APPENDIX C

GUIDELINES FOR THE INTERPRETATION OF THE REGULATION

(Municipal Standards for Landfills)

This Guideline is only for the interpretation of the proposed standards in the application of Regulation 309. The Ministry Guideline, "The operation, establishment, management and closure of landfilling sites, (under revision) which provides administrative and technical details for waste disposal sites, should be consulted in conjunction with these guidelines when applying the regulation.

GUIDELINES FOR THE INTERPRETATION OF O.R.309

1. LEGAL SURVEY

a) RATIONALE

The intent is to provide a legal designation for new sites that can be registered on title for the protection of future landowners and also to provide a legal description of the area which is to be used for the disposal of waste.

b) MINIMUM REQUIREMENTS

A legal survey should be prepared for all lands set aside for waste disposal including lands to be used for buffer areas. The boundaries should be set out so as to enable accurate determination of the location of the site. Reference point(s) from which site and fill boundaries can be determined should be marked by visible posts.

Because the legal survey may not be obtainable for sites that are located on crown lands and sites that are operated by Ministry of Natural Resources, a description of the land which is to be used for landfilling and the buffer zone should be provided.

2. REGISTRATION ON TITLE

a) RATIONALE

The intent is to identify lands which are being or have been used for waste disposal. This will assist in future land use planning adjacent to and in the vicinity of the site as well as on the site.

b) MINIMUM REQUIREMENTS

The legal survey of the landfilling site should be registered under a relevant Act e.g. The Land Registry Act, the Land Titles Act, the Mining Act.

The registration must be completed before any waste is deposited at the site.

3. DEVELOPMENT PLANS

a) RATIONALE

The intent is to provide for orderly and planned operation of the site to protect the natural environment and to ensure that the management of the site is in accordance with the approval of the site. A Development Plan which is fully adhered to should lead to optimum site utilization.

b) MINIMUM REQUIREMENTS

The Development Plan should accompany the application for the site approval.

The plan should include site maps, showing the adjacent properties, location of structures, surface drainage courses and users of ground and surface waters on and adjacent to the site.

The development plan may also include other requirements of landfilling standards, e.g. signs, fencing, on-site road, cell cover and monitoring locations.

For classes: IO, RO, UO sites

The plan can be prepared by the owner/operator or by a professional knowledgeable in waste

management and disposal techniques. The proponent must submit a site plan detailing the site development, contact person, scheduling, maintenance and housekeeping, methods of operation, equipment used, types of waste accepted, lifetime capacity of the site, sequence of utilization of areas of site for filling, on-site roads, and other relevant aspects. The Development Plan must also address a monitoring program, cell cover, final cover, leachate and gas control measures, surface drainage and site contours, contingency plans, closure program and end use. The plan need not be complex and an anticipatory description of the ways the proponent intends to operate the site will be sufficient.

For classes: I40, R40, U40, and I200, R200, U200 sites

A comprehensive development plan should be prepared by professionals who are proficient in waste management and disposal techniques. The minimum requirements of the plan include, site development, planned methods of operation, equipment to be used, the types of waste to be accepted, initial and final contours, cross-sections of the fill areas and details of any leachate and gas control measures.

4. FENCING

a) RATIONALE

The intent is to discourage, for safety reasons, unauthorized entry by public or entry by animals into the landfill area.

b) MINIMUM REQUIREMENTS

For class: I0, I40, R0, R40 and U0 sites

Natural topographic barriers or a minimum farm type fence will be required.

For class: I200, R200, U40 and U200 sites

A security type, chain link fence, or similar, will be required.

5. SITE PREPARATION REPORT

a) RATIONALE

The intent is to confirm, before any wastes are deposited, that the site preparation has been carried out in accordance with the approved development plans. If, during the development of the site any unusual observations are noted which require modifications to the original plan, such changes to the plan should be included.

b) MINIMUM REQUIREMENTS

Before any waste is deposited, a written report will be submitted to the Regional Director by the proponent that specifies the scope of the work which has been carried out. The report will provide details of the construction of all the items necessary, e.g. on-site roads, cells, fences, leachate control measures etc., if required. It will also set out changes that were not originally identified in the approved Development Plan, in sufficient detail that will enable the Regional Director to approve the necessary modifications to the original plan before any waste is deposited.

