6560-50-P

ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 268

[EPA-R08-RCRA-2025-0420; FRL-12863-01-R8]

No-Migration Variance from Land Disposal Restrictions for Clean Harbors Grassy Mountain, Utah

AGENCY: Environmental Protection Agency (EPA).

ACTION: Notice of proposal to grant.

SUMMARY: The U.S. Environmental Protection Agency (EPA) is proposing to grant, with conditions, no-migration variances for four categories/groups of wastes, containing up to 250 temporary disposal units ("put piles") at any one time, from the Resource Conservation and Recovery Act (RCRA) Land Disposal Restrictions (LDR) standards at Clean Harbors' Grassy Mountain (Clean Harbors) commercial treatment, storage and disposal facility (TSDF) in Tooele County, UT. These variances will allow Clean Harbors to temporarily store treated hazardous wastes that are awaiting LDR compliance verification in put piles within their Subtitle C (hazardous waste) landfill. The petitioner demonstrated, to a reasonable degree of certainty, that there will be no migration of hazardous constituents from the disposal units for as long as the wastes remain hazardous. Additionally, once LDR compliance is verified, the put piles will be disposed within the onsite RCRA hazardous waste Landfill area and will be subject to the conditions set out in the Compliance Monitoring Plan section of this document.

DATES: Comments must be received on or before **[INSERT DATE 30 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER]**.

ADDRESSES: You may send comments, identified by EPA-R08-RCRA-2025-0420, by any of the following methods:

- *Federal eRulemaking portal*: *https://www.regulations.gov/* (our preferred

method). Follow the online instructions for submitting comments.

- *Email*: newland.jesse@epa.gov.
- *Mail, hand delivery or courier*: Deliver your comments to Jesse Newland, Land, Chemicals and Redevelopment Division, EPA Region 8, 1595 Wynkoop Street, Denver, Colorado 80202–1129, Mail Code: 8LCR-RC-P, telephone number: (303) 312-6353. Courier or hand deliveries are only accepted during the Regional Office's normal hours of operation. The public is advised to call in advance to verify the business hours. Special arrangements should be made of deliveries of boxed information.
- *Instructions*: All submissions received must include the Docket ID No. EPA-R08-RCRA-2025-0420 for this rulemaking. Comments received may be posted without change to *https://www.regulations.gov*, including any personal information provided. For detailed instructions on sending comments and additional information, see the "Public Participation" heading of the **SUPPLEMENTARY INFORMATION** section of this document.

FOR FURTHER INFORMATION CONTACT: Jesse Newland, Land, Chemicals and Redevelopment Division, EPA Region 8, 1595 Wynkoop Street, Denver, Colorado 80202–1129, mail code: 8LCR-RC-P, telephone number: (303) 312-6353, email address: newland.jesse@epa.gov.

SUPPLEMENTARY INFORMATION:

I. Public Participation

A. Docket

EPA has established a docket for this action under Docket ID No. EPA-R08-RCRA-2025-0420. All documents in the docket are listed in the *https://www.regulations.gov* index.

B. Written Comments

Submit your comments, identified by Docket ID No. EPA-R08-RCRA-2025-0420, at *https://www.regulations.gov* (our preferred method), or the other methods identified in the **ADDRESSES** section. Once submitted, comments cannot be edited or removed from the docket. EPA may publish any comment received to its public docket. Do not submit electronically any information you consider to be Confidential Business Information (CBI) or other information whose disclosure is restricted by statute. Multimedia submissions (audio, video, etc.) must be accompanied by a written comment. The written comment is considered the official comment and should include discussion of all points you wish to make. EPA will generally not consider comments or comment contents located outside of the primary submission (i.e. on the web, cloud, or other file sharing system). For additional submission methods, the full EPA public comment policy, information about CBI or multimedia submissions, and general guidance on making effective comments, please visit *https://www.epa.gov/dockets/commenting-epa-dockets*.

C. Submitting CBI

Do not submit information that you consider to be CBI electronically through *https://www.regulations.gov* or email. Send or deliver information identified as CBI to only the following address: RCRA Document Control Officer Andy Woodward, 1595 Wynkoop Street, Denver, CO 80202-1129, Mail Code: 8ECA-RO-E, Email: woodward.andy@epa.gov Attn: Docket ID No. EPA-R08-RCRA-2025-0420.

