



Preparing Work Plans for Removing Prohibited Waste from Municipal Solid Waste Landfills

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1. Purpose

This document provides guidelines for developing a work plan for removing prohibited wastes from a municipal solid waste (MSW) landfill (Prohibited Waste Removal Plan, or PWRP).

2. Overview

Pursuant to Title 30, Texas Administrative Code (30 TAC), Subsection 330.15(e) [330.15(e)] and 30 TAC 330.133(c), a MSW facility may not accept or dispose of prohibited waste. To maintain full and continuous compliance with applicable rules and the MSW landfill facility permit, the permittee or operator must take all necessary steps to remove any disposed prohibited waste.

Prohibited waste is defined in 30 TAC 330.15(e) and includes, but is not limited to lead acid storage batteries, used motor vehicle oils, oil filters, whole used or scrap tires, items containing chlorinated fluorocarbons (CFC), polychlorinated biphenyls (PCB) wastes, non-exempt radioactive materials, and regulated hazardous wastes. A MSW permit may also prohibit other wastes according to 30 TAC 330.133(c), such as Class 1 nonhazardous industrial solid waste. Landfill owners and operators must train staff to observe each load that is disposed at a landfill and ensure prompt removal of any prohibited waste.

A PRWP is required for removal of prohibited wastes that have been disposed of in the landfill and not immediately removed. The permittee or operator shall notify the Texas Commission on Environmental Quality (TCEQ) of such occurrences and prepare and submit a PWRP to the MSW Permits Section for review and approval before removing the prohibited wastes.

A PWRP is not required for removal of prohibited wastes that are discovered and immediately removed in accordance with the landfill permit and Site Operating Plan. Prohibited waste that has not been disposed of in the landfill must be returned immediately to the transporter or generator of the waste, or otherwise properly managed by the landfill.

3. Form and Content of Prohibited Waste Removal Plan

A PWRP should describe the procedures for identifying, removing, and properly disposing of the prohibited wastes. This guide describes the sections of a PWRP as well as the information to be included in each section. Additional information applicable to incidents, facilities, or projects may be added as necessary or as requested by the TCEQ.

4. General Information and Description of Incident

A PWRP should summarize how, where, and when the disposal of prohibited waste occurred and include the following information as applicable.

- Landfill location, owner, and operator.
- Name and identity of the prohibited waste generator and the generator's contact information.
- Name and contact information for the transporter that delivered the prohibited waste.
- Wastes authorized for disposal at the facility and unit or cell.
- Date and time the prohibited waste was accepted by the landfill.
- Classification and characterization of the prohibited waste.
- Volume of the prohibited waste that was received and volume that was placed in the landfill.
- If the prohibited waste was treated or solidified.
- If the prohibited waste was improperly manifested.
- The correct manifest description for the prohibited waste.
- The visual indicators and analytical indicators of the prohibited waste (before and after treatment or solidification, if applicable).
- The reason the prohibited waste was not properly disposed of.

5. General Description of Removal and Management Process for Prohibited Waste

Briefly describe the general approach of how the prohibited waste will be removed and managed, the process to manage uncertainties, notification to the TCEQ, and how the removal process will comply with the facility Site Operating Plan.

6. Location and Removal of Prohibited Waste

Describe the procedures for locating, quantifying, excavating, staging, sampling and testing, and properly disposing of the prohibited waste. In addition:

- List third party consultants, contractors, and subcontractors (including names and contact information) involved in the removal activities.
- Identify the parties responsible for overseeing the project and certifying completion of the waste removal (including names and contact information).
- Describe how prohibited and affected wastes will be removed and managed. Affected waste is MSW waste that has been contaminated by or comingled with the prohibited waste.
- Describe timelines and methods for decontamination activities.
- Explain how a health and safety plan will be used by persons involved in the removal activity, how persons will be trained to follow the plan, and where it will be maintained.
- Discuss if soil or other materials will be used to cover the waste to reduce the risk associated with the handling of the prohibited waste.
- Describe the prohibited waste indicators and constituents of concern, and how these were considered in the development of the PWRP.

