

23 February 1983

The Regional Municipality
of Halton
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Attention: Mr. G. Woodburn, P.Eng.
Senior Waste Disposal Engineer

Burlington Landfill Capacity
Update

Dear Sirs:

The latest site capacity update and volume utilization calculations for the Burlington Landfill have now been completed. The study data, based on 15 April 1982 and 30 October 1982 photography was prepared by Northway-Gestalt and reviewed by Dillon. Study results are as follows:

Refuse density achieved - 830 kg/m^3
Refuse to cover ratio - 6.2:1
Estimated site closure - April/May 1984
Future fill required - $61,580 \text{ m}^3$

Detailed outlines of the calculations undertaken are attached for your information.

The high refuse density and refuse to cover ratio indicate that the study's base data may be partially inaccurate. This could either be caused by incorrect volume estimates by Northway-Gestalt or through an overestimation of final cover placed between photo dates. The volume utilized between photos was recalculated by Northway and although a slight change was found, it was not enough to bring these values in line with expected levels. The problem, therefore, probably lies in an overestimation of final cover quantities. This information was supplied by the Region to Dillon. The refuse density and refuse to cover ratio used in calculating the site's remaining waste capacity were based on data from previous capacity updates.

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The site closure date of April/May 1984 is approximately one month later than previously estimated. This is essentially due to the later than anticipated closure date for the Oakville Landfill site. Also, the projected 1983 and 1984 waste generation rates for the Region have been slightly revised (made lower), based on updated (1982) data. The site closure date is consequently in line with previous estimates. Changes to the refuse to cover ratio and refuse density were examined to determine their impact on site lives. No significant variations resulted.

We trust the foregoing is satisfactory. If you have any questions, please call.

Yours truly,

M.M. DILLON LIMITED



J.W. Read, P.Eng.
/ for W.F. Wells, P.Eng.
Project Manager

JWR:lly
Encl:

A. BURLINGTON LANDFILL

A.1 Volume Utilization

Total volume used between photos

90,345 m³

Net fill used:

i) fill excavated at site (Northway's volume of excavation plus 15% bulking and less 25% for material used from the Phases I/II landfilling areas)	34,096 m ³	
ii) from previous stockpiles (less 50% used at container station)	2,866 m ³	
iii) fill trucked in (less 50% for on-site compaction)	4,010 m ³	
iv) less fill left in stockpiles	(7,893 m ³)	
Gross Fill Used	33,079 m ³	
Less 15% for losses (Infilling of refuse voids etc)	4,962 m ³	
Total Net Fill Used	28,117 m ³	(28,117 m ³)

REFUSE VOLUME..... 62,228 m³

Waste received at site = 51,665 tonnes
Density Achieved = 830 kg/m³

A.2 Refuse:Cover Ratio

From A.1, Net fill used 28,117 m³
Less: Final cover where in place
(Assume 30,000 m² received 0.6 m final cover
between photos) (18,000 m³)
Fill Used for Intermediate and Daily Cover 10,117 m³
∴ 62,228 m³ Refuse: 10,117 m³ Fill
OR 6.2:1 Refuse to Cover

A.3 Remaining Capacity

Volume remaining to final contours (Includes future excavation)	554,783 m ³
Less 0.6 m final cover	(52,200 m ³)
Refuse, intermediate and daily cover	502,583 m ³
Less Cover at 3:1 refuse to cover ratio	(125,643 m ³)
Refuse volume available	376,940 m ³
Refuse tonnage capacity (assuming 700 kg/m ³ density*)	263,860 tonnes
Average rate of fill** (1982-1984)	15,050 <u>tonnes</u> month
Remaining operating life	17.5 months

Estimated site closure - April 1984

* Based on average density calculated from November 1981 and April 1982 data.

** Oakville waste directed to Burlington site effective 1 January 1983.

Waste quantity projections for 1983 and 1984 based on projecting 1982 data by 2.5%/year.

If the refuse to cover ratio is changed to 4:1, the estimated site closure would be May 1984.

A.4 Future Fill Required

Final Cover at 0.6 m	52,200 m ³
Intermediate and daily cover (3:1 refuse to cover ratio)	125,650 m ³
Less fill available in current stockpiles (not including Phase II's topsoil stockpile)	(7,893 m ³)
Total fill required	169,960 m ³
Fill available from future Phase II excavations (including 15% bulking factor) amounts to 108,380 m ³ producing a net fill deficit.	

Future Fill Required = 61,580 m³

Should a 4:1 refuse to cover ratio be obtained, the future fill required would be reduced to 36,450 m³.