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RCRA, Superfund & EPCRA Call Center Training Module

Introduction to:

Drip Pads
(40 CFR Parts 264/265, Subpart W)

Updated October 2001

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DRIP PADS

CONTENTS

1. Introduction 1

2. Regulatory Summary 2
   2.1 Background 2
   2.2 Design Standards 3
   2.3 Operating Standards 6
   2.4 Inspections 6
   2.5 Closure 7
   2.6 Drip Pads Used for Temporary Accumulation 7
   2.7 Applicability to Storage Yard Drippage 8

1. INTRODUCTION

The Resource Conservation and Recovery Act (RCRA) regulations governing hazardous waste management facilities, found in 40 CFR Parts 264 and 265, consist of general facility standards as well as unit-specific design and operating requirements for commonly used hazardous waste treatment, storage, and disposal units, such as tanks, containers, and landfills. The majority of these unit-specific regulations are discussed in other modules.

Since the early 1980s, EPA has continuously expanded RCRA's hazardous waste program to regulate a broader range of wastes that may pose a threat to human health and the environment. Some of these newly identified wastes proved rather difficult to manage in traditional hazardous waste management units that were established in the original regulations. In 1990, EPA listed wastes from wood preserving processes as hazardous. Many of these wastes are generated by allowing preservative to drip from wood onto concrete pads, called drip pads. To facilitate proper handling of these wastes, the Agency developed design and operating standards for drip pads used to manage these newly identified hazardous waste. This module explains these standards.

After you complete this module, you will be able to explain the regulatory history and purpose of drip pads. Specifically, you will be able to:

- Define drip pad
- Summarize the design and operating standards for drip pads
- Describe the relationship between generator accumulation provisions and drip pads.

Use this list of objectives to check your understanding of this topic after you complete the training session.

2. REGULATORY SUMMARY

Drip pads are hazardous waste management units that are unique to the wood preserving industry. The history of drip pads is closely tied to EPA's decision to list wood preserving process wastes as hazardous. The wood preserving industry uses a standard process to produce treated wood products that are resistant to natural decay. Fresh lumber is treated with a preservative solution and then placed on a concrete pad where it remains until any excess solution not absorbed by the wood has stopped dripping. Once the dripping stops, the wood is transferred to a storage yard and all excess preservative that has dripped onto the drip pad is removed as waste.

On December 6, 1990, EPA promulgated regulations listing certain wood preserving process wastes as hazardous (55 FR 50450). The listings specifically include wastewaters, process residuals, preservative drippage, and spent formulations from wood preserving operations using chlorophenolic formulations (F032), creosote formulations (F034), and inorganic preservatives containing arsenic or chromium (F035). Once EPA listed these wastes as hazardous, the concrete pads typically used for collecting the drippage became subject to regulation under RCRA Subtitle C as hazardous waste management units. Since the drip pads had never been regulated and did not resemble any of the existing hazardous waste management units (e.g., tanks or containers), there were no protective regulations for drip pad owners and operators to follow. To ensure proper waste management, EPA developed unit-specific standards for the design, installation, operation, and closure of drip pads at the same time the new wood-preserving listings were promulgated. This module addresses the current standards for drip pads as hazardous waste management units.

2.1 BACKGROUND

A hazardous waste drip pad is a non-earthen structure consisting of a curbed, free-draining base that is designed to convey excess preservative drippage, precipitation, and surface water run-on from treated wood operations to an associated collection system. Drip pads, as defined in §260.10, are exclusive to the wood preserving industry.

Preservative solutions are commonly applied to wood products using a pressure treating process. Once the preservative solution has been applied to the wood, it is removed from the process unit and excess solution is allowed to drip from the wood onto drip pads. As a result of this process, excess solution dripping from the wood becomes a solid waste and, depending on the type of preservative used, a hazardous waste. A drip pad is used solely for the collection and temporary accumulation or storage of excess wood preservative prior to its removal from the unit. Regulated drip pads will be found only at wood preserving facilities.

Generally, the performance standards for most hazardous waste management units vary depending on whether the unit is permitted or interim status. However, the permitted and interim status standards for drip pads are virtually identical. Distinctions are made between new and existing drip pads. A drip pad is considered "existing" if construction was completed, or a binding construction agreement was made, prior to December 6, 1990; all other drip pads are considered "new." The owner and operator of a new drip pad must comply with all codified standards for unit design, installation, operation, and closure, and the unit is regulated throughout its operating life. Existing drip pads, however, may need to be modified or otherwise upgraded to ensure adequate protection of human health and the environment. Upgrading steps and corresponding deadlines for existing drip pads are addressed in the regulations and are discussed later in this module. Other specific regulatory differences between existing and new drip pads are discussed in the context of each requirement.