6.1. Preliminary Estimates of Waste Quantities

Provide initial estimates of prohibited and affected waste volume limits and explain how these limits were estimated by providing the following:

- Estimates of the volume and dimensions of prohibited and affected waste.
- Description of how the disposal location and volume of prohibited and affected waste were estimated.
- A map defining the location(s) of the prohibited and affected wastes that includes a 10-foot by 10-foot reference grid based on the landfill grid system.

6.2. Delineation of Prohibited Waste, Affected Waste, and Excavation Limits

A PWRP must clearly describe how all prohibited and any affected wastes will be identified and how their complete removal is to be confirmed.

Visual and analytical testing are the only two criteria to be used to define the limits of the excavation, and over-excavation to ensure removal of all traces of prohibited waste. Visual and analytical testing shall be used to ensure the complete removal of all prohibited and affected wastes.

If the excavation and over-excavation limits are to be identified by visual observations, then pictures shall be collected to demonstrate that the limits are protective.

The over-excavation limits (horizontal and vertical) shall be defined visually by the use of photographs and by analytical testing to demonstrate a sufficient zone of over-excavation extending at least two feet in all directions beyond any prohibited waste.

Once identified, the prohibited and affected waste areas must be secured and closed off from other landfill activities. Proper surface water run-on and runoff measures including covers (for example, tarps) should be provided for any affected areas believed to contain the prohibited and the affected wastes.

6.2.1. Sampling and Analysis Plan

Sampling procedures, sample preservation, and laboratory analyses must follow the *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods* (SW-846; US Environmental Protection Agency (USEPA), 2015) or other methods approved by the USEPA or the TCEQ.

A sampling and analysis plan should include procedures for the following:

- Collecting representative samples of prohibited and affected wastes.
- Identifying the constituents and parameters to be analyzed based on the type, characteristic, and classification of the prohibited waste.
- Determining constituent concentration limits for waste that may remain in the cell.
 - The Class 1 concentration limits listed in Table 1 of Appendix 1 to 30 TAC Section 335.521 (30 TAC 335.521) may not be exceeded, unless the cell in which the waste will remain is authorized to accept Class 1 wastes.
 - Prohibited and affected wastes referred to in 30 TAC 335.504 (listed as, mixed with, or derived from a listed hazardous wastes) must be completely removed from the MSW landfill. All sample locations (including their depths) and photograph locations must be identified with reference to the 10-foot by 10-foot grid based on the landfill grid system.
- Samples must be shipped to and analyzed by an accredited environmental testing laboratory in accordance with 30 TAC Chapter 25.
- All analytical samples must be appropriately preserved and accompanied by a completed chain-of-custody document.
 - Samples must be analyzed for the constituents and properties necessary to characterize the prohibited and affected waste in accordance with 30 TAC 335.503 (Waste Classification and Waste Coding Required), 335.504 (Hazardous Waste Determination), 335.505 (Class 1 Waste Determination), 335.508 (Classification of Specific Industrial Solid Wastes), and 335.509 (Waste Analysis) as applicable. The list of constituents and parameters for laboratory analysis should be determined or reduced based on the correct manifest description for the prohibited waste.
- Provide a final report including all analytical results and a complete laboratory case narrative for each data set.

6.2.2. Sample Collection Procedures

A PWRP should specify sample collection procedures, which should include the following:

- Description of how photographic evidence is to be collected and reported.
- Explanation of how representative waste samples are to be collected from the horizontal and vertical surfaces of the excavations.
- An estimate of samples to be analyzed per square foot of the excavation surfaces.
- How the waste samples will be identified with reference the 10-foot by 10-foot grid based on the landfill grid system and throughout the final report.
- Description of the sample collection equipment and containers to be used to acquire analytical samples.
- Type of personnel protective equipment to be used, as needed.
- How the samples will be properly preserved according to the analytical methods.
- How any excavation equipment is to be decontaminated prior to collecting each sample and at the end of each workday and at the end of the project.
- How the excavated wastes will be identified, characterized, and classified.
- An estimate of the number of excavated waste samples to be analyzed.
- How the samples of the excavated wastes and analytical results will be associated with the transport containers that contain the excavated waste, to ensure the containers are delivered to an authorized facility for final disposition.

6.3. Excavation Procedure

6.3.1. Excavating Waste

A PWRP should specify excavation procedures, including criteria for the extent of excavation and over-excavation.

