



**CONNECTICUT DEPARTMENT OF
ENERGY & ENVIRONMENTAL PROTECTION**
Bureau of Materials Management and Compliance Assurance
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**GUIDANCE FOR IMPLEMENTING AND DOCUMENTING CLOSURE (WASTE
REMOVAL AND DECONTAMINATION) FOR INDOOR RCRA HAZARDOUS WASTE
CONTAINER STORAGE AREAS**
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SELF-IMPLEMENTING CLOSURE PROCESS

- (1) **INTRODUCTION.** This document was developed by the Connecticut Department of Energy & Environmental Protection (“DEEP”) to provide guidance to generators¹ engaging in the self-implementing process of closing areas used to store hazardous waste pursuant to the Resource Conservation and Recovery Act (“RCRA”). More specifically, this guidance is intended to address closure of INDOOR HAZARDOUS WASTE CONTAINER STORAGE AREAS (CSAs) at which:
- (a) The storage area’s secondary containment system has had an impervious base during its life time. For example, application of an epoxy coating at some point after hazardous waste storage began would require closure including the more traditional chip-sampling method;
 - (b) The site operating records demonstrate that no major spills occurred in the storage area. As a clarification, a major spill is an event that cannot be handled safely without the assistance of the emergency response personnel. This guidance is only applicable to spill resulting from routine management of waste in containers (slight overfills, drips, splashes, etc.). The site operating records (i.e., inspection logs) must be available for the entire operating life of the CSA;
 - (c) The generator has conducted regular inspections of the CSA and has maintained documentation of such inspections in the operating record for the life of the CSA;
 - (d) The secondary containment system of the CSA being closed shows no visible sign of spills/stains/cracks/deteriorations; and
 - (e) “P” listed waste was never stored in the CSA.

Note: The Closure Performance Standard (40 CFR 265.111) requires closure of hazardous waste storage areas in a manner that minimizes the need for further maintenance, and is protective of human health and the environment. These regulations neither require that a closure plan be submitted for review and approval nor do they specify the steps necessary for closure. To address this gap in the regulations, this document provides best management practices (not regulations) for generators who wish to close a CSA (due to the need to discontinue storing hazardous waste at the specific area, the relocation of a waste storage area within their facility, etc). This guidance is a companion document to the generator closure guidance document that is intended to be used for those CSAs that do not meet the above conditions and it is not meant to replace that generator closure document.

¹ In cases where a generator exceeds the allowable accumulation time limit, CTDEEP may impose more rigorous closure requirements. These requirements can be found in the Department draft document titled: RCRA Closure Plan Guidance, Container Storage Areas and Tank Systems, latest edition or as revised.

- (2) **IMPLEMENTATION.** Generators who need to close a hazardous waste storage area that meets the above-listed criteria may perform closure by implementing the following actions:
- (a) Waste removal. Upon ceasing operation of a storage area, the generator needs to remove all the containerized hazardous waste from the storage area, and ensure that such waste is shipped off-site to a permitted facility. The time allowed for removal and disposal of such waste will depend on your generator status and when waste began accumulating in the storage area. Generally speaking, large quantity generators may store waste in a storage area for up to 90 (ninety) days. Therefore, containers of waste must be removed from the storage area and shipped off-site within 90 (ninety) days from the day the waste first began accumulating in the storage area. Small quantity generators generally have one hundred eighty (180) days to remove and dispose of their waste. Generators should maintain copies of the manifests with their storage area closure records verifying that all the waste was removed from the storage area and was shipped off-site within the applicable time frames. More specific recordkeeping guidance is provided in the Closure Documentation section of this document.
 - (b) Area Inspection. Once the containerized waste has been removed from the storage area, the generator should remove any loose materials/debris from the secondary containment system using an appropriate method (sweep, shovel, vacuum, etc.) prior to conducting an inspection/evaluation of the area (physical observation) to confirm that: (1) the secondary containment system has an impervious base (i.e., no cracks and/or deteriorations, adequate coating/sealant, etc.); and (2) there are no visible signs of spills/stains (other than light shadows, slight streaks, or minor discoloration). If any deficiencies are found with the secondary containment system or there are visible signs of spills/stains then this self-implementing closure guidance is not recommended.
 - (c) Records Review. Once the area inspection has been completed, the generator should conduct a thorough records review to ensure that: (1) no major spills occurred in the storage area; (2) the generator has conducted at least the required weekly inspections of the storage area (there should be no significant gaps in the required inspection records); and (3) "P" listed waste was never stored in the storage area. If the records review reveals that the conditions above have not been met, then this self-implementing closure guidance is not recommended.
 - (d) Decontamination. If the inspection and records review of the storage area are found to be acceptable, the storage area is ready for the process of decontamination. After considering factors such as materials of construction, potential contaminants, location of the unit and physical observations, select and implement a decontamination method to remove any hazardous waste residues that may be adhering to the containment system and/or associated equipment used to manage hazardous waste. Examples of decontamination methods are presented in Attachment A. However, it is expected that in most cases decontamination