Clearly mark the part or all of the information that you claim to be CBI. For CBI information in a disk or CD-ROM that you mail to EPA, mark the outside of the disk or CD-ROM as CBI and then identify electronically within the disk or CD-ROM the specific information that is claimed as CBI. In addition to one complete version of the comment that includes information claimed as CBI, a copy of the comment that does not contain the information claimed as CBI must be submitted for inclusion in the public

docket. If you submit a CD-ROM or disk that does not contain CBI, mark the outside of the disk or CD-ROM clearly that it does not contain CBI. Information marked as CBI will not be disclosed except in accordance with procedures set forth in 40 Code of Federal Regulations (CFR) part 2.

II. General Information

A. Does this document apply to me?

This action applies only to Clean Harbors' Grassy Mountain facility (Clean Harbors) located in Tooele County, Utah.

B. What action is the Agency taking?

On July 16, 2024, Clean Harbors submitted to EPA a no-migration variance (NMV) petition, in accordance with 40 CFR 268.6, seeking an exemption from the Land Disposal Restrictions (LDR) prohibition on land placement of hazardous waste that does not meet the prescribed LDR standards of 40 CFR 268.40. Because the petition demonstrated to a reasonable degree of certainty that, for as long as the wastes remain hazardous, there will be no migration of hazardous constituents from the disposal units, EPA proposes to grant, with conditions, Clean Harbors' variance from the LDR prohibition for up to 250 put piles at any one time. If granted, the term of this NMV shall be no longer than the term of the RCRA Subtitle C permit for the permitted Landfill.

C. What is the Agency's authority for taking this action?

Sections 3004(d) through (g) of the Resource Conservation and Recovery Act (RCRA), 42 U.S.C. 6294(d)-(g), prohibit the land disposal of hazardous wastes unless such wastes meet the LDR treatment standards ("treatment standards") established by EPA ("Agency").

However, RCRA 3004(d)(1)[1], and its implementing regulations found at 40 CFR 268.6, provide an option for land disposal of hazardous waste that does not meet the applicable treatment standards where EPA has approved an NMV petition. Specifically, the regulations in 40 CFR 268.6(a) describe the components that a demonstration must address; 40 CFR 268.6(b) specifies certain criteria that must be satisfied for that demonstration, and 40 CFR 268.6(c) describes the monitoring program that will be used to verify that the conditions of the NMV are being met.

III. Background

A. No-Migration Variances and Guidance

An NMV is a formal decision that can be rendered by the EPA in response to a petition filed with the Agency, to allow land disposal within a particular disposal unit, of specific prohibited waste when it has been demonstrated, "to a reasonable degree of certainty, that there will be no migration of hazardous constituents from the disposal unit…for as long as the wastes remain hazardous."[2] It must be demonstrated, to a reasonable degree of certainty, that hazardous constituents will not exceed Agency-approved human health-based levels (or environmentally protective levels, if they are appropriate) beyond the boundary of the disposal unit.[3] In most cases, the disposal unit boundary is defined as the outermost limit of engineered components.[4]

The regulatory requirements for an NMV under the RCRA LDRs were codified in 40 CFR 268.6 in 1986,[5] and EPA issued guidance on these requirements in 1992. The 1992 guidance is applicable to landfills, surface impoundments, and waste piles. While

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[1] RCRA 3004(d)(1)(c) states: "…For the purposes of this paragraph, a method of land disposal may not be determined to be protective of human health and the environment for a hazardous waste referred to in paragraph (2)…unless, upon application by an interested person, it has been demonstrated to the Administrator, 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 wastes remain hazardous."
[2] *See* 51 FR at 40578, November 7, 1986.
[3] 57 FR 35941, August 11, 1992.
[4] *Id*.
[5] 51 FR 40572, November 7, 1986.

the 1992 guidance acknowledged temporary placement of waste under an approved NMV, it did not address the temporary placement of treated waste piles awaiting LDR compliance verification within the boundary of a RCRA-permitted Subtitle C (hazardous waste) landfill. In this situation, once a treated waste pile is confirmed to meet the LDR, it is moved to the "working face"[6] of the Landfill for final disposal; however, if there is an exceedance of an LDR standard, the waste pile is returned to the treatment process for further treatment.

