

BURLINGTON LANDFILL - EXPANSION HEARING
(1984) APPROVAL, WASTE GENERATED, SITE OPERATION

SECTION F
INTRODUCTION

	PAGE
1. PURPOSE OF SCOPE	F-2
2. BACKGROUND	F-2
3. COMPLIANCE WITH EXISTING CONDITIONS OF APPROVAL	F-5
4. RESPONSIBILITY OF REGION	F-12
5. WASTE REQUIRING DISPOSAL	F-13
5.1 Rates of Refuse Generation	F-13
5.2 Waste Characteristics and Control	F-14
6. EXISTING SITE OPERATION	F-15
7. LIST OF REPORTS	F-16

SECTION F

INTRODUCTION

1. PURPOSE OF SCOPE

This report provides the basis for an application for a Certificate of Approval for continued use of the Burlington landfill site if necessary into 1987. The design and operations planning proposed herein will allow landfilling beyond the site's currently approved waste capacity. Proposed plans are fully integrated with those of the existing operations. Part of the basis for the design is a hydrogeological study prepared by Gartner Lee Associates Limited and an environmental analysis undertaken by Dillon staff. The plans presented herein meet the intent of Ministry of the Environment guidelines and regulations respecting landfills.

2. BACKGROUND

The Burlington landfill site is located off the North Service Road of Highway 403 between King Road and Waterdown Road in the City of Burlington (Figure F-1). The site was established by the then Town of Burlington in 1972. It was assumed by the Regional Municipality of Halton on 1 January 1974 as an operating landfill site. A chronological site history is provided as Table 1.

The site has continued in operation under authority of the Region since 1974. In April 1980, a public hearing was held before the Environmental Assessment Board to expand the site up to its present size. The additional property acquired through this expansion was 23.3 ha of which 7 ha was approved for landfilling. The site presently covers 68.3 ha of which

TABLE 1
SITE HISTORY*

2 July	1971	Original Application for a Certificate of Approval for a waste disposal site filed by the then Town of Burlington.
15 May	1972	Provisional Certificate of Approval #210201 issued to Burlington. Site subsequently opened.
1 January	1974	Regional Government in place.
8 July	1974	Application for a Certificate of Approval filed by Halton Region to change site ownership.
16 September	1974	Provisional Certificate of Approval #210102 issued to the Region.
5 July	1978	Halton Region directs M.M. Dillon to carry out a Regional interim waste disposal plan. (Study completed 29 August 1978)
19 September	1978	Burlington Landfill site extension studies underway.
14 January	1980	Application for expanded landfill operations filed by the Region.
31 January	1980	Provisional Certificate of Approval reissued for expanded Phase I area.
April/May	1980	Environmental Assessment Board hearing and decision approving Phase II area.
24 October	1980	Provisional Certificate of Approval reissued listing provisions for the approval of the Phase II area.
17 March	1983	Region approves start of study to examine the potential continued use of the Burlington site because of timing problems on long-term landfill component of their ongoing Environmental Assessment.
18 April	1983	Start of preliminary discussion groups on continued use proposals.
20 October	1983	Possible Continued Use Report (revised) completed.
7 December	1983	Region approves completion of studies for an Application for continued use of the Burlington Landfill.
February	1984	Region authorizes execution and submission of Application for Continued Use.

* Reports prepared on the Burlington Landfill are listed, chronologically, in Section 7.

29.3 ha is presently approved for landfilling. The basis for this previous application and approval was addressed in a Design and Operations Report, January 1980 prepared by M.M. Dillon Limited and a Hydrogeological Report prepared by Gartner Lee Associates Limited.

Provisional Certificate of Approval #A210102 was issued by the Ministry of the Environment on 24 October 1980, after recommendation for approval by the Environmental Assessment Board, to cover the approved site expansion. The Conditions of Approval attached to this Certificate, and the present status of compliance to these Conditions are discussed in the following section.

Since 1980, Dillon has carried out successive site capacity updates at this landfill to assess residual waste capacity and to monitor site operations. The current estimate of approved waste capacity will see the site completed by August 1984. The Burlington site is the only landfill presently operating in the Region.