may be achieved by implementing methods such as water washing and/or abrasive blasting.

- (i) Final Rinse/Wash. After a decontamination method has been implemented, the containment system and any associated structures and/or equipment, should be pressure washed a minimum of three (3) repetitions using cold water between 2000 to 3500 psi and/or hot water between 600 to 2500 psi. Be sure to collect and appropriately store wash water generated from each pressure washing repetition. It is recommended that you obtain a representative discrete sample from the final rinse so that it can be analyzed to determine if any constituents of concern (COCs) are present in the rinsewater. This analysis can also be used in support of your waste determination for this waste stream. Details on how to develop a list of COCs and suggested sampling methods are presented in Section (3) below.
- (ii) Equipment decontamination. The generator should decide if equipment decontamination is feasible or if it is more economical to dispose of equipment as hazardous waste. It may be cheaper to dispose of contaminated equipment, such as shovels and dirty personal protective equipment (PPE) such as used gloves and respirator cartridges as hazardous waste rather than to clean them and dispose or treat the wash water or other residues (taking in consideration costs of sampling, analyses, disposal of wash waters and debris, etc.).
- (iii) Decontamination Residues. Decontamination residues, such as wash water, must be sampled and analyzed to ensure proper disposal. The residues must be classified as hazardous or non-hazardous wastes. A generator could decide not to analyze the waste and simply manage residues as hazardous wastes, using the COCs to identify waste types.
- (iv) Additional Hazard Minimization. When engaging in closure activities (waste removal, secondary containment system decommissioning and/or decontamination, etc.), make sure to avoid creating other environmental and/or health problems like chemical exposures, fugitive dust emissions, contaminated run-off/discharges or the spread of potential contaminants. All clean-up and sampling work should be performed by personnel using safe practices per OSHA standards, including the donning of proper PPE.
- (e) Closure-Derived Waste Storage and Disposal. Any hazardous waste generated as a result of closing a regulated storage area (dust, debris, scrapings, rinsewaters, etc.) should be managed as such, in a satellite accumulation area if possible. It is advisable to keep records regarding the disposal of such wastes generated during the closure process along with a description of how the waste material was managed.

- (f) Confirmatory Recommendations. Once a storage area has been decontaminated, a generator should confirm the effectiveness of the methods used to perform closure of the area. Two ways to accomplish are as follow:
- (i) Analyze the final rinse water sample collected (per Section 2 (d)(i) above) for any COCs that may have been contained in the waste stored in the area subject to closure. For additional guidance on how to develop a list of COCs for the purpose of confirming adequate closure of the storage area, refer to COC List Development included in Section (3) below. If any constituent on your COC list is detected in the rinsewater, in concentrations exceeding the background levels (i.e., constituents originally present in the decon solutions), you should repeat the decontamination procedure. If you continue to detect COCs in the rinsewater in concentrations exceeding the background levels, you may need to seek additional guidance from the Department or a private environmental professional.
 - (ii) If the epoxy coating on the floor is not compromised, then collect wipe samples to be analyzed for the COCs. If any of the COCs are found above none detectable (ND) levels, the decontamination procedure should be repeated.