Any instance where a waste pile does not meet the applicable LDR standards and an NMV has not been granted would violate LDR requirements — hazardous waste either must meet the LDR standards or have an approved NMV in place. To provide guidance specific to this circumstance, the EPA issued "*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*" (88 FR 10894, February 22, 2023) ("2023 Guidance") and posted it online at https://rcrapublic.epa.gov/files/14952.pdf.

The 2023 guidance acknowledges the need for unique considerations when a no migration demonstration for put piles occurs within a Subtitle C Landfill prior to permanent disposal in the Landfill. "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…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 would be elements to consider. Attributes of the

[6] The working face of a landfill is the area within a specific cell where waste is currently being placed and compacted. It is the designated section where waste is unloaded and daily cover is applied at the end of each working day.

permitted Landfill cell (e.g., design, existing controls, monitoring) in which the pile or piles are located should also be considered to the extent that they support the demonstration criteria being applied to the piles themselves." (86 FR 5192, January 19, 2021).

Approval of an NMV petition is delegated to the EPA Regional Administrator for the EPA Region in which the waste management unit is located. States are not authorized to implement the NMV authority; however, the EPA consulted with Utah prior to proposing to grant this NMV. The final decision will be published in the *Federal Register*. If granted, the term of an NMV may be no longer than the term of the existing RCRA Subtitle C permit for the Landfill. Any petitions to renew an NMV must undergo notice and comment procedures. An NMV that has been issued can be revoked for cause, including any migration of hazardous constituents.

40 CFR 268.6(e) acknowledges the potential for post-approval changes in conditions at the no migration unit(s) and/or the environment around the no migration unit(s). For purposes of these variances, these changes must be reported to the Regional Administrator of Region 8 (Region 8 Administrator) if these changes significantly depart from the conditions described in the variances and affect the potential for migration of hazardous constituents from the units as follows:

1. If Clean Harbors plans to make changes to the unit(s)' design, construction, or operation, such a change must be proposed, in writing, and include a demonstration to the Region 8 Administrator at least 30 days prior to making the change. The Region 8 Administrator will determine whether the proposed change invalidates the terms of the approved variance and will determine the appropriate response. Any change must be approved by the Region 8 Administrator prior to being made.

2. If Clean Harbors discovers that a condition at the site which was modeled or predicted in the petition does not occur as predicted, this change must be reported, in writing, to the

Region 8 Administrator within 10 days of discovering the change. The Region 8 Administrator will determine whether the reported change from the terms of the variance requires further action, which may include termination of waste acceptance and revocation of the petition, petition modifications, or other responses.

B. Clean Harbors' Petition for No Migration Variances

On July 16, 2024, Clean Harbors' Grassy Mountain facility (Clean Harbors) in Tooele County, Utah, submitted an NMV petition to the EPA seeking an exemption from the LDR prohibition on placing hazardous waste on the ground, if that waste does not meet the prescribed LDR standards of 40 CFR 268.40, by demonstrating that for as long as the waste remains hazardous, there will be no migration of hazardous constituents from the disposal units. Clean Harbors' no migration demonstration applies to 250 put piles at any one time located within the facility's Subtitle C Landfill cell, known as "Cell 8," Clean Harbors also requested that this variance proactively apply to future put piles of identical waste characteristics that would be staged in future proposed and permitted Subtitle C Landfill cells, known as "Cells 9 to 13."

While this Notice of Proposal to Grant applies only to those put piles placed within existing Landfill Cell 8, upon permit approval of Landfill Cells 9, 10, 11, 12, and/or 13, Clean Harbors may submit to the Agency, an addendum to this petition to expand this NMV and all of its conditions and requirements, to the put piles within the new landfill cell(s) if:

1. Clean Harbors is in compliance with the approved NMV,
2. The new landfill cell(s) use the same disposal unit engineered controls concept (e.g., landfill cell interior berms for run-on and run-off control) as approved in this variance,
3. The duration of temporary placement must remain at six (6) months or less and comply with the conditions established herein,
4. The waste categories remain the same, and

5. The monitoring program (e.g., groundwater monitoring) is expanded to include the new landfill cells.

In response to EPA requests following the original July 2024 submission, Clean Harbors provided supplemental information for the Agency's evaluation of Clean Harbors' no-migration demonstration. The original petition and the response to Agency information requests (together referred to as "the petition") can be found in the docket (EPA-R08-RCRA-2025-0420).