2.2 DESIGN STANDARDS

The design standards for hazardous waste drip pads are codified in §§264.573 and 265.443 (Figure 1). Drip pads must be designed and constructed of non-earthen materials that have enough structural strength to prevent failure of the unit under the weight of the waste, preserved wood products, personnel, and any moving equipment used in wood preserving operations. The remainder of the drip pad design requirements are specifically intended to control the liquid and semi-liquid wood preserving wastes that are stored or accumulated on the drip pad. To prevent wastes from running over the edges of the flat drip pad surface, the owner and operator must construct a raised curb or berm around the perimeter of the pad. In order to simplify removal of wastes from the drip pad, the surface must be sloped toward a collection unit, such as a sump. Unless this collection unit has enough capacity to hold precipitation run-on and preservative drippage, or unless the pad is protected from precipitation (e.g., indoors or covered), a stormwater run-on and run-off control system must be used. All new and existing drip pads must be in compliance with these design criteria.

Additional drip pad design standards include measures to prevent infiltration of liquid waste into or through the unit's structure. Impermeable sealers, coatings, or covers can reduce the quantity of waste absorbed into the unit itself. Infiltration protection, especially for porous materials like concrete, is important because when liquid wastes migrate into the structure, the likelihood of an uncontrolled release into the environment increases. As a result, drip pads will be more susceptible to cracking and deterioration, and removal of all wastes from the unit becomes more difficult. Because absolute impermeability is not feasible, EPA put a performance standard for permeability of the surface coating in the regulations. In general, drip pad owners and

Figure 1
DRIP PAD DESIGN STANDARDS

Design Criteria		Citations
Pad	• Must be constructed of non-earthen materials (e.g., concrete, metal)	§264.573(a)(1) §265.443(a)(1)
	• Must provide sufficient structural strength to prevent unit failure	§264.573(a)(5) §265.443(a)(5)
Drip Pad Surface	• Must be constructed with a raised berm around perimeter to prevent waste run-off into the environment	§264.573(a)(3) §265.443(a)(3)
	• Must be sloped toward a liquid collection unit	§264.573(a)(2) §265.443(a)(2)
	• Must be treated with impermeable sealers, coatings, or covers to meet specific permeability performance standards*	§264.573(a)(4) §265.443(a)(4)
Liquid Collection System	• Must allow for removal of waste for proper RCRA management and to prevent overflow	§§264.573(h), (l) §§265.443(h), (l)
	• Must include run-on and run-off controls as necessary	§§264.573(d), (e), (f)
	• Is subject to regulation as a hazardous waste tank	§264.190(c) §265.190(c)
Liner and Leak Detection System*	• Is not subject to specific permeability criteria	--
	• Must signal releases from the drip pad at the earliest practicable time	§264.573(b)(2) §265.443(b)(2)
	• Must be structurally sound and chemically compatible	§264.573(b)(1) §265.443(b)(1)
Dust Controls	• Must be used to minimize tracking of waste by personnel and vehicles	§264.573(j) §265.443(j)

* The regulations offer drip pad owners and operators a choice between application of surface coatings and provision of a liner and leak detection system.

operators can achieve the required level of protection using most of the sealers, coatings, and covers currently available on the market**.**

Finally, EPA intends the drip pad design standards to prevent migration of waste from the unit into the surrounding environment. Provision of an underlying synthetic liner and leak detection system can prevent waste migration into adjacent subsurface soil, groundwater, or surface water. No specific permeability criteria are designated for a drip pad liner, but the unit's leak detection system must be able to signal releases from the pad at the earliest practicable time. For all pads constructed after December 24, 1992, EPA also mandates the installation of a leak collection system to remove wastes accumulating on the synthetic liner. In addition, any sumps or other collection devices used in association with a hazardous waste drip pad are regulated as hazardous waste tanks, and the owner and operator of the unit must comply with all applicable provisions in Subpart J of Part 264/265.

When the regulations were first promulgated, a new drip pad was required to conform to the standards for both surface impermeability and liners and leak detection. Since that time, the Agency revised the drip pad management standards; now owners and operators of new drip pads may choose between these two options. EPA does not recommend one option over the other, but believes that, over the long run, installation of a liner and leak detection system will require less maintenance and be less costly than repeated applications of surface coatings. Prior to use for hazardous waste management, the owners and operators of new drip pads must implement one of the design options.

All existing drip pads (i.e., drip pads that were constructed or for which a binding contract was made prior to December 6, 1990) must be sealed, coated, or covered with an impermeable material meeting regulatory specifications. An existing drip pad that already has a surface coating will need no further upgrading to comply with federal standards. The owner or operator of an existing drip pad may choose to modify the unit to meet the performance standards for liners and leak detection systems, but is under no federal obligation or deadline to do so. An existing unit that is upgraded to include a liner and leak detection system is no longer subject to the surface coating requirements. Before such an upgrade is completed, however, the owner or operator must develop and submit a written plan for modifying the unit to the Regional Administrator. The plan must include a description of all proposed repairs and upgrades, as well as a schedule by which modifications will be made. An independent, qualified, registered, professional engineer must certify that the proposed plan will bring the drip pad into compliance with all applicable liner, leak detection, and leak collection standards (§§264.571/265.441).