The Environmental Assessment of the landfill component for Halton Region's long-term solid waste management system is presently underway. This work indicates new landfill capacity will not be available by the projected closure date of the Burlington landfill site and therefore, the Region undertook to establish an interim plan. The Region of Halton authorized Dillon in March 1983 to examine alternatives for the continued use of the Burlington Landfill. As part of this program, Dillon and Regional staff met with representatives of interested parties that may be affected by the landfill operation.

Preliminary plans for increasing waste capacity were developed. Gartner Lee Associates Limited were retained to advise on the hydrogeological aspects of these plans. Discussions were held with the Ministry of the Environment, the City of Burlington, citizens and industries local to the site, National Sewer Pipe representatives and the West Burlington Ratepayers Association. As a result of these meetings, the staging and concepts were redefined. The revised program was submitted to the Region and additional meetings held with interested parties. A major public meeting was held at Aldershot Collegiate on 28 September 1983.

A report entitled "Burlington Landfill Site; Report On Possible Continued Use - Revised", 20 October 1983 was prepared by Dillon and presented to Regional Council. On 7 December 1983 Dillon was directed by Regional Council to proceed with detailed technical studies on the Burlington landfill for the preparation of an application for a Certificate of Approval under the Environmental Protection Act.

3. COMPLIANCE WITH EXISTING CONDITIONS OF APPROVAL

Fourteen Conditions of Approval are currently listed on the Burlington Landfill's Provisional Certificate of Approval (Approval #A210102 dated 24 October, 1980). The Conditions are shown below along with a brief description of the Burlington site's status of compliance.

- 1) An access to the site from the North is not to be constructed and only the existing access from the North Service Road in the South is to be utilized.**

A northern access was not constructed for the landfill. The existing access point from the North Service Road has always been, and will continue to be, the only entrance to the Burlington site.

- ii) Liquid industrial and toxic waste including pathological waste, industrial and chemical sludges, hazardous waste, septic tank pumpings, radioactive waste and processed organic waste will not be accepted for disposal at the landfill site.**

These wastes are specifically excluded from the Burlington landfill and will continue to be so in the future. The primary control over wastes entering the landfill takes place at the scales as vehicles enter the site. Back-up control is effected by the spotter and equipment operator when wastes are deposited at the working face. Any unacceptable wastes are rejected.

- iii) The Regional Municipality of Halton will carry out the predictive monitoring programs including the submissions to the Ministry of the Environment of an annual monitoring report all in accordance with the Monitoring Report, prepared by Gartner Lee Associates Limited, April 1980 and with any amendments as required from time to time by the Director of the Environmental Approvals Branch of the Ministry of the Environment.**

Ground and surface water monitoring has been carried out at the site since 1980. Annual monitoring reports have been produced by Gartner Lee Associates Limited for the Region and subsequently submitted to the Ministry of the Environment for review. These reports are listed in Section 7.

- iv) No landfilling shall take place in the proposed expansion area until all boreholes, any gas or**

water wells, and any other conduits for possible leachate movement within the actual landfill area are identified and the proposed method of properly sealing these are submitted by the Regional Municipality of Halton and approved by the Director of the Environmental Approvals Branch, Ministry of the Environment.

In accordance with this Condition, identified leachate conduits have been sealed to the satisfaction of the Ministry of the Environment.

- v) Prior to landfilling in the Phase II expansion area, details of the surface drainage works, swales and sediment control measures, including measures for draining of Phase II during landfilling operations and for slope stabilization in areas of extreme erosion are to be submitted by the Regional Municipality of Halton and approved by the Director of the Environmental Approvals Branch, Ministry of the Environment.

Surface drainage and sedimentation control works were approved by the Ministry of the Environment prior to their construction. Perimeter ditching has been extended as landfilling progressed and a sedimentation pond was constructed adjacent to the North Service Road. A report dated 28 March 1982, concerning revegetation of the eroded Falcon Creek slopes was prepared for the Region by M.M. Dillon Limited. This report was submitted to the Ministry of the Environment and subsequently several slope rehabilitation measures were undertaken in this area.