Clean Harbors' petition included the following components: (a) facility description, (b) site characterization, (c) identification and characterization of the affected wastes, (d) disposal unit engineered controls, (e) duration of temporary staging, (f) air pathway mitigation, (g) monitoring program, and (h) uncertainty analysis. These are discussed below.

IV. Basis for the EPA's Proposed Determination

A. *Components of the Petition*

1. Facility Description

Clean Harbors' Grassy Mountain facility (EPA ID Number: UTD991301748) is located three miles East and seven miles north of Knolls, Tooele County, Utah. The mean annual precipitation in the region is approximately 7.9 inches and 0.5 inches for rain and snow, respectively. The permitted facility, which covers an area of approximately 640 acres, with an additional 0.5-mile buffer along the perimeter, is expected to be in operation for more than ten years. A RCRA Part B Permit (hazardous waste permit) was issued by the EPA in 1998 and later transferred to the State of Utah for subsequent renewals. The latest renewal (signed on October 4, 2023) for a 10-year term, was issued by the Utah Division of Waste Management and Radiation Control.

Clean Harbors' hazardous waste permit authorizes the facility to manage liquid, solid or semisolid hazardous waste and non-hazardous industrial waste. The facility has

three active hazardous waste Landfill cells, two of which are also authorized for disposal of PCB waste. Waste treatment services provided at the facility include solidification, stabilization and macro/microencapsulation of hazardous waste and evaporation of non-hazardous wastewater. Solid, liquid, and sludge wastes are accepted in containerized or bulk loads (e.g., roll-off containers); however, the wastes that would generally be covered under this NMV are received as bulk loads.

2. Site Characterization/Unit Description

Currently, all put piles are temporarily stored in Landfill Cell 8 until LDR compliance has been confirmed, then compliant piles are moved to the working face of Landfill Cell 8. Put piles that fail to meet LDR standards are retreated and subsequently returned to a put pile in Landfill Cell 8. It is important to note that this variance, if approved, will apply to the each put pile and not to Landfill Cell 8. As stated in the 2023 guidance, where multiple piles contain the same or similar wastes, the petition can address these units as a group where such piles are effectively being managed as a single unit. As such, the Agency proposes that each of the four categories/groups of treated wastes described in the Waste Characterization section below will have its own variance; however, each put pile within each category/group will be assigned its own unit boundary.

Each put pile (approximately 35-cubic yards) is placed on a polyethylene barrier sheet (20-mil minimum thickness) within Landfill Cell 8. Because wastes are treated and presumed to meet LDR standards prior to placement in Landfill Cell 8, and storage in the petitioned units is temporary, the Agency has established unit boundaries (i.e., points of compliance for no-migration purposes) for each of the petitioned units to account for existing Landfill controls and appropriate deviations from the waste pile liner design standards of 40 CFR 264.251.

The Agency proposes that the unit boundaries extend vertically one inch below

the 20-mil thick polyethylene liner and laterally one foot short of the outermost surface edges of the 20-mil thick polyethylene liner. Air dispersion compliance will be demonstrated at the outer thickness of the Posi-Shell® liner.

3. Waste Characterization

In accordance with 40 CFR 268.6(a)(1), Clean Harbors indicated that the following four categories/groups of hazardous wastes and their underlying hazardous constituents (UHCs) found at 40 CFR 268.48 could be temporarily placed in the put piles after treatment to meet LDR standards: 1) general metals (D002, D004-D011); 2) cyanide/sulfide with metals (D002, D004 through D011, F006 through F012, F019); 3) high-chromium wastes (D002, D004 through D011, F006); and 4) ammonia (D002, D004-D011). These four waste categories/groups may be stabilized via treatment with any combination of the following reagents to prevent leaching: cement kiln dust, water, calcium polysulfide, ferrous sulfate, and sodium hypochlorite. The stabilization processes performed include the LDR technology standards for chemical oxidation (CHOXD), neutralization (NEUTR), chemical reduction (CHRED) and deactivation (DEACT).

