain <u>combustion efficiency</u> at a rate of at least 99.9%, as computed below:</p> $\text{Combustion efficiency} = \frac{C_{CO_2}}{(C_{CO_2} + C_{CO})} \times 100$ <p>where:</p> <p>C_{CO_2} = Concentration of carbon dioxide C_{CO} = Concentration of carbon monoxide. §761.70(a)(2) and §761.70(b)(2)</p> <p>Owners/operators must use <u>water scrubbers</u> to control HCl and must meet any performance requirements specified by the Regional Administrator or the Director of NPCD. Owners/operators may use an EPA-approved alternative method of HCl control (e.g., cement kilns). §761.70(a)(9) and §761.70(b)(2)</p> <p>The <u>flow of PCBs</u> into the incinerator must stop automatically if one or more of the following conditions occurs:</p> <ul style="list-style-type: none"> • Failure of monitoring operations for combustion products and incineration operation parameters • Failure of PCB rate and quantity measuring and recording equipment. §761.70(a)(8) and §761.70(b)(2) <p><u>Note:</u> Alternatively, the owner/operator can submit a contingency plan to the Regional Administrator or the Director of NPCD for approval indicating measures to be taken if these conditions occur. §761.70(a)(8)</p> <p>Owners/operators must store PCBs for disposal under conditions complying with §761.65, governing storage for disposal requirements. §761.60(a)(6)</p>	<p>When the incinerator is in operation, check combustion efficiency records against the required level.</p> <p>Determine water scrubber compliance with any required performance standards.</p> <p>Check procedures and equipment used to ensure fail-safe operations of the facility.</p> <p>See Chapter Four regulatory provisions pertaining to storage for disposal §761.65.</p>

Regulatory Requirements	Inspection Procedures
Liquid PCB Operating Requirements	
<p>Owners/operators must incinerate liquid PCBs according to either of the following combustion criteria:</p> <ul style="list-style-type: none"> • Maintenance of the introduced liquids for a 2-second dwell time at 1,200EC ($\pm 100E$ C) and 3% excess O₂ in the stack gas. §761.70(a)(1)(i) • Maintenance of the introduced liquids for a 1.5-second dwell time at 1,600 degrees C ($\pm 100E$ C) and 2% excess O₂ in the stack gas. §761.70(a)(1)(ii) <p>For liquid PCBs, the flow into the incinerator must stop automatically if the following conditions occur:</p> <ul style="list-style-type: none"> • The excess O₂ level falls below 3%. (Alternatively, a contingency plan can be submitted to, and approved by, the Regional Administrator or the Director of NPCD.) §761.70(a)(8) • The combustion temperature falls below that specified in the chosen combustion criteria. §761.70(a)(5) 	<p>Check facility operating records for compliance with the required combustion criteria. (Verifying that the combustion criteria are met is also outlined above in the review of the monitoring requirements.)</p> <p>Check facility operating records to verify that flow to the incinerator stops automatically when the required conditions occur.</p>
Non-Liquid PCB Operating Requirements	
<p>The air mass emissions for the incinerator must be no greater than 0.001g PCB/kg (destruction and removal efficiency [DRE] of 99.49%) of the PCB introduced to the incinerator. §761.70(b)(1)</p>	<p>Check facility operating records for compliance with air mass emissions.</p>