- Excavations and over-excavations may proceed based on visual observations with photographic evidence and, if necessary, also by confirmation sampling and analysis.
- Initially, personnel should utilize visual observations to determine the horizontal and vertical limits of the prohibited and affected wastes.
- The excavation limits should be determined by the absence of prohibited waste, plus a minimum over-excavation volume of at least 2 feet in all directions from the affected wastes.

6.3.2. Liner Disturbance

A PWRP should include a discussion about whether the liner system was disturbed or removed as part of the prohibited and affected waste removal.

- If liner system protective cover soils are affected, the protective cover soil should be removed carefully, to not damage geomembrane or compacted clay layers in the liner system.
- Any liner material found to be affected by the prohibited waste must be removed or decontaminated until indicators demonstrate that the removal or decontamination is complete.
 - If the liner system is removed, proper measures must be taken to prevent contamination of materials underneath the liner system.
- If disturbed, the liner system, including protective cover, must be repaired or re-installed consistent with the design and the liner quality control plan.
 - Repairs must be documented and certified in liner reports with accompanying liner report forms.

6.3.3. Protecting the Excavation

Run-on and runoff control should be provided for any excavation. Collected contaminated waters must be properly managed as water affected by prohibited waste.

When paused or completed, the excavation areas should be covered to prevent surface water run-on and runoff. Coverings should continue until the excavation is refilled and daily cover or intermediate cover has been placed over the filled excavation.

6.3.4. Managing Excavated Waste

All excavated waste shall be properly stored until disposal. All areas where the excavated waste, leachate, and contaminated water are stored must be lined and provided with secondary containment.

- Affected waste may be stockpiled on top of unaffected waste if separated by barriers that prevent migration of waste constituents to underlying unaffected waste. The underlying unaffected waste must be sampled and analyzed after the stockpiled affected waste is removed, to verify the underlying waste is unaffected.
- Roll-off boxes and open-end containers may be used for storing waste.
 - As a container is filled, the wastes must be visually examined to determine if there are visible indicators of the prohibited waste contamination present.
 - Following cessation of excavation activities each day, all waste in containers must be covered and secured from the elements.
- Containers used for storing or staging excavated wastes must be decontaminated or properly disposed of with the prohibited waste. If decontamination is to be carried out, wastes generated from the decontamination process must be managed as prohibited waste.

- Decontamination is not complete until a representative sample of the rinsate demonstrates that the rinsate is clean.

6.3.5. Confirming Removal of Prohibited and Affected Waste

Visual examination and laboratory analysis should be used to confirm that all prohibited and affected wastes have been completely removed. The removal is incomplete until confirmed by either visual examination or laboratory analysis.

If either the visual examination or laboratory analyses do not confirm complete removal of the prohibited and affected waste, then additional excavation is needed.

6.4. Disposal of Excavated Wastes

Describe how excavated waste will be managed, manifested, transported, and properly disposed.

Excavated waste that has been determined to not be the prohibited waste and not be affected by the prohibited waste may be returned to the landfill. If the excavated prohibited and affected waste is a waste authorized for disposal in another cell at the same facility, the waste may be disposed of in the appropriately authorized cell (such as Class 1 waste in a Class 1 cell).

All excavated prohibited and affected waste that cannot be disposed of in another cell at the same landfill must be disposed of at a facility authorized to accept the waste.

Waste loads should be profiled and manifested in accordance with applicable state and federal regulations by the waste removal contractor or the landfill operator before transport to an approved disposal facility.

7. Evaluating Leachate from Affected Waste Cells

7.1. Sampling and Analyzing Leachate

A PWRP should address sample collection and testing for the appropriate constituents of concern within the leachate from landfill cells that contained the prohibited waste.

The facility should collect leachate samples from the most appropriate sump or sumps that drain the cell(s) that contain the prohibited waste as soon as a prohibited waste incident is discovered, to establish a possible background leachate concentration level for any of the prohibited waste constituents of concern.

The PWRP needs to demonstrate the background concentration for any constituent of concern with samples that are collected from the appropriate sumps that serve the area where the prohibited waste is currently buried.

Sample collection and analysis post completion of waste removal activities may be used to demonstrate that the leachate was not affected. The leachate samples must be collected, stored, shipped, and analyzed following the analytical method requirements.

If samples confirm that leachate has not been affected by the prohibited waste, the leachate can continue to be managed in accordance with the landfill permit. If the leachate is determined to have been affected, the leachate must be removed and taken to an authorized facility.

7.2. Criteria for Excluding Leachate Sampling

If there is a timely discovery that prohibited waste was disposed in a landfill, the landfill owner or operator may prepare a demonstration that leachate from the prohibited waste did not enter the landfill leachate collection system, and may propose that leachate sampling is not necessary. Criteria for making a demonstration:

- The prohibited waste was promptly discovered (same day of disposal or within a few days).
- Rain has not fallen on the area containing prohibited waste since the disposal, or
 - The area containing the prohibited waste was immediately covered with a plastic liner to prevent rainwater from entering the waste, or
 - The area containing prohibited waste was promptly covered with soil (such as daily or intermediate cover).
- Drainage around the affected area was controlled so that there was no stormwater run-on to the area.
- Samples collected during the excavation demonstrate that the waste or soil beneath and surrounding the prohibited waste and the affected waste have not been affected by the prohibited waste.

8. Equipment Decontamination and Managing Decontamination Wastes

A PWRP should include procedures for equipment decontamination and management of the decontamination waste. At a minimum, all equipment used in the excavation and management of the prohibited waste and affected wastes must be decontaminated between the collection of each sample and at the end of each day. Decontamination activities must provide for the containment and proper disposition of all decontamination materials (fluids, paper towels, etc.) at an authorized facility.

9. Project Timing and Completion

A PWRP must discuss the timing and completion of the project. The appropriate TCEQ Region Office must be notified at least 72 hours prior to the initial commencement of excavation. If inclement weather or other conditions prevent the completion of the waste removal within the specified time, the landfill must notify both the TCEQ MSW

Permits Section and the appropriate TCEQ Regional Office if the PWRP completion date is delayed.

The notification of the completion delay must include the reason why completion of the waste removal was delayed, and a revised schedule for completion.

After TCEQ review and approval of a final report, the excavated area may be refilled with authorized waste.

10. Final Report

A PWRP shall specify details that will be included in the final report to the TCEQ upon completion of the prohibited waste removal. This should at a minimum include:

- Submission of paperwork documenting acceptance of the initial waste load.
- A drawing showing the final horizontal and vertical excavation limits and elevations defining the affected area(s) of the landfill, with the 10-foot by 10-foot reference grid based on the landfill grid system.
- Completed logs, laboratory results, detailed photographs, and waste transportation records detailing the excavation, removal and disposal activities, including:
 - Final volume of waste removed and how the volume was calculated,
 - Final volume of waste transported and disposed,
 - Waste manifests as received,
 - Corrected waste manifests for those wastes that were incorrectly manifested,
 - Complete analytical data sets including the complete laboratory case narratives, and
 - Other waste handling documentation, as necessary.
- Acknowledgment that all records of remediation activities, including laboratory results and waste transportation records, will be maintained in the site operating record for the life of the facility and post-closure care period.
- Documentation of proper disposal of the prohibited and the affected waste.
- Documentation on the decontamination of equipment or waste containers, as necessary, and documentation on proper disposal of the decontamination materials and liquids.
- A certification signed and sealed by a professional engineer or a professional geoscientist licensed in Texas, that the remediation has been completed in accordance with the PWRP.

The final report should be submitted to the TCEQ Region Office and the TCEQ MSW Permits Section within 90 days after the prohibited and affected waste has been removed. The removal of prohibited and affected waste will not be considered complete until the final report is received, reviewed, and approved.

11. Required Appendices

Include appendices to a PWRP as needed, including:

- A drawing defining the affected area(s) of the landfill, with the 10-foot by 10-foot grid based on the landfill grid system.
- Copy of notification to the TCEQ Region Office of prohibited waste acceptance.
- Completed manifests for transport and disposal of regulated hazardous waste or Class 1 waste that were mistakenly accepted and disposed of at the landfill.
- Manifests for offsite transport and disposal of regulated hazardous waste or Class 1 waste removed from the landfill.
- Health and safety plan.
- Waste profile and completed manifest for wash materials and waters.
- The complete laboratory data sets including laboratory case narratives.
- Photographic evidence demonstrating remediation has been completed in accordance with the PWRP.