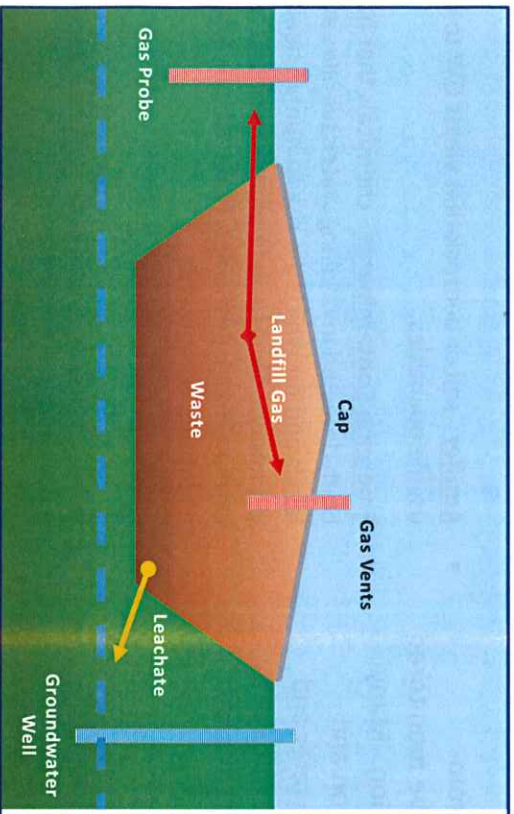
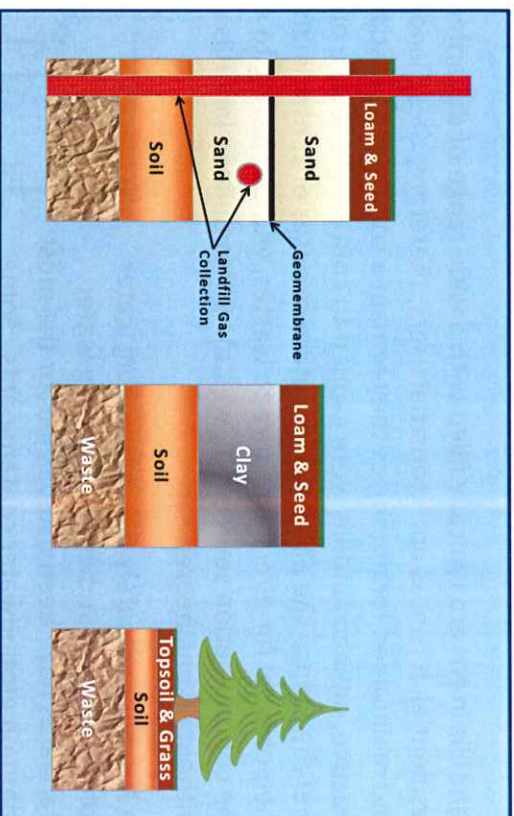


Post-Closure Care of Solid Waste Landfills: Maintenance, Monitoring & Reporting

Basic Design of an Unlined Landfill



Landfill Cap → Cover



Elements of an Annual Post-Closure Facility Report for Closed Landfills

- Section A General Site Conditions: access, signage, monitoring systems, other on-site activities
- Section B Stormwater System Conditions: swales, berms, culverts, detention basins
- Section C Decomposition Gas Control Systems: vents, extraction wells, gas probes, indoor air quality monitors
- Section D Cap (Cover) Conditions: engineered cap, soil cover
- Section E Leachate Collection & Leak Detection Systems: pumps, storage tanks & sampling ports
- Section F Action Items: list items needing to be addressed, and a general timeframe for repair
- Section G Summary & Assessment: summary of monitoring, evaluation of data, professional engineer's statement
- Section H Additional Information: anything not addressed, any changes, other activities occurring on or near the landfill

Post-Closure Care of Solid Waste Landfills: Maintenance, Monitoring & Reporting

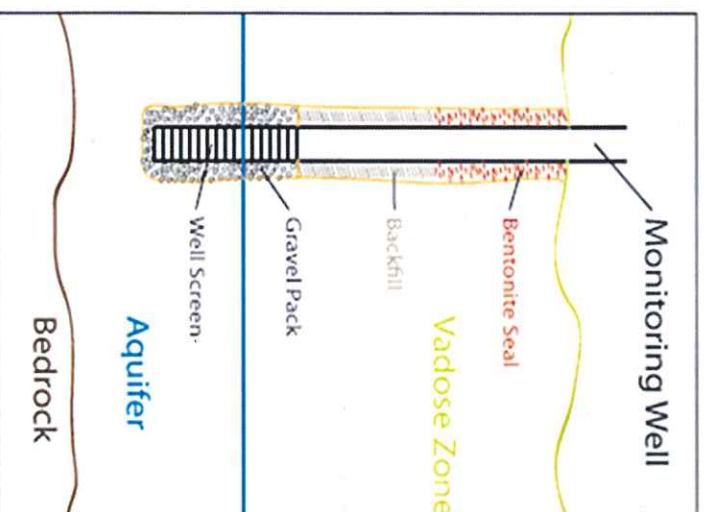
Why do Inactive Landfills Need to be Monitored?

Landfills in NH are typically filled with a wide range of discarded materials from residential, business and industrial users; therefore, these landfills need to be monitored and maintained for as long as they remain a source of potential contamination. Many inactive, unlined landfills were capped to contain the source of contamination and thereby reduce the potential for future releases of contaminants to groundwater and the potential for direct exposure to wastes, without having to remove, treat or destroy the contamination source (i.e., waste). Some unlined landfills were allowed to “close” without an engineered cap.

In NH, approximately 60% of drinking water comes from groundwater. Drinking water standards have been established for the most common groundwater contaminants. Some examples are:

- Landfill indicators: chloride, nitrate, sulfate, etc.
- Metals: arsenic, iron, manganese, etc.
- Volatile organic compounds (VOCs) : petroleum products (benzene, toluene, naphthalene, etc.) and solvents (PCE, TCE) – about 65 compounds
- Emerging Contaminants: 1,4-dioxane, PFAS (Per- and polyfluoroalkyl substances; PFOA & PFOS), etc.

Thus, many landfills have monitoring requirements that include a Groundwater Monitoring Permit.



Acronyms and Terminology

- **Aquifer:** soil or bedrock that yields GW to wells in usable quantities.
- **Emerging Contaminants:** chemicals that have been detected in drinking water supplies at trace levels and for which the risk to human health is not yet known. They include pharmaceuticals, personal care products, pesticides, herbicides and endocrine disrupting compounds.
- **Geology:** study of the earth.
- **Groundwater Management Zone (GMZ):** area of monitoring responsibility.
- **Groundwater (GW):** water below the land/ground surface in soil or rock, including perched water separated from the main body of groundwater (abbreviated from Env-Sw 103.14).
- **Hydrogeology:** geology specific to water resources.
- **Landfill gas (LFG):** the gas produced by decomposing or rotting waste in a landfill.
- **Leachate:** a liquid which has contacted or passed through solid waste (abbreviated from Env-Sw 103.34).
- **Vadose Zone:** zone between the land surface and the GW surface or water table.