- vi) Prior to landfilling in the Phase II expansion area, final plans, specifications and an engineer's report on the toe-drain and under-drain leachate collector system are to be submitted to and approved by the Director of the Environmental Approvals Branch, Ministry of the Environment.

These plans and specifications were submitted to and approved by the Ministry of the Environment.

- vii) Prior to landfilling in the Phase II Expansion Area, a contingency plan, for the east side of Falcon Creek Valley to intercept leachate, must be submitted by the Regional Municipality of Halton and approved by the Director of the Environmental Approvals Branch of the Ministry of the Environment.**

A leachate management contingency plan, prepared by the Region's consultants M.M. Dillon Limited and dated 28 September 1981, was adopted by Regional Council and subsequently submitted to the Ministry of the Environment. This plan would be utilized in the event that any of the ongoing monitoring programs indicate a long-term leachate problem for Falcon Creek. To date the contingency plan has not been necessary.

- viii) Prior to landfilling in the Phase II area of the site the Municipality shall certify that the site preparation work has been completed in accordance with the plans and specifications approved by the Director of the Environmental Approvals Branch of the Ministry of the Environment.**

Halton Region certified that surface and subsurface preparatory works for Phase II were substantially complete prior to landfilling in this area all in accordance with the plans and specifications approved by the Ministry of the Environment.

- ix) A progress report on landfilling operations including the following information:**
 - a) results of an interpretive analysis of all monitoring programs for gas and leachate;**

- b) the site map of all the landfilled areas and any deviations from the operating plans;
- c) yearly summary of volumes and weights of waste handled at the site;
- d) environmental and operational problems encountered during the operation and mitigating actions;
- e) quality and quantity of leachate discharged into the sanitary sewer system;
- f) assessment of the operation and performance of all gas and leachate control facilities.

is to be submitted every twelve months to the Director of the Environmental Approvals Branch, Ministry of the Environment. The first report is to be submitted by February 1981, with subsequent progress reports being submitted annually thereafter.

Annual monitoring reports, prepared by Gartner Lee Associates Limited, present the results of all monitoring programs, leachate studies and assess the leachate control works. Semi-annual site capacity updates, prepared by M.M. Dillon, address waste quantities, landfill progress and provide an evaluation of past landfill operations. Annual monitoring reports and information derived from the site capacity updates are submitted on a regular basis to the Ministry of the Environment.

- x) Within four months prior to the closure of the site, a complete closure plan pertaining to the termination of landfilling operations at the site, together with a schedule of dates and details as to the following stages:

- a) planning of the
 - i) development of new sites;
 - ii) rodent extermination at the closing site
 - iii) work required to restrict access to and landscape the closing site
- b) information to and education of the public of
 - i) plan for closure;
 - ii) alternative sites;
- c) implementation of the following parts of the plan
 - i) start-up of new sites;
 - ii) rodent extermination program;
 - iii) grading, compacting, seeding;
 - iv) surface drainage controls
- d) maintenance of the closed site
 - i) by periodic inspections;
 - ii) to ensure revegetation cover, control of erosion and to maintain integrity of the cover material;

is to be submitted for approval to the Director of the Environmental Approvals Branch, Ministry of the Environment.

As the Region is currently proposing to extend the life of the Burlington site, complete closure plans have not yet been prepared. Preliminary concepts for site after-use have been formulated, however, and discussed with the appropriate agencies (such as the Halton Region Conservation Authority and the Royal Botanical Gardens). These concepts are provided in this submission. Should approval not be received for the landfill continuation program, the Region will move to comply with this condition.

- x1) Within six months following the termination of landfilling operations at the site, two copies of as constructed site plans, including details of the final development contours, fill line, buffer zones, site boundaries, location of works, easements, monitoring stations and pollution control facilities are to be submitted to the Director of the Environmental Approvals Branch, Ministry of the Environment.

This Condition, effective upon site closure, will be satisfied by the Region in accordance with the Ministry's requirements.

- xii) Within four months prior to the closure of the site the Municipality shall submit to the Director of the Environmental Approvals Branch a post closure program providing for the long-term care and maintenance of gas and leachate monitoring and control facilities.

As previously stated, the Region is presently proposing to extend the life of the landfill site. A complete post closure program, therefore, has not yet been developed but would be should approval for continued landfilling not be granted.

- xiii) No part of the landfilling site shall be conveyed prior to or after closing of the site to any person by the applicant or any transferee from the applicant except to a Federal or Provincial Government, or any agency thereof without the prior approval of the Director of the Environmental Approvals Branch, Ministry of the Environment.

This Condition, common on Provisional Certificates of Approval for landfills, will be followed by the Region.

- xiv) No operation shall be carried out at the site after one hundred and twenty days from these conditions becoming enforceable unless

this Certificate including the reasons for these conditions has been registered by the applicant as an instrument in the appropriate Land Registry Office against title of the site and the duplicate registered copy thereof has been returned by the applicant to the Director of the Environmental Approvals Branch, Ministry of the Environment.

The Certificate, including the reasons for these Conditions, has been duly registered by Halton Region.

4. RESPONSIBILITY OF REGION

The Region of Halton is responsible for the provision of waste disposal facilities for its member municipalities. These mandatory responsibilities are set out in the Regional Municipality of Halton Act, Revised Statutes of Ontario, 1980, Chapter 436 and are summarized in Section 137, Subsection(2) as follows:

The Regional Corporation shall continue to provide facilities for the purpose of receiving, dumping and disposing of waste and no area municipalities shall provide such facilities.

A chronological record of the actions taken by Regional Council relative to solid waste management is provided as Section U of these documents.

With the closure of the Oakville landfill at the end of 1982, the Burlington site became the only operating landfill in the Region. Numerous public discussions and meetings with review agencies have been conducted during the formulation of the continued use plans for the Burlington landfill. An outline of these meetings is also provided in Section U of this report.

5. WASTE REQUIRING DISPOSAL

5.1 Rates of Refuse Generation

Until recently, waste quantities received at the Region's landfill sites had increased, on average, by 2.5% each year. In 1983, however, after the Oakville landfill was closed, recorded refuse quantities began to decrease. Refuse generation rates for 1983 were approximately 10% below those of 1982.

A study was undertaken to establish the reasons for the drop and to consider whether the lower tonnage rates would continue. Study results indicated that there would be a growth in waste quantities in the short-term, both from an increase in Regional population and from improved economic conditions in the commercial/industrial sector. Table 1 gives the expected annual waste quantities to 1988.

TABLE 1
PROJECTED WASTE QUANTITIES
(tonnes)

<u>Year</u>	<u>1983 Volume</u>	<u>Increment</u>	<u>Total</u>	<u>Average Tonnes/Month</u>
1984	167,800	7,150	174,950	14,600
1985	167,800	15,200	183,000	15,250
1986	167,800	18,700	186,500	15,550
1987	167,800	22,250	190,050	15,850
1988	167,800	25,800	193,600	16,150

5.2 Waste Characteristics and Control

The site will be available to municipal and private haulers collecting wastes within the Region. Wastes generated from locations outside regional boundaries will not be accepted.

Wastes that will be accepted at the site include solid domestic, commercial, institutional and industrial wastes as well as construction and demolition debris. Wastes from street cleaning, public utilities and other municipal activities will also be allowed.

Certain wastes are specifically excluded from the site. These are:

- pathological wastes
- industrial chemicals and sludges
- liquid industrial wastes
- hazardous or toxic substances
- septic tank pumpings
- radioactive wastes
- sewage sludge

The primary control of wastes being received at the site is vested with the scale operator. All vehicles entering the site report to the scale operator who is empowered to refuse any load of waste materials or to direct where the wastes are dumped within the landfill. The onus for proving the waste is acceptable for disposal is that of the hauler, not of the scale operator.

The secondary control of wastes is in the operating area. When wastes are dumped from a vehicle, they are visibly inspected by site staff. The staff are empowered to isolate unacceptable loads and require their removal by the hauler.

