



# RCRA Clean Closure Equivalency Demonstrations

**BACKGROUND:** Hazardous and radioactive mixed waste units, including surface impoundments and waste piles, may be “clean closed” by removing or rendering nonhazardous all wastes in the hazardous waste management unit (HWMU). If a HWMU is successfully clean closed, no post-closure care is required. Prior to 1987, the federal standards for clean closing interim status facilities were considerably less stringent than those for permitted facilities. On March 19, 1987, EPA promulgated conforming changes to the interim status closure requirements for surface impoundments (52 FR 8704) making them equally stringent as the standards for permitted units. Corresponding standards for waste piles were promulgated on July 26, 1982 (47 FR 32368). The preamble to the March 1987 rule also contained regulatory interpretations, based upon HSWA requirements, relating to what constituted successful clean closure. Specifically, these interpretations discussed hazardous constituents and environmental media that must be addressed to demonstrate clean closure. The implication of these changes is that DOE facilities must either submit “equivalency demonstrations” for certain interim status surface impoundments that certified clean closure under the old less stringent standards, or obtain post-closure permits for these facilities and conduct post-closure care. Similarly, equivalency demonstrations must be submitted for interim status waste piles that clean closed prior to March 1987 to demonstrate their closure satisfied the criteria outlined in the March 19, 1987, preamble.

**STATUTE:** Resource Conservation and Recovery Act (RCRA)

**REGULATIONS:** 40 CFR 264.228, 264.258, 265.228, 265.258, 270.1(c)(5) & (c)(6)

**REFERENCES:**

1. “Guidance on Demonstrating Equivalence of Part 265 Clean Closure with Part 264 Requirements,” OSWER Policy Directive # 9476.00-18, May 12, 1989.
2. “Interim Status Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities,” Final Rules, 52 FR 8704, March 19, 1987 and 47 FR 32368, July 26, 1982.
3. “Closure of Hazardous and Mixed Radioactive Waste Management Units at DOE Facilities,” DOE EH-231 Guidance Manual, June 1990.
4. “Radiation Protection of the Public and the Environment,” DOE Order 5400.5, February 8, 1990.
5. “Radioactive Waste Management,” DOE Order 5820.2A, September 26, 1988.

## What is clean closure?

Clean closure is an option for certain types of HWMUs, including surface impoundments and waste piles. To clean close a HWMU, DOE facilities must remove or render nonhazardous all hazardous and mixed waste associated with the unit, including contaminated equipment, structures, and soils. If a unit can be clean closed, no post-closure care is required [40 CFR 264.228, 264.258, 265.228, and 265.258].

## What is a clean closure equivalency demonstration?

A clean closure equivalency demonstration is a special requirement that applies to all surface impoundments and waste piles that received wastes after July 26, 1982, and that certified clean closure under interim status requirements before March 19, 1987. Procedural requirements for clean closure equivalency demonstrations are located in 40 CFR 270.1(c)(5) and (c)(6). Unit-specific closure requirements for surface

impoundments and waste piles are located in 40 CFR 265.228 and 265.258, respectively. In addition, landfills from which wastes have been removed at closure may be “clean closed” through redefinition of the landfill as a waste pile or surface impoundment. Such a landfill, if closed under the old 40 CFR Part 265 standards, would be subject to equivalency demonstration requirements.

The purpose of the equivalency demonstration is to show that closure of these interim status facilities complied with the more stringent closure requirements specified in 40 CFR 264 Subpart G. All units that clean close must demonstrate clean closure; however, only units that closed under the less stringent interim status requirements must submit clean closure *equivalency* demonstrations.

## What are the contents of an equivalency demonstration?

There is no required format, however, EPA suggests that an equivalency demonstration contain at least the following three sections [see reference 1 above]:

- ❑ **Facility description.** This section should provide information on: the size and location of the facility or units within the facility; descriptions of the wastes managed; descriptions of liner, leachate collection, containment, run-on and run-off control systems; and discussions of surrounding hydrogeology, detection programs, and any corrective action activities undertaken.
- ❑ **Description of closure activities.** This section should include information on: waste removed; quantity of leachate, contaminated liquids, sludges/residues, and contaminated soils removed; the methods for removal; and a description of decontamination or disposal procedures used.
- ❑ **Demonstration of compliance with clean closure levels.** This section should present sampling data necessary to support the equivalency demonstration. It should specify where and when samples were taken, which parameters were examined, sampling protocols, quality assurance and control procedures, and an analysis of the results.

## How clean is clean?

Before a surface impoundment or waste pile is considered clean closed, an independent registered professional engineer must formally certify that it has been closed in accordance with the approved closure plan and meets the closure performance standard.

The Agency interprets the terms “remove” and “decontaminate” to mean “removal of all wastes and liners, and the removal of all leachate and materials contaminated with the leachate (including ground water) that pose a substantial present or potential threat to human health or the environment” [52 FR 8706].

To meet this standard for both interim status and permitted facilities, DOE facilities must demonstrate that no hazardous constituents listed in 40 CFR Part 261 Appendix VIII remain in the soils, vadose zone, or ground water in excess of EPA’s recommended exposure limits. These limits will have been specified in the approved closure plan and include water quality standards and criteria, limits based on verified reference doses (RfDs) and Carcinogenic Potency Factors (CPFs), and site-specific Agency-approved health advisories.

If no EPA recommended limits exist for the contaminants of concern at the facility or unit in question, DOE facilities have the option of removing the constituents to background levels, submitting data demonstrating that the constituents do not present a threat at the point of exposure, or closing the unit with wastes in place and conducting post-closure care.

The points of compliance for potential exposures must be established directly at or within the unit boundary for all routes of exposure. Migration, attenuation, or fate and transport factors may not be considered [see reference 1 above].

## What is the procedure for submitting an equivalency demonstration?

If a Part B application for a post-closure permit has been submitted, DOE facilities may request the EPA Regional Administrator make an evaluation of equivalency based upon the information contained in this application. Alternatively, DOE facilities may submit a separate equivalency demonstration [40 CFR 270.1(c)(5)].

After submitting the necessary information, the EPA Regional Administrator must provide 30 days for public comment and, within 90 days of the initial submission, determine if the equivalency demonstration is adequate. If the initial submission is inadequate, DOE facilities have 30 days to submit additional information, upon which the Regional Administrator has 60 days to make a final determination [40 CFR 270.1(c)(6)].

## What are the implications of failure to demonstrate clean closure?

If DOE facilities are unable to demonstrate equivalency with Part 264 clean closure requirements for surface impoundments, these units will be classified as landfills, and DOE facilities must close these units in accordance with landfill closure standards, obtain a post-closure permit, and conduct post-closure care.

As an alternative to making an equivalency demonstration, if the owner/operator of a landfill from which wastes have been removed, or for which DOE facilities believe the level of contamination is such that it no longer poses a threat to human health and the environment, the facility may submit a request to the EPA Regional Administrator that the length of the post-closure care period be reduced.

HWMUs managing radioactive mixed wastes must be closed, and post-closure care initiated, in accordance with low level waste requirements established in DOE Order 5400.5 and 5820.2A and associated guidance documents, as well as RCRA environmental protection, closure, post-closure, and monitoring requirements.

**Questions of policy or questions requiring policy decisions will not be dealt with in EH-231 Information Briefs unless that policy has already been established through appropriate documentation. Please refer any questions concerning the subject material covered in this Information Brief to Jerry Coalgate, RCRA/CERCLA Division, EH-231, FTS 896-6075.**