Clean Harbors' hazardous waste treatment process for the four waste categories/groups is found in section 7, "Waste Treatment Process" of the facility's Waste Analysis Plan (WAP) dated July 25, 2025, available on the Utah Department of Environmental Quality website at https://deq.utah.gov/businesses-facilities/rcra-part-b-hazardous-waste-permit-clean-harbors-grassy-mountain-llc. The following summary cites directly from this WAP. The hazardous waste treatment processes include solidification, stabilization and/or oxidation/reduction. Solidification is performed on wastes containing free liquids. Pozzolans and other appropriate materials are used to chemically fix the liquid. This process may also be used to neutralize a waste stream and meet the LDR technology standard of neutralizing and deactivating. Pre-treatment analyses of the wastes are required to determine compatibility with the pozzolanic reactant. The initial

analysis, including fingerprint analysis, and compatibility testing is done prior to treatment. A post-treatment analysis using a paint filter test is performed to ensure that all free liquids have been chemically reacted, and the mixture is suitable for disposal in the Landfill.

4. Uncertainty Analysis

40 CFR 268.6(b)(5) requires the petitioner to include an analysis to identify and quantify any aspects of the demonstration that contribute significantly to uncertainty. The analysis must include an evaluation of the consequences of predictable future events, including, but not limited to, earthquakes, floods, severe storm events, droughts, or other natural phenomena. This analysis has already been performed in conjunction with Clean Harbors' approved RCRA Part B permit for the broader landfill and as such, the Agency accepts Clean Harbors' uncertainty analysis as presented in the petition located in the docket.

5. No-Migration Demonstration

The bases for the EPA's proposed conclusion that Clean Harbors has demonstrated to a reasonable degree of certainty that no hazardous constituents will migrate from the put piles for as long as the wastes remain hazardous are discussed in this section. Although wastes are treated with the intent of meeting the RCRA LDR standards prior to being placed in put piles, this NMV is a safeguard to ensure that any temporary storage of treated hazardous waste complies with statutory and regulatory standards, particularly in those instances where a treated hazardous waste placed in a temporary waste pile does not meet LDR standards. This NMV is conditioned upon the temporary nature of the put piles within Landfill Cell 8 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.

Where reasonable, the Agency considered existing landfill design and operating requirements (40 CFR 264.301) that include run-on and run-off controls to prevent the migration of hazardous constituents beyond the designated unit boundary. Additional information including monitoring data and discussions regarding the temporary nature of these put piles (i.e., duration of storage), testing for verification of treatment effectiveness, retreatment protocols and engineered controls, as referenced in this section, is available in the petition or supplemental information in the RCRA regulatory docket for today's document.

i. *Treatment effectiveness*. As required by 40 CFR 268.6(a)(2), Clean Harbors characterized the subject wastes, post-treatment, to determine if LDR standards were met. Analytical data was provided for January 2022 through March 2024 for each category of hazardous waste. Analyses were performed for compliance with the 40 CFR 268.48 Universal Treatment Standards (UTS) for all UHCs, including antimony (Sb), arsenic (As), barium (Ba), beryllium (Be), cadmium (Cd), chromium (Cr), lead (Pb), nickel (Ni), selenium (Se), silver (Ag), thallium (Tl), vanadium (V), zinc (Zn), mercury (Hg), and cyanides (CN).

Clean Harbors provided analytical data indicating that approximately 95% of all waste treated met the LDR standards following the first treatment procedure, without the need for additional treatment; however, in the early 2020's the passing rate decreased, due to some wastes having higher than expected concentrations of certain constituents. Clean Harbors reanalyzed incoming waste streams to adjust their treatment recipe/methods. Continued improvement in treatment effectiveness was demonstrated from 2022 to the present. In 2022, 316 waste piles were treated and analyzed and 282 met post-treatment LDR standards, resulting in a net "pass rate" of 89.2%. In 2023, 345 waste piles were treated and analyzed and 317 met post-treatment LDR standards (91.9%). From January to March of 2024, 113 waste piles were treated and analyzed and 108 met

post-treatment LDR standards (95.6%). By the end of March 2024, 126 waste piles were treated and analyzed and 121 met post-treatment LDR standards (96%). The results of these waste analyses are summarized in table A-1 of the petition located in the docket for today's document.

