Guidance

Information for Petitioners Seeking a No-Migration Variance Under the RCRA Land Disposal Restrictions for Temporary Placement of Treated Hazardous Waste Within a Permitted Subtitle C Landfill

February 2023

U.S. Environmental Protection Agency
Office of Resource Conservation and Recovery
Materials Recovery and Waste Management Division
1200 Pennsylvania Ave, N.W.
Washington, DC 20460
Mail Code 5101T

DISCLAIMER

This guide is not a regulation, nor can it be considered a substitute for the actual regulations, related laws, and applicable court decisions. This guide presents EPA's interpretation of the federal RCRA hazardous waste regulations. The contents of the guidance document do not have the force and effect of law and the Agency does not bind the public in any way and intends only to provide clarity to the public regarding existing requirements under the law or Agency policies, except as authorized by law or as incorporated into a contract. This information is not a substitute for compliance with 40 CFR § 268.6 but provides additional information in the specific situation where hazardous waste is treated and then is temporarily stored in piles within a permitted subtitle C landfill, prior to either transfer to the working face of the landfill, or removal for retreatment if necessary.

About this Guidance

The Land Disposal Restrictions (LDRs) are a key part of the hazardous waste regulatory program under the Resource Conservation and Recovery Act (RCRA) and require that hazardous wastes meet certain treatment standards prior to land disposal. If these standards are not met, land disposal of the waste is prohibited. The RCRA statute and implementing regulations allow land disposal of hazardous waste not meeting applicable treatment standards where a No Migration Variance (NMV) is approved by EPA. An NMV is a formal decision that can be rendered by EPA in response to a petition filed with the Agency, to allow the land disposal at a particular facility of specific prohibited waste, i.e., a waste not meeting the applicable LDR treatment standards. In this notice, EPA is providing information for persons who may wish to apply for an NMV for one or more temporary waste piles, where treated hazardous waste that is expected to meet LDR standards is temporarily stored within the boundary of a permitted hazardous waste landfill prior to moving that waste within the landfill to its final disposal or removing it for further treatment.

Background and Purpose

The regulatory requirements for an NMV under the RCRA LDRs were first established in 1986,[1] and in 1992, EPA issued guidance on these requirements.[2] The 1992 guidance is applicable to landfills, surface impoundments, and waste piles, and also acknowledges temporary placement of waste under an approved NMV; however, the guidance did not address the specific situation

[1] 51 FR 40572, November 7, 1986.

[2] *No Migration Variances to the Hazardous Waste Land Disposal Prohibitions: A Guidance Manual for Petitioners*, EPA Office of Solid Waste, July 1992, EPA-530-R92-023.

identified in this notice where temporary piles of treated waste are placed within the boundary of a RCRA -permitted hazardous waste landfill.

Some commercial hazardous waste landfill facilities offer services for treating hazardous waste in addition to providing landfill disposal. In determining the appropriate treatment, facilities evaluate the incoming waste streams to identify the best treatment strategy (e.g., type and quantity of reagents, mixing times). Facilities rely on information in waste profiles provided by generators, waste characterization conducted by the facility (including characterization specified in their Waste Analyses Plan or WAP), as well as familiarity with waste streams (e.g., if a waste stream is received on a routine basis from the same source). Once treated, facilities may store the treated (e.g., stabilized) waste temporarily in units such as tanks, containers or containment buildings to allow the treated waste to "cure" and/or to confirm that the treated waste meets the applicable LDR standards. The treated waste is then moved into the landfill for disposal.

EPA is aware that some facilities have established procedures whereby a pile of treated hazardous waste is temporarily staged within the boundaries of the permitted subtitle C landfill while awaiting confirmation by the facility through testing results that the treatment program is performing as expected and that the treated waste meets the applicable LDR standards. Where the treated waste is confirmed to meet the LDR standards, the pile is moved to the "working face" of the landfill for final disposal. If there is an exceedance of an LDR standard, the pile is picked up and returned to the treatment process for further treatment. Any instance where a pile does not meet the applicable LDR standards and has not been granted an NMV would be a violation of the LDR requirements - the hazardous waste must either meet the LDR standards, or

an approved NMV must be in place.[3]

The NMV Process

The NMV petition submittal and decision process is found in 40 CFR 268.6. Review and approval of an NMV petition is delegated to the EPA Regional Administrator for the EPA Region in which the waste management unit is located. EPA does not authorize states to implement the NMV authority. As part of the petition process, EPA may request additional information from the petitioner to evaluate the demonstration. EPA will provide notice in the *Federal Register* of the intent to approve or deny the NMV petition with an opportunity for public comment. The final decision is to be published in the *Federal Register*, and petitions to renew must undergo notice and comment procedures as well. An NMV that has been issued can be revoked for cause, including if migration occurs. Once approved, the term of an NMV shall be no longer than the term of the RCRA subtitle C permit for a permitted disposal unit, and no longer than 10 years for a unit operating under interim status. The 1992 guidance should be considered a resource for preparation of any submittal, in addition to the considerations described here.