2.3 OPERATING STANDARDS

All new and existing drip pads must be in compliance with the operating standards codified in §§264.573/265.443. Generally, a drip pad must be maintained free of cracks and show no signs of corrosion or other forms of deterioration. Drip pads must also be cleaned frequently to allow for weekly inspections of the entire drip pad surface without interference from accumulated wastes and residues. The manner and frequency of cleaning required is determined on a case-by-case basis. The facility's operating log must document the date, time, and method of each cleaning, and all cleaning residues must be managed as hazardous wastes under RCRA Subtitle C. In addition to occasional cleaning, drippage and precipitation must be emptied into a collection system as often as necessary to prevent waste from overflowing the curb around the perimeter of the unit. All collection tanks must be emptied as soon as possible after storms to ensure that sufficient containment capacity is available to accommodate continued run-off.

2.4 INSPECTIONS

Three types of inspections are required for drip pads. First, an existing drip pad must be inspected to ensure that the unit is still protective of human health and the environment and thus fit for continued use. Until the unit is in full compliance with the current standards, an independent, qualified, registered, professional engineer must prepare an annual written assessment of the drip pad's integrity. Each assessment must document the extent to which the drip pad meets current design and operating standards (§§264.571/265.441). Second, §§264.574/265.444 require newly installed or upgraded existing drip pads to be inspected to verify that the unit was properly constructed and that no damage occurred prior to use. During this inspection, an independent, qualified, registered, professional engineer must certify that the drip pad achieves all applicable design standards in §§264.573/265.443. Finally, all new and existing drip pads must be inspected weekly and after storms to ensure that the units and their associated liquid collection systems are functioning properly and to detect any deterioration of or leaks from the units. Upon inspection, if a drip pad shows any deterioration, the affected portion of the unit must be removed from service for repairs in accordance with specified procedures. If hazardous wastes have been released into the environment, all appropriate cleanup measures must be taken, and the release may be reportable under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and the Emergency Planning and Community Right-to-Know Act (EPCRA).

2.5 CLOSURE

To ensure that drip pads are properly managed after their useful lives, drip pads must be closed so as to prevent the future migration of contaminants into the environment and to protect human health and the environment. Closure of a drip pad involves removal or decontamination of all associated waste residues, contaminated soils, and contaminated system components (including equipment) (§§264.575/265.445). If all contaminated soils cannot be removed or decontaminated, the unit will be considered a landfill for purposes of closure, post-closure, and financial responsibility, and must be closed according to the requirements for landfills in Part 264/265, Subpart N. In such instances, the drip pad owner/operator must also obtain a post-closure permit addressing specific conditions for groundwater monitoring, corrective action, and post-closure care.

2.6 DRIP PADS USED FOR TEMPORARY ACCUMULATION

Some of the regulations discussed in detail above apply to drip pads used for hazardous waste storage (e.g., drip pads operated such that wastes remain in the unit for more than 90 days after generation). The regulations in §262.34(a)(1)(iii) state that a generator who accumulates hazardous waste on a drip pad for 90 days or less will not require a RCRA permit for storage, provided that:

- The unit conforms to the technical standards in Part 265, Subpart W
- Written procedures are developed to ensure that wastes are removed from the pad and collection system at least once every 90 days
- Records are kept documenting that those procedures are followed.

As stated in §262.34(a)(1)(iii), drip pads used for temporary accumulation of wastes by a generator are exempt from all requirements in Part 265, Subparts G and H, except for those in §§265.111 and 265.114, which relate to the closure performance standards and the disposal or decontamination of all equipment, structures, and soils.

Under §262.34(d), small quantity generators (SQGs) are subject to a reduced set of requirements when accumulating hazardous wastes in tanks or containers meeting the interim status unit standards. SQGs who accumulate wood-preserving wastes on drip pads do not qualify for this partial exemption. Consequently, all generators of more than 100 kilograms of waste per month who manage wood-preserving wastes on drip pads must comply with the requirements applicable to large quantity generators in §262.34(a). As a result, the maximum generator accumulation time period on drip pads is 90 days. Generators using drip pads must also comply with the requirements that apply to large quantity generators for personnel training, development of a full contingency plan, and biennial reporting. Conditionally-

exempt small quantity generators, however, are not subject to the drip pad management standards, nor are they subject to the time limit of 90 days.

2.7 APPLICABILITY TO STORAGE YARD DRIPPAGE

Most wood preserving wastes are generated immediately following wood treatment, when excess solution drips off the treated wood. This drippage and the drip pad collecting the drippage are fully subject to the Subpart W standards. Some drippage can also occur, however, after the treated wood has been transferred to a storage yard to await shipment off-site. Although this drippage remains a hazardous waste, the yard is not necessarily subject to the drip pad requirements. Under the drip pad standards, the management of infrequent and incidental storage yard drippage is exempt from the drip pad regulations if these releases are immediately cleaned up in compliance with a written contingency plan developed by the facility owner and operator (§§264.570(c)/265.440(c)). The plan must stipulate how responses are to be conducted, how responses will be documented, what methods will be used to ensure that records are retained for three years, and how contaminated media and residues will be managed in accordance with applicable federal regulations.