The sampling methodology used by Clean Harbors to verify compliance with LDR standards for the wastes post-treatment was deemed adequate for this NMV because: 1) verification samples were collected in accordance with the facility's approved WAP that requires sample(s) be collected from each batch of treated waste (see section 7.1 of the WAP: one batch is generally equivalent to the volume of one put pile; 2) the samples were collected and analyzed over extended periods of time to demonstrate long-term compliance history; 3) the treated wastes were analyzed for compliance with UTS for UHCs likely to be found in the wastes; and 4) pass or fail determinations for LDR compliance were presented for all wastes sampled and net pass rates were calculated from these determinations as described in the preceding paragraph. The current pass rate for temporarily staged subject waste piles exceeds 95%, demonstrating that these put piles do not routinely receive treated wastes that do not meet applicable LDR standards, thereby supporting the "temporary" nature of storage for each waste category. The Agency concludes that Clean Harbors has provided sufficient waste characterization information in its petition to support the conclusion of treatment effectiveness.

ii. *Duration of temporary storage*. When the LDR standard is confirmed to "pass," the put pile is moved to the working face of Landfill Cell 8 for final disposal generally within 45 days of initial placement of the put pile. If the LDR standard "fails," the RCRA permit requires the put pile to either be resampled or retreated immediately. Resampling consists of two grab samples per batch of waste to verify the results of the initial sample. If one or both resamples fail, the waste is retreated. If both samples pass, the put pile is moved to the working face of Landfill Cell 8 for final disposal. Alternatively, after an LDR "fail,"

Clean Harbors may choose to retreat the waste without re-sampling to verify the initial result. However, if the failed sample indicates that the concentrations of the UHCs are decreasing, possibly due to additional curing, a third confirmation sample is collected and analyzed. The end result of a multi-stage process for sampling and retreating is that a few waste piles may remain temporarily staged even after an LDR fail if the analytical data indicates additional curing time is appropriate. Clean Harbors requested up to six (6) months duration for temporary staging of a put pile to account for the retreatment and curing process. The Agency concludes that Clean Harbors has provided sufficient analytical data to justify a six (6)-month duration for storage of a put pile from the time the pile is first staged until final disposal in the working face of the Landfill Cell 8.

iii. *Disposal unit engineered controls*. This section describes existing and proposed put pile liners, put pile covers, and run-off/run-on controls. 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 is 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.[7] Because Clean Harbors' temporary storage for each put pile must not exceed six (6) months, and the lifespan of the engineered barriers described below extends into multiple decades with appropriate operational controls to prevent rips or tears, excluding the Posi-Shell® system which remains for the duration of temporary storage, the Agency concurs that Clean Harbors' use of the following barriers will prevent migration of hazardous constituents via

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

infiltration, lateral migration (e.g., erosion/ surface water interaction or movement of infiltration), and air dispersion/particulate loss.

The put piles will be encapsulated (liner below and Posi-Shell® atop) by the unit-specific engineered barriers discussed below to prevent migration of hazardous constituents beyond the waste pile boundary. These unit-specific barriers are distinct from the existing landfill controls, such as run-on and run-off controls, that were considered in the overall prevention of migration of hazardous constituents.

Liners

A liner of at least 20-mil thickness polyethylene geomembrane must be used as a barrier to vertical and lateral migration for the put piles. The liner beneath the pile will provide a barrier for vertical migration. The Agency agrees that a minimum of 20-mil thickness barrier is sufficient for this temporary application that will last six (6) months or less. Because the layout of the put piles is accommodated within the standard width of a pre-fabricated geomembrane roll, the liner must be one solid piece without the need for welding of seams. The lack of seams lends to additional assurance that migration of hazardous constituents will not migrate through a broken seam. The Agency concludes that a liner of at least 20-mil thickness, in conjunction with the inspection program described in the Compliance Monitoring Program section, is appropriate for use in this temporary disposal scenario; however, there must always be at least 12 inches of the liner visible on all sides of the waste pile to prevent potential migration of the waste from the edge of the liner.

Covers

Clean Harbors will use a Posi-Shell® cover to act as a rain and wind barrier for put piles, to ensure no migration of hazardous constituents from the waste piles occurs via lateral migration or air pathways. Posi-Shell® is a spray-applied mortar applied as a coating to the surface of the put piles, with a minimum cover thickness of 3/8-inch.