(3) ADDITIONAL GUIDANCE

- (a) COC List Development. Lists of hazardous constituents can be found in Appendix VIII to Part 40 CFR 261 and Appendix IX to Part 264. These sources should help you understand what constituents should be considered “constituents of concern”. However, these are not the only hazardous constituent lists out there and you are not limited to using these resources. The followings items are suggested sources of information which can be used to develop your storage area specific COC list. You may not have to use every source if one or two sources provide a complete list:
- (i) Safety Data Sheet(s) (formerly Material Safety Data Sheet(s));
 - (ii) Hazardous waste inspection reports;
 - (iii) Existing waste analysis records at your facility or the off-site licensed hazardous waste facility which received your waste;
 - (iv) Manifests;
 - (v) Environmental permits in place for at the facility (e.g., wastewater discharge permit);
 - (vi) Groundwater monitoring parameters, if available; and
 - (vii) DEEP hazardous waste and water compliance files.

If none of the above are available or adequate (e.g., a site has ceased operation and records are gone or incomplete), then you may need to use a comprehensive list of hazardous constituents as your COC list, such as those listed in Appendix VIII to 40 CFR Part 261 and/or Appendix IX to 40 CFR Part 264.

- (b) **Sampling and Analysis.** All sampling performed shall be in accordance with the Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, latest edition (SW-846) where possible. SW-846 is a compendium of analytical and sampling methods that have been evaluated and approved for use in complying with the RCRA regulations. SW-846 functions primarily as a guidance document setting forth acceptable, although not required, methods for the regulated and regulatory communities to use in addressing to RCRA – related sampling and analysis requirements.
- (4) **DOCUMENTATION.** It is critical to maintain thorough documentation of the closure process to demonstrate compliance with the closure performance standard.

Pre-accumulation. To the degree possible, the closure documentation should include a description of the area’s condition prior to it being used to store hazardous waste (“pre-accumulation condition”). Try to include photos, drawings and a physical description of the area (materials of construction, dimensions, etc.), as well as any associated structures and/or equipment, when describing the pre-accumulation condition. If known, the date the area was initially used to store hazardous waste should also be identified in the closure documentation. This information may help you identify impacts, or potential impacts, to the area that may be attributable to the hazardous waste storage activities.

Pre-closure. The closure documentation should include a description of the storage area’s condition prior to closing the area. Include photos (showing actual drum storage if possible), drawings and a physical description of the storage area (epoxy coated, sealed joints, no evidence of repairs, etc.) and any associated structures and/or equipment, when describing the pre-closure condition of the area.

Post-closure. The closure documentation should include a description of the storage area’s condition after completing closure of the area. Include photos, drawings and a physical description of the storage area, and any associated structures and/or equipment, when describing the post-closure condition of the area.

Closure Documentation. Records should be generated and maintained to document each step of the closure process. This should include, at a minimum:

- **Waste Removal Records.** Records documenting the date(s) when waste was removed from the area (i.e., based on review of manifests and/or inspection logs), a description of any interim storage/staging areas that were used (if applicable), and copies of manifest(s) documenting off-site removal of waste from the storage area.
- **Area Inspection Confirmation.** To help demonstrate that the inspections suggested under Section (2)(b) above have been completed, a short narrative should be developed identifying the person(s) who conducted the inspections and the date of such inspections, and including a summary of the results of the inspections.
- **Records Review.** To help demonstrate that the records review suggested under Section (2)(c) above has been completed, a short narrative should be developed

- identifying the person(s) who conducted the review and the date of such review, and including a summary of the results of the review.
- **Decontamination Process.** The closure documentation should include a description of the decontamination procedures that were implemented. This description should document completion of the elements identified in Sections (2)(d)(i) through 2(d)(iv) above providing rationale for the method(s) selected.
 - **Closure-derived Waste Management.** The closure documentation should provide a summary of the wastes that resulted from the closure process (rinse waters, dust, debris, etc.). Waste determination rationale and a description of waste management methods (i.e., satellite drum storage) should be included in this summary.
 - **Closure Performance Standard Confirmation.** The closure documentation should include the rationale supporting the determination that the closure performed meets the required closure performance standard (40 CFR 265.111), the date that determination was made and the person making that determination. The following documentation should be maintained in support of this determination: the COC list used to complete closure; sampling and analytical methods performed to confirm adequate closure (i.e., final rinse water collection/sampling per Section (2)(f) above); results of the analyses performed; closure checklist (An example is presented as Attachment B of this guidance); a Closure Certification (An example is presented as Attachment C of this guidance).

Records Retention. Records should be retained for at least five (5) years after certification of closure of a storage area and longer if possible.

Note: The closure standards suggested in this document do not preempt applicable local, state, or federal standards or regulations.