6. BUFFER

a) RATIONALE

The intent is to provide a peripheral area around the fill area, within the boundaries of the site, that is to be used for the on-site attenuation of contaminants, maintenance and management of site and equipment/and also to provide room to implement technical corrective measures for the collection and treatment of contaminants.

b) MINIMUM REQUIREMENTS

A minimum of 30 metres of on-site buffer area around the fill area shall be provided for all sites. This should be sufficient for:

1) general operation and maintenance controls;
2) leachate and gas control measures;
3) any visual barriers required;
4) noise, odour and dust controls.

The exact width of the buffer zone would be site specific but will never be less than 30 metres.

7. ON-SITE ROADS

a) RATIONALE

The intent is to allow for the normal, orderly operation of the site under all reasonable weather conditions.

b) MINIMUM REQUIREMENTS

All on-site roads should be capable of handling vehicles hauling waste to and from the sites under normal weather conditions.

A single lane on-site road should be 3 metres wide, appropriately surfaced and have a one metre shoulder for snow removal. It should also have suitable passing and turning provisions, if needed.

8. SIGNS

a) RATIONALE

The intent is to provide the users of the site with information (and direction) regarding the site operation and management, and any other pertinent information such as on-site operating procedures.

b) MINIMUM REQUIREMENTS

A minimum of one sign at the entrance to all sites shall be provided. The sign should provide information regarding the hours of operation and types of wastes to be accepted. It should also identify the owner/operator of the site.

9. SCREENING

a) RATIONALE

The intent is to provide on-site screening to shield the public view of landfilling operations from adjacent areas.

b) MINIMUM REQUIREMENTS

Requirements can vary with the location of the site. On-site buffer areas can be used to provide screening. In certain cases, where on-site screening may not be effective due to topographic features, off-site screening on a case by case basis may be required.

For class I0, I40, I200 sites visual screening from the public road is required.

For class R0, R40, R200 sites visual screening from sensitive land uses is required. Sensitive land use is a land use where man or the natural environment may experience an adverse environmental effect.

For class U0, U40, U200 site screening from all sides of the site is required.

10. HOUSEKEEPING

a) RATIONALE

The intent is to provide for (on-site) housekeeping measures in a landfilling site operation to minimize the nuisance effects such as dust and litter.

b) MINIMUM REQUIREMENT

For class I0 and I40 sites, clean-up in spring and fall should be carried out.

For class I200, R0, R40, R200, U0, U40, U200 sites housekeeping measures, degree and frequency, should be included in the development plans, e.g. installation of snow fences to control the litter, use of dust suppressants on road to control dust and covering the waste immediately after deposition to control odours.

11. CONTINGENCY PLAN

a) RATIONALE

The intent is to ensure that appropriate backup measures are available in the event that the approved site design fails.

b) MINIMUM REQUIREMENTS

A Contingency Plan should identify and outline backup measures in the event operation cannot continue as normally intended. The requirements would be site specific. The plan should address the potential scenario for failure and remedial measures.

The Contingency Plan should also identify financial considerations associated with the above-noted item. It should also include alternate disposal scenario.

A monitoring program must be part of the Contingency Plan.

For class I0, I40, R0, U0 sites the Contingency Plan can be prepared by persons knowledgeable in the operation and management of waste disposal sites, i.e. any experienced person or firm, but not necessarily a consultant or a consulting firm.

For class I200, R40, R200, U40, U200 sites the Contingency Plan should be prepared by persons qualified in the operation and management of waste disposal sites, i.e. a staff person or a consultant or a consulting firm experienced in the operation of waste disposal sites.

12. HYDROGEOLOGICAL AND HYDROLOGICAL EVALUATION

a) RATIONALE

A Hydrogeological and Hydrological Evaluation is required to ensure that the establishment and the operation of the landfilling site will not adversely impact on the environment or public health and safety.

b) MINIMUM REQUIREMENT: FOR ALL CLASSES

An assessment and evaluation of the geology and hydrogeology of all sites will be required and must be prepared by a qualified professional. The details of the study will be site specific.

The extent of the hydrogeologic assessment would depend upon factors such as the consequences of failure and the complexity of the hydrogeologic system.

13. SURFACE DRAINAGE

a) RATIONALE

The intent is to provide protection from landfilling operations for adjacent property owners to ensure that their properties will not be adversely affected by surface drainage arrangements.

b) MINIMUM REQUIREMENTS

Surface water protection should be adequately considered during the selection and design of the landfilling site. There should be minimal disturbance to the surrounding natural drainage pattern, either during development and operation or after completion and closure of the site. Perimeter ditches, impervious dikes, or any other engineered works that are normally used to intercept or direct surface waters, may be constructed around the fill area. The extent of the work required would be determined on a site specific basis.

Surface waters which contain contaminants (greater than the agreed concentration) originating from the landfill should be adequately treated before discharging to adjacent lands.

14. CELL COVER

a) RATIONALE

The intent is to ensure that deposition of waste will not adversely affect the environment and public health by providing cell cover while the site is in operation to control the emergence and spread of insects, rodents, litter and odour.

b) MINIMUM REQUIREMENTS

A minimum of 15 cm. of soil cover or equivalent material acceptable to the Director (e.g. synthetic foams or shredded waste) should be provided for adequate control of insects, rodents and birds, and to maintain an aesthetically acceptable site operation. The waste must be compacted before any cell cover is applied.

The frequency of cell cover should be as follows:

Class IO sites - every 30 days, except during the months of December, January, February and March, when no cover need be applied.

Class RO sites - every week.

Class UO sites - twice per week.

Class I40, I200, R40, R200, U40, U200 sites - on a daily basis or when the site is open, shortly after the deposition and compaction of the waste has been completed.

15. BURNING OF WASTE

a) RATIONALE

Opening burning of municipal waste is not considered an environmentally sound waste disposal method since burning creates: - a) air emission concerns, b) public and environment safety, c) lack of site operational control, d) nuisance, e) fire hazard.

b) MINIMUM REQUIREMENTS

Under controlled conditions and supervision, burning of segregated brush and clean wood wastes may be allowed at the following classes of sites: I0, I40, I200, R0, R40 and R200.

Burning of brush and clean wood wastes that have been segregated should only be allowed on a designated, cleared area of the site. The burning operation should be supervised at all times. A fire break of 30 m. around the burning area should be provided.

In the event there are continuing and unresolved complaints from the down-wind residents, the District Officer of the Ministry's District Office will direct appropriate remedial measures, including termination of the activity.

16. FINAL COVER

a) RATIONALE

Once a site or an area has reached its design limits and is to be closed, final cover should be applied to restore the area to its approved designated land use and to minimize the infiltration of precipitation.

b) MINIMUM REQUIREMENTS

A minimum soil cover of 0.75 metres plus vegetation or an approved synthetic membrane shall be provided for all classes to prevent wind and water erosion.

The final cover should be compacted over the fill area as soon as practicable and vegetation re-established. The final cover details should be included in the development plan.

For classes I40, I200, R40, R200, U40 and U200 sites, the proponents should also provide details for final cover including maintenance and restoration of the site to a beneficial use.

17. LEACHATE CONTROL

a) RATIONALE

The intent is to protect ground and surface waters from off-site contamination by leachate.

b) MINIMUM REQUIREMENTS

The requirements are site specific.

All attempts should be made in the preliminary stages of the site selection process to consider sites which may provide for natural attenuation, i.e. to contain and naturally treat the contaminants on the site. If this cannot be achieved, then engineered controls for the collection and treatment of leachate must be addressed.