Because Posi-Shell® is a mortar, curing is necessary to allow it to harden. Curing typically occurs within 12-24 hours in dry weather, forming a relatively impermeable thin layer of durable, hardened mortar. However, if moderate to heavy rainfall occurs unexpectedly or is imminent, or if sustained freezing temperatures are expected for more than one day or if the temperature falls below 30ºF, the Posi-Shell® will not harden sufficiently. During these times of inclement weather, Clean Harbors must temporarily cover the put piles with polyethylene sheeting of at least 20-mil thickness, anchored with sandbags around its edges, until the adverse weather conditions abate, and the Posi-Shell® coating can be applied. Within twenty-four (24) hours of weather conditions amenable to Posi-Shell® application, Clean Harbors must apply the coating.

To ensure Posi-Shell® is appropriate for put pile covering, the Agency reviewed several case studies provided by Clean Harbors where Posi-Shell® was demonstrated to prevent erosion, air dispersion, infiltration of rainwater, and overall migration of wastes. Table 2 in the petition located in the docket summarizes these case studies.

The Agency concludes that Posi-Shell®, or under the limited inclement weather circumstances described above, a minimum 20-mil polyethylene sheeting cover, will serve as an appropriate barrier to protect the put pile from wind dispersion, erosion and rainwater infiltration.

Run-on/ Run-off Controls

Before placing the put piles in the temporary storage area of Landfill Cell 8, Clean Harbors must grade the temporary storage area where waste piles will be located. The grading must be relatively flat but with a slight positive grade to preclude ponding of water on the polyethylene liners. If one does not yet exist, a diversion berm of sufficient height/width to direct run-on away from the area must be constructed upgradient of the staging area. As Landfill Cell 8 is filled, if the waste grade changes adjacent to the put pile temporary storage area, additional diversion berms must be added, where necessary,

to divert stormwater run-on and run-off to isolate the staging area on the working face of Landfill Cell 8. To control run-off, in addition to the Posi-shell® coating, Clean Harbors will include depressions in the waste and ditches around the inside perimeter of Landfill Cell 8 embankments. In combination with General Surrounding Area Engineered Controls described below, these controls must be constructed and operated to contain the water volume of a 24-hour, 100-year storm event.

iv. *General surrounding area engineered controls*. All put piles are temporarily stored in a designated area of Landfill Cell 8 until LDR compliance has been confirmed. The put piles are then moved to the working face of Landfill Cell 8. Landfill Cell 8 has a liner system consisting of: 1) a bottom 60-mil textured high density polyethylene (HDPE) liner atop a 3-foot-thick compacted clay layer with a hydraulic conductivity of less than 1.7 x 10-7 cm/sec; 2) a double-sided geocomposite leak detection system drainage layer; 3) a top composite liner consisting of geosynthetic clay between two 80-mil textured HDPE liners; 4) a double-sided geocomposite leak collection system; and 5) a 2-foot thick cover layer. Stormwater run-on controls include diversion channels and embankments up-gradient and within active portions of the Landfill designed to contain a 24-hour, 100-year rainfall event.

v. *Groundwater monitoring*. Clean Harbors has a groundwater monitoring well network at the facility that currently includes four (4) upgradient monitoring wells and 56 downgradient monitoring wells. In particular, Landfill Cell 8 has five (5) downgradient monitoring wells in its proximity. The wells are monitored semi-annually under the RCRA detection monitoring program in the facility's RCRA Part B permit for the analytes set forth in Attachment VII-3. This attachment is in the docket. The Utah Department of Environmental Quality reviewed Clean Harbors' groundwater monitoring data and advised EPA that no hazardous constituents have been detected above their respective health-based levels within the permit cycle.

vi. *Compliance 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 NMV. The monitoring plan must be designed to detect migration "at the earliest practicable time." The plan must include frequent 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.[8] The monitoring plan must also include a discussion of 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.

Clean Harbors must maintain at the facility a put pile monitoring plan that includes, at a minimum, components (1-15) below, many of which were included by Clean Harbors in the petition and the Agency adopts as proposed.

Deficiencies identified during inspection must be remedied/repaired to ensure no migration of hazardous constituents occurs. Deficiencies may include but are not limited to: cracking, breakdown or insufficient application of the Posi-Shell cover; gaps, tears or holes in plastic sheeting utilized for the management of the unit; presence of stormwater run-on flow and/or ponded water; visibly exposed waste; poor overall pile condition. Deficiencies must be remedied within one (1) week of discovery and remedies must be recorded in the facility's operating record.