This guidance addresses how to make a demonstration that the treated waste and constituents will not migrate beyond the temporary waste pile. The RCRA statutory language requires a demonstration "to a reasonable degree of certainty, that there will be no migration of hazardous constituents from the disposal unit or injection zone for as long as the waste remains hazardous" (RCRA § 3004(d)(1)). EPA has interpreted this language to mean that it must be demonstrated,

[3] Memorandum from Barnes Johnson to EPA Regional Division Directors, April 11, 2014; https://rcrapublic.epa.gov/files/14843.pdf

to a reasonable degree of certainty, that hazardous constituents will not exceed Agency-approved health-based levels (or environmentally protective levels, if they are appropriate) beyond the boundary of the disposal unit. While it is EPA's interpretation that man-made barriers or engineered systems (e.g., liner systems) alone generally will not meet the "no migration" standard, this is not the case for temporary land-based storage of treated waste as is being considered in this document. The containment of hazardous waste within engineered barriers can be considered in making the "no migration" demonstration for waste awaiting the results of verification sampling after treatment, provided that wastes are to be removed after a reasonably short storage period that may be conservatively projected to be well before the failure of the engineered barrier system.[4]

Information to be Submitted to EPA

EPA expects that petitioners will be able to take advantage of existing facility information (e.g., existing monitoring, inspections, engineered barriers, waste analyses), where appropriate, as part of any demonstration. In developing an NMV petition, a petitioner must satisfy the no migration criteria set forth in 40 CFR 268.6, and petitioners should describe any and all controls that will be applied to the temporary waste pile to prevent the migration of hazardous constituents from the pile and the monitoring that will be used to detect migration at the earliest practicable time. For example, the use of temporary barriers, such as plastic covers above and below the piles; visual monitoring and prompt responses to possible releases; and generally good housekeeping practices that ensure the treated waste remains in the pile during the temporary storage period

[4] *No Migration Variances to the Hazardous Waste Land Disposal Prohibitions: A Guidance Manual for Petitioners*, EPA Office of Solid Waste, July 1992, EPA-530-R92-023.

would be elements to consider. Attributes of the permitted landfill cell (e.g., design, existing controls, monitoring) in which the pile or piles are located should also be taken into account to the extent that they support the demonstration criteria being applied to the piles themselves. In other words, if a particular control or requirement is in place for the landfill cell and can prevent potential releases from the pile or piles, it should be described in the petition (and petitioners should specify how that control or requirement prevents migration from the boundary of the temporary waste pile).

The regulations in 40 CFR 268.6(a) describe the components of what a demonstration must address; § 268.6(b) specifies certain criteria that must be satisfied for that demonstration, and § 268.6(c) describes the monitoring program that will be used to verify that the conditions of the NMV are being met. The components for an NMV demonstration outlined in § 268.6(a) are:

- Descriptions of the specific waste(s) and specific unit for which the demonstration will be made;
- Waste analysis describing the chemical and physical characteristics of the waste;
- Comprehensive characterization of the disposal unit site, including air, soil, and water quality;
- Monitoring plan to detect migration at the earliest practicable time; and
- Sufficient information to assure EPA that the owner/operator of the unit receiving the wastes will comply with other applicable federal, state, and local laws.

Below are some considerations regarding these components with respect to NMV petition submittals for piles temporarily storing waste within a permitted Subtitle C landfill that has been treated with the expectation that it meets the applicable LDR standards for permanent disposal in

the landfill.

Facility Description - The NMV petition should include a description of the hazardous waste management facility where the waste will be treated, temporarily stored, and permanently disposed in sufficient detail to familiarize the reviewer with its overall operation. This type of information and level of detail will be similar to those included in the facility's RCRA permit application. The facility name, mailing address, and physical location should be provided, together with information on a point of contact for correspondence concerning the petition. Detailed design, layout, and operating plans should be provided for the unit covered by the petition. Unit descriptions should focus on waste isolation capabilities of the unit.