The proponent of the site must determine any adverse off-site impacts that may arise and should submit proposals for approval for mitigating such effects. Both quality and quantity of ground water and surface water should be described in terms of their suitability for existing and potential uses. On-site buffer

areas can be used for leachate control. Leachate may also be naturally attenuated off-site provided an off-site leachate contaminant attenuation zone has been agreed to (legally) by the property owner(s) and the site owner/ operator. Ministry approval must be obtained if off-site leachate attenuation is contemplated.

18. GAS CONTROL

a) RATIONALE

The intent is to protect the safe use of adjacent lands and the safety of structures from migrating gases generated from the decomposition of waste.

b) MINIMUM REQUIREMENTS

The requirements will be site specific. The landfill site design should provide for on- site gas control measures.

The on-site buffer area is set aside for control purposes in order to prevent landfill generated methane gases from migrating off-site.

19. SUPERVISION

a) RATIONALE

The intent is to provide for orderly and safe operation of the landfill site, and to ensure that the wastes are handled in an approved manner and that unauthorized wastes are not accepted.

b) MINIMUM REQUIREMENTS

A full-time attendant for site classes I40, I200, R40, R200, U40 and U200 sites must be present when sites are open for public use. Class U0 sites will be inspected daily by the proponent or the owner/operator's staff. Class I0 and R0 sites shall be inspected on a weekly basis by the owner/operator's staff. The inspection implies a visit to the site to ensure that the site is being operated according to the Certificate of Approval and inspection results should be recorded.

20. VECTORS AND RODENTS

a) RATIONALE

The intent is to protect public health and safety by adequate control of vectors and rodents.

b) MINIMUM REQUIREMENTS

Contingency measures are required for classes I01, I40 and R0 sites. For classes I200, R40, R200, U0, U40 and U200 sites a routine pest control program must be provided.

21. MONITORING PROGRAM

a) RATIONALE

The intent is to ensure that the landfill is operating as designed and that appropriate data are available in order to determine the need for the implementation of the contingency measures.

b) MINIMUM REQUIREMENTS

The design of the monitoring program will be site specific. It will provide a description of the hydrogeological system at the site and the adjacent areas.

Class IO sites will only require general monitoring of existing adjacent wells and/or water courses. For all other classes of sites a predictive and a general monitoring program will be provided.

Predictive monitoring requires that anticipated monitoring results be specified in advance.

A general monitoring program normally applies to existing sites which would determine the migration of contaminants.

22. STATUS REPORT

a) RATIONALE

The intent is to provide the Ministry with a periodic, updated report on the operation and management of the landfilling site.

b) MINIMUM REQUIREMENTS

Status report formats will be site specific. The report will include items such as operating information, i.e. any variance from the development plans, complaints, if any, received regarding the operation of the site, monitoring data and their interpretation, anticipated changes in the operation and the management of the site, the expected size of the site, including plans for new sites at least within five years of site closure.

For class I200, R0, R40, R200, U0, U40 and U200 the owner/operator of the site must submit a report once a year to the Regional Director.

For site classes I0 and I40, a report is required once every two years.

23. FINANCIAL GUARANTEES

a) RATIONALE

The intent is to ensure that all private site owner/operators have adequate funds for any remedial work for non-anticipated occurrences on site (such as waste re-location, on-site road repair and leachate collection to prevent off-site contamination) and off-site remedial work (such as leachate and gas control systems), as well as for anticipated gas and leachate control systems. These funds would also be used for routine activities such as monitoring and closure requirements.

b) MINIMUM REQUIREMENTS

Financial guarantees can be provided.

Financial guarantees <u>are</u> required for private site owner/operators. They <u>may</u> be required for municipally owned sites at the Director's discretion.

The amount of the financial guarantees is site specific. They must cover a period of ten years and would be reviewed for additional ten year periods, each ten years thereafter.

If at any time during a ten year period, monitoring results indicate that the site safety is no longer a concern, then the funds may no longer be required.

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