Deficiencies described by this section must be remedied regardless of whether Clean Harbors determines that a migration of hazardous constituents has occurred or may have occurred, if LDR compliance analyses of the waste in the unit is not yet available. If Clean Harbors determines that there has been a migration of hazardous constituents from any of the units, or is unable to remedy any deficiency within one (1) week of discovery,

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[8] *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 EPA* Office of Resource Conservation and Recovery, February 2023, https://rcrapublic.epa.gov/files/14952.pdf.

Clean Harbors must immediately suspend receipt of prohibited waste at the put pile and notify the Region 8 Administrator, in writing, within ten (10) days of the determination that a release has occurred.

1. Review and tracking of LDR standard “pass rates” for put piles. To ensure that the waste piles are only being “temporarily stored,” as described in the February 2023 guidance, if the failure rate of the initial verification test for treated put piles exceeds 5% in a calendar month, Clean Harbors must conduct a root cause analysis and adjust the treatment protocol for the affected category of waste.

2. Inspection of the temporary staging area for put piles prior to deploying the 20-mil polyethylene liner. The underlying area must be free of large or rigid objects that may damage the liner.

3. Observing that the liner is not displaced or damaged during placement of the waste piles on the liner to confirm the integrity of the liner beneath a waste pile. A damaged liner must be replaced with a new liner.

4. Daily inspection of covered waste piles to verify integrity of the liner, cover, and overall pile condition. Inspectors must, at a minimum, check for 1) signs of stormwater run-on flow that has or is migrating towards a put pile, or other signs of potential for put pile erosion, undermining, or washout of the waste encapsulation barriers; 2) damage from strong winds, heavy rain, or other extreme weather events (e.g., in particular, causing holes, uplift, or other breaches in the Posi-Shell® cover) within 24 hours of such event; 3) visible exposed waste; 4) releases of waste (washout/undermining, displacement/movement of pile such as shifting or slumping, windblown waste particles, etc.); 5) other indications of potential for migration or actual observed migration of hazardous constituents from the pile (e.g., liquid seeps on the waste pile slopes or emanating from its base); and 6) cracks in the Posi-Shell®.

5. Appropriate Posi-Shell® application. Adhering to inclement weather application prohibitions as recommended by the manufacturer. If a waste pile is unable to be immediately covered with a Posi-Shell® (e.g., moderate to heavy rainfall occurs unexpectedly or is imminent), the waste pile must be temporarily covered with polyethylene sheeting of at least 20-mil thickness and anchored with sandbags around its edges until the adverse weather conditions abate and the Posi-Shell® coating can then be applied. Posi-Shell® should not be applied when sustained freezing temperatures are expected for more than one day or during temperatures below 30ºF.

6. Verify 100% coverage of Posi-Shell® is achieved over the entire waste pile (no bare or thin spots).

7. Confirm that the minimum 3/8-in. thickness of Posi-Shell® is achieved.

8. Confirm that the Posi-Shell® cover is sufficiently set (hardened) before a moderate to heavy rainfall event.

9. Promptly re-apply Posi-Shell® cover if any deficiencies are identified during application, including but not limited to lack of coverage, thickness, or hardening.

10. Checking for loss of 100% coverage of Posi-Shell®, or other signs of cover degradation (imminent potential for loss of effectiveness or thickness).

Landfill Cell 8-specific remediation requirements:

11. Remove ponded water on the landfill surface that could affect the put piles.

12. Modify, as needed, run-on controls to continue to divert surface water around the waste pile staging area.

13. Maintain or alter, as appropriate, landfill grading to prevent put pile run-on.

14. Isolate the four categories/groups of put piles from each other.

15. Maintain landfill equipment.

V. Conclusion

The Agency proposes that Clean Harbors has successfully demonstrated, to a reasonable degree of certainty, that there will be no migration of hazardous constituents beyond the unit boundary for treated hazardous wastes temporarily stored in put piles within their permitted Subtitle C hazardous waste Landfill Cell 8 while awaiting LDR compliance verification.

Therefore, EPA proposes to grant, with conditions, no-migration variances for the four categories/groups of wastes designated herein, containing up to 250 put piles at any one time at Clean Harbors' Grassy Mountain TSD.

Cyrus M. Western,
Regional Administrator, Region 8.

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