Unit(s) Covered by the NMV – While the temporary waste piles addressed in this document are located within the boundaries of the RCRA-permitted landfill cell, the unit to which the variance applies, as envisioned in this guidance, is the pile itself. The information presented here is for a demonstration that the treated waste and constituents will not migrate beyond the temporary waste pile. Where different piles containing different types of treated hazardous waste are simultaneously staged within the landfill cell, each pile should be described and will be evaluated, as necessary, individually by EPA in order to properly assess potential releases when evaluating petitions, and for evaluating the monitoring that will be part of implementing any approved variance. Where multiple piles contain the same or similar wastes, the petition can address these units as a group. For example, where two or more piles are similar in terms of the nature and concentration of constituents, treatment used, waste matrices, etc., the petition need not separately specify or discuss such information for each individual pile where such piles are

effectively being managed as a single unit. Similarly, where the design, inspection, and monitoring of the pile coverings and liners that will be used to prevent releases from the piles are the same for multiple piles, such information on each individual pile need not be specified. In other words, a successful petition could include several categories of treated waste piles, but sufficient information must be included so that the potential for releases, and proposed inspection and monitoring, can be evaluated by EPA.

While the unit(s) to be evaluated under this guidance are the temporary waste piles, petitioners should also submit information related to the landfill to the extent the information aids in any demonstration that hazardous constituents will not migrate beyond the boundary of the temporary waste pile. For example, hazardous waste landfill design and operating requirements (40 CFR 264.301) include run-on and run-off controls that may be important in any demonstration that hazardous waste will not migrate from the pile. The specific location of where the temporary waste piles will be placed within the landfill cell should be identified in the petition, together with any pertinent information as to why this location was selected and how it will prevent the migration of hazardous constituents from the pile. These locations will be identified as part of any approved variance.

This document only applies where wastes managed in the temporary waste piles have been treated with the expectation that the waste meets the applicable LDR standards for permanent disposal in the landfill. A facility should include information about what types and quantities of waste are to be managed in the temporary waste piles and what treatment standards apply. Most of this information is presumed to already be available as part of the facility's WAP and

associated program for sampling and monitoring for compliance with the LDRs.

Duration of Temporary Storage – The NMV is necessary to ensure that any temporary storage of treated hazardous waste complies with the stringent statutory and regulatory standards in those instances where the hazardous waste that was treated and placed in a temporary waste pile does not meet LDRs. The approach described in this document is conditioned upon the temporary nature of the storage of treated hazardous waste within the landfill and is intended for situations where the temporary waste piles are used as part of an overall strategy to confirm consistent and compliant treatment that meets the applicable LDR treatment standards.

The petition should include a description of the length of time the waste is managed in the pile before either transfer to the working face of the landfill, or removal for retreatment, if necessary. A range of time may be provided, but EPA emphasizes that the temporary nature of the pile must be clearly characterized in the petition, such as through maximum storage times or other procedures described in the application, that may become part of the conditions established in an approved variance.

However, if any particular staging location *routinely* receives treated waste that does not meet applicable LDR standards, then the "temporary" aspect of storage for a given location may be called into question, which could affect the ability for EPA to grant the NMV. This also raises the separate question of whether the overall treatment process is operating as well as it should. Therefore, it is important for the petition to describe in sufficient detail the procedures used to treat, test, and confirm that wastes meet LDR standards, and how this information will be used to

determine when a pile will be removed either for retreatment, or for final disposal. Such information should be available as part of the facility's WAP and may include:

- Number and type (e.g., random grab) of samples taken after treatment for LDR compliance;
- Methodology used to select number and type of samples;
- Level of confidence that all waste is treated to LDR treatment standards (level of confidence related to number of samples achieving LDRs);
- List of regulated constituents (suite of metals, selected organics, cyanide).

Monitoring Plan – 40 CFR 268.6(a)(4) requires a petition to include a monitoring plan to verify continued compliance with the conditions of the no migration variance. Pursuant to 40 CFR 268.6(a)(4), the monitoring plan must be designed to detect migration "at the earliest practicable time." 40 CFR 268.6(c) lays out the specific information required in the monitoring plan. In addition to these requirements, the monitoring plan should also describe the sampling and analysis of the treated waste that determines *when* the temporary waste pile will be moved to the working face of the landfill for final disposal. The demonstration should allow EPA to understand the process and timing of LDR treatment and confirmation that LDRs are met; this is fundamental to defining the scope and duration of storing treated waste temporarily.

Digitally signed by
CAROLYN HOSKINSON
Date: 2023.02.22
13:36:36 -05'00'

Carolyn Hoskinson, Director
Office of Resource Conservation and Recovery
Office of Land and Emergency Management