ATTACHMENT A

EXAMPLES OF DECONTAMINATION METHODS

(1) Physical methods:

- Abrasive Blasting: Involves using water and/or air pressure to propel a solid media (e.g., aluminum oxide grit, plastic beads) such that contaminated surface layers are removed.
- Scarification and Grinding: Involves utilizing striking piston heads, saws or rotating grinding wheels such that contaminated surface layers are removed.
- Spalling: Involves drilling or chipping holes at appropriate locations and depth in the contaminated surface and applying a tool which exerts a force on the sides of those holes such that the surface layer is removed.
- Vibratory Finishing: Involves utilizing scrubbing media, flushing fluid and oscillating energy such that hazardous contaminants or contaminated surface layers are removed.

(2) Chemical methods:

- Water and/or Detergent Washing and Spraying: Achieve removal of hazardous contaminants by application of water and/or detergent sprays of sufficient temperature, pressure, residence time, agitation, surfactant content and pH to remove hazardous contaminants from surface and surface pores or to remove contaminated surface layers.
- Chemical Oxidation: Uses the following oxidation reagents or combination of reagents: (1) hypochlorite (e.g., bleach); (2) chlorine; (3) chlorine dioxide; (4) ozone or UV (ultraviolet light) assisted ozone; (5) peroxides; (6) persulfates; (7) perchlorates; (8) permanganates; and/or (9) other oxidizing reagents of equivalent destructive efficiency.
- Chemical Reduction: Utilizes the following reducing reagents or combination of reagents: (1) sulfur dioxide; (2) sodium, potassium or alkaline salts of sulfites, bisulfites and metabisulfides and polyethylene glycols; (3) sodium hydrosulfide; (4) ferrous salts; and/or other reducing agents of equivalent efficiency.

ATTACHMENT B EXAMPLE OF A BASIC CLOSURE DOCUMENTATION

Check One:

Area continued to be used for the same activities or in a comparable manner. Explain.

Date that Closure was complete: _____

Facility Name: _____

US EPA ID No. CT _____

Owner/Operator: _____ **Property Owner:** _____

Street Address: _____ **Street Address:** _____

Town/ State: _____ **Town/State:** _____

Contact/Phone number: _____ **Contact Phone Number:** _____

Hazardous Materials Used ¹	SDS ² Available Y/N	Hazardous Wastes Generated ¹	Any Exemptions Used? Y/N

¹List additional materials and wastes on a separate page if necessary.

²SDS means Safety Data Sheet(s) (formerly Material Safety Data Sheet(s))

CLEAN-OUT ACTIVITIES COMPLETED: (Check all applicable items):

Hazardous Materials removed <input type="checkbox"/> YES <input type="checkbox"/> NO	Sweep <input type="checkbox"/> YES <input type="checkbox"/> NO	Laboratory Testing <input type="checkbox"/> Base Removal and offsite disposal <input type="checkbox"/> Rationale provided in additional comments <input type="checkbox"/> If no sampling available provide comments	Status change requested if no longer operating <input type="checkbox"/> YES <input type="checkbox"/> NO
Hazardous Wastes Removed <input type="checkbox"/> YES <input type="checkbox"/> NO	Power wash <input type="checkbox"/> YES <input type="checkbox"/> NO	Copy of Test Results <input type="checkbox"/> YES <input type="checkbox"/> NO <hr/>	Documentation available: <input type="checkbox"/> Photographs <input type="checkbox"/> Manifests <input type="checkbox"/> Drawings <input type="checkbox"/> Other
Equipment decontaminated <input type="checkbox"/> YES <input type="checkbox"/> NO	Additional Comments <input type="checkbox"/> YES <input type="checkbox"/> NO	Decontamination Method	Recyclable materials clean enough for recycling <input type="checkbox"/> YES <input type="checkbox"/> NO

Date of Final Hazardous Waste Shipment: _____ **Manifest Number:** _____

ATTACHMENT C

CLOSURE CERTIFICATION

I certify that the hazardous waste container storage area(s) [include a location diagram] has/have been closed in accordance with the provisions of Connecticut Hazardous Waste Management Regulations Section 22a-449(c)-102, incorporating by reference 40 CFR 262.34.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to ensure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signature: _____

Print Name: _____

Title: _____

Date: _____

Any Other Additional Comments:
