

RECEIVED AUG 03 1988

David Estrin

Barristers & Solicitors

David Estrin, B.A., LL.B.
Harry Dahme, B.Sc., LL.B.

Offices in:

TORONTO: 22 Scollard Street, M5R 1E9
(416) 927-8226
MARKDALE: General Delivery, NOC 1HO
(519) 986-3670

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Please reply to: **Toronto**

(Fax) 927-8017

August 3, 1988

BY FAX

Osler, Hoskin & Harcourt
Barristers & Solicitors
P. O. Box 50
1 First Canadian Place
Toronto, Ontario

Attention: D. Hodgson, Esq.

Re: Halton Landfill Hearing

Please find attached a letter dated August 2, 1988 from Geocon Inc. further elaborating on the testing of Queenston shale and Halton till from Site F that was previously reported in Dr. Quigley's analysis from the University of Western Ontario.

This letter, together