6. EXISTING SITE OPERATION

Vehicles enter the Burlington Landfill site along a paved access road running off the North Service Road between Waterdown Road and King Road. All incoming vehicles stop at the scalehouse and, with the exception of cars without trailers, all vehicles are weighed on electronic weigh scales. Vehicle weights are recorded for both incoming and outgoing traffic. Two full time personnel are stationed in the scalehouse.

All cars are directed to a supervised public container area where wastes are segregated for recycling or are dumped into a container for subsequent transfer to the landfill working area. Containers are available for scrap metal, glass and general refuse. A separate covered container for waste newsprint is located on the site access road before the scalehouse. During periods of bad weather, all vans and small trucks (with small loads) are also directed to the public container facility.

All other vehicles proceed from the scalehouse to the landfill working area and are directed to the current dumping area by a spotter. Two landfill compactors continually spread and compact the refuse on the working face. Scrapers, assisted by a bulldozer as required, carry out excavations to

approved bottom contours and stockpile the excavated material for later use as cover material. Compacted refuse is covered at the end of each working day. Other on-site equipment includes a loader for short hauls of cover material, a grader which is used for road maintenance and a bulldozer.

An equipment building is used for the overnight storage of machinery as well as to provide an area for routine vehicle maintenance. Another building, located adjacent to the public container facility, is used for the overnight storage of the grader.

A groundskeeper is employed to pick up litter. He is assisted, as needed, by part-time help. All on-site personnel are supervised by a full-time site manager.

7. LIST OF REPORTS

The following studies concerning the Burlington Landfill site have been completed:

- i) Interim Waste Disposal Feasibility Study; M.M. Dillon Limited, August 29, 1978.
- ii) Hydrogeological Study; Gartner Lee Associates Limited, September 26, 1979.
- iii) Phase I Expansion Report; M.M. Dillon Limited, October 19, 1979.
- iv) Design and Operations Report (Phase II); M.M. Dillon Limited, January 30, 1980.

- v) Monitoring Program Report; Gartner Lee Associates Limited. April 18, 1980.
- vi) Hydrogeological - Geotechnical Study, Contingency Leachate Collection System; Gartner Lee Associates Limited., August 14, 1980.
- vii) Site Capacity Update; M.M. Dillon Limited, November 26, 1980.
- viii) Monitoring Program - Interim Report; Gartner Lee Associates Limited., April 23, 1981.
- ix) Leachate Contingency Plan; M.M. Dillon Limited, September 28, 1981.
- x) Site Capacity Update; M.M. Dillon Limited, February 25, 1982.
- xi) Falcon Creek Revegetation Report; M.M. Dillon Limited, March 28, 1982.
- xii) Site Capacity Update; M.M. Dillon Limited, July 22, 1982.
- xiii) 1981 Monitoring Report; Gartner Lee Associates Limited, September 21, 1982.
- xiv) Site Capacity Update, M.M. Dillon Limited, February 23, 1983.
- xv) Site Capacity Update, M.M. Dillon Limited, June 27, 1983.

xvi) 1982 Monitoring Report; Gartner Lee Associates
Limited, August 29, 1983.

xvii) Possible Continued Use Report (revised); M.M Dillon
Limited, October 20, 1983.

xviii) Site Capacity Update; M.M. Dillon Limited,
December 19, 1983.

EX 66

REGIONAL MUNICIPALITY OF HALTON

PUBLIC WORKS

SOLID WASTE QUANTITIES (TONNES)

	<u>1983</u> <u>(Actual)</u>		<u>1984</u> <u>(Actual)</u>		<u>1984</u> <u>(Estimated)</u>
January	11,097]		11,231]		11,720]
	]		]		]
February	10,209]		11,957]		10,850]
	]	(46,728)	]	(51,069)	]
March	12,449]		12,095]		13,120]
	]		]		]
April	12,973]		15,786]		13,820]
May	18,124				19,240
June	16,522				17,320
July	13,358				14,170
August	15,429				16,270
Sept.	14,547				15,220
October	14,113				14,870
Nov.	14,993				15,750
Dec.	12,012				12,600
TOTAL	<u>165,826</u>				<u>174,950</u>

Projected Increase
1984 over 1983 = 5.5%

1984 05 18