

### Closure Requirements for Solid Waste Disposal Facilities

When a solid waste disposal facility (commonly called a “dump” or a “landfill”), reaches the end of its capacity to accept any more garbage, care must be taken to ensure that it is properly closed so that its environmental impact is minimized. This also applies to individual burial areas within facilities (commonly called “cells”). Proper closure of a facility or cell will help ensure that the area can be revegetated, that leaching is minimized, and that the buried garbage does not pose a physical hazard to people or animals that may use the site in the future. To ensure that these objectives are achieved, Environment Yukon has established closure criteria and requirements for facilities and cells. This information sheet presents a broad outline of the closure requirements; these generic requirements may be modified to account for site-specific factors in the permit issued to each facility under the *Solid Waste Regulations*.

#### Capping and Contouring

Closure of a cell is accomplished by “capping and contouring” the cell. “Capping” refers to covering the buried waste with enough gravel, soil, or other comparable material to ensure that all voids are adequately filled in, that all garbage in the cell is covered and that as little water as possible can get into the cell. When the cap is complete, there must be a minimum of 0.6 m of compacted material covering the entire cell.

Once capped, the surface of the cell should be “contoured” (smoothed over). This helps direct surface water away from the buried waste, which protects the cap from erosion and minimizes the infiltration of water into the cell. A last check should be made that the cell is left in a state that will not compromise human or animal safety (e.g. there are no sharp objects protruding from the cap and no sinkholes where cover material has dropped into a void between two bulky buried objects). Once the cap is contoured, the area can be revegetated with plants and grasses native to the area or this can be allowed to occur naturally. It is recommended that a minimum of 150 mm of topsoil be used to assist with revegetation.

Documentation of the closure of each cell must be maintained by the operator and provided to the Environmental Programs Branch on request. The documentation should include:

- photos of the cell before and after closure;
- details about the cover material used, its final thickness and its permeability;
- whether the waste was compacted before burial;
- methods to be used to ensure that surface water is diverted from the closed cell, including plans for the maintenance of drainage systems if applicable; and
- a site plan showing the locations of segregation/composting areas and closed and open cells at the waste disposal facility.

## Facility Closure

A closure plan must be submitted to the Environmental Programs Branch in advance of the intended closure of any waste disposal facility. This plan should be included in the facility's Solid Waste Management Plan and must be approved in writing before any work is done to close the facility. The closure plan must address/include the following:

- the nature and design of the final cover to be placed over the cells, including thickness and permeability of barrier and drainage layers, as well as information on topsoil, vegetative cover, and erosion prevention controls. The final cover must consist of a geomembrane, or a clay or composite liner with a minimum thickness of 600 mm and a hydraulic conductivity of  $1 \times 10^{-6}$  cm/s or less when compacted to 95% of Standard Proctor;
- methods to be used to ensure that surface water is diverted from the closed cells, including plans for the maintenance of drainage systems if applicable;
- the intended final disposition of any wastes stored aboveground at the site (i.e. burial in a cell; removal to another facility or for recycling; incineration, etc.);
- procedures for notifying the public about facility closure and available alternative disposal facilities, as well as methods to be used to restrict access to the site once closed, to discourage continued use of the site, and to clean up or remove waste that is deposited following site closure;
- a monitoring plan for groundwater, surface water, and erosion and settlement for a minimum post-closure period of 25 years;
- for facilities with landfill gas monitoring systems, a monitoring plan for landfill gas, including plans for means of controlling landfill gas and for the maintenance of monitoring systems;
- for facilities with leachate collection systems, a plan for the continued collection and removal of leachate, including maintenance of leachate collection infrastructure; and
- the estimated closure cost to carry out closure and post-closure activities for at least 25 years and how this cost will be covered (e.g. annual contribution to a "closure fund").

After the facility has been closed in accordance with the approved closure plan, a follow up report must be submitted to the Environmental Programs Branch documenting the capping and contouring activities; the revegetation efforts; the final disposition of all wastes at the site. A final site plan including the locations of all closed cells, and photos of the closed site, must be provided with the closure report.

## Post-Closure Monitoring

In accordance with the permit issued to the facility operator, closed facilities will require continued periodic inspections and monitoring of:

- Groundwater and/or surface water that may be impacted by the site;
- Surficial drainage at the site, to ensure diversion of water around the closed cells; and
- Cell caps, to monitor erosion, settlement and revegetation progress.

Annual reports documenting the inspections and monitoring results must be provided to the Environmental Programs Branch during the post-closure period as established in the permit.

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### For more information on the Solid Waste Regulations please contact:

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Copies of Yukon regulations may be viewed online at [www.environmentyukon.gov.yk.ca/monitoringenvironment/](http://www.environmentyukon.gov.yk.ca/monitoringenvironment/) under the 'Standards and Approvals' section, or at any Yukon Public Library, territorial agent, territorial representative or regional services office. You may purchase copies at the Inquiry Centre, Yukon Government Administration Building, 2071-2nd Avenue in Whitehorse, or by mail from the Subscriptions Clerk, Yukon Government Queen's Printer, Box 2703, Whitehorse, Yukon, Y1A (phone (867) 667-5783 or toll free 1-800-661-0408 extension 5783).

