Texas Commission on Environmental Quality
Municipal Solid Waste Landfill
Ballast Evaluation Report

This form is to be completed by a knowledgeable independent third-party professional engineer experienced in geotechnical engineering. The engineer must have experience with groundwater level assessment and the analysis, design, and construction of liners placed below the seasonal high groundwater level.

The purpose of the ballast evaluation report (BER) is to verify that the liner did not undergo uplift during construction, filling, or operation of the landfill and to document that the ballast meets the Texas Commission on Environmental Quality's (TCEQ) regulatory requirements.

This report is to be supplemented with the groundwater and dewatering data, ballast documentation, and uplift stability calculations as detailed in the Liner Quality Control Plan (LQCP) of the permit Site Development Plan (SDP) and shall be the basis of documentation that the liner did not undergo uplift.

Attach additional sheets as needed, and on each sheet identify the appropriate part and paragraph number for each reference.

Texas Commission on Environmental Quality
Municipal Solid Waste Landfill
Ballast Evaluation Report

Part A: Facility Identification

Permittee: _____

Permit No.: _____ Operational Classification Type: _____

County: _____

Part B: General Information

1. Describe liner system cross-section in bottom, sidewalls, leachate collection trenches, and sumps.

2. Does the SDP require an active or passive dewatering system for this liner system?

   ☐ Active ☐ Passive

3. Cell, area, or sector this BER represents:

4. Date of the current LQCP that was used to develop this BER: _____

   a. Was this plan followed? ☐ Yes ☐ No

   b. If not followed, explain why: _____

5. Dates the certifying engineer and the technician visited the site to observe ballast conditions.

Part C: Groundwater and Ballast Data

1. Attach to this report a map(s) of the area under evaluation showing the site grid system and elevation contours of seasonal high groundwater level, liner system, and top of ballast. Also include actual groundwater elevation contours if lower than seasonal high groundwater levels due to dewatering or other causes if these lower groundwater levels are being used to demonstrate uplift stability during construction or during waste-as-ballast placement.

2. Attach instrumentation data from piezometers, pneumatic pore pressure cells, etc., taken during liner construction and since the end of construction or last BER.

3. Attach surveyed elevations of top of ballast.

   Was all surveying performed under the supervision of a registered surveyor? ☐ Yes ☐ No

4. Attach any test or other documentation of unit weights of soil materials used as ballast.

5. If waste was used as ballast, attach Waste-as-Ballast Placement Record with authorized signature of facility operator or permittee. Does the record indicate that the waste ballast is in accordance with the LQCP? ☐ Yes ☐ No

   If not, provide explanation: _____

   Does the record indicate that a minimum 40,000-pound wheeled compactor was used throughout the period covered by this BER? ☐ Yes ☐ No

   If not, indicate the following:

   Time period covered: _____

   Approximate volume of airspace consumed during period: _____

   Tons of waste from landfill gate records during period: _____

   Approximate percentage of daily/intermediate cover: _____

   Unit weight of waste (attach calculations): _____

   Note: Ballast calculations must not use unit weight of waste greater than 1,200 lbs/yd^3.

Part D: Calculations of Uplift Stability

1. Provide a table of calculated factors of safety against uplift for all critical locations in the area covered by this BER. The factors of safety must be checked at critical points in the liner system (i.e. at bottom of geomembrane, bottom of compacted clay, etc.). The factors of safety must cover stability using the appropriate piezometric heads after completion of waste-as-ballast placement. Include sample uplift stability calculation(s).

2. Do the analyses conducted in D.1 indicate adequate factors of safety against uplift?

   ☐ Yes ☐ No

   Note: 1.2 if only soil is used as ballast and 1.5 if waste is used as ballast from the seasonal high groundwater level.

Part E: Engineer Certification

I certify that the liner has been constructed as designed in accordance with the issued permit and in general compliance with the regulations.

Affix Professional Engineer's Seal Below:

_____
typed or printed name

_____
phone number

_____
signature and date

_____
company or business name

_____
address, city, zip code

Note: The professional engineer must be registered in Texas.

Part F: Signature of Permittee

1. I have read and fully understand the findings of the BER submittal.

2. I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

_____
signature

_____
typed or printed name

_____
title

_____
date signed

_____
phone number

_____
company or business name

_____
address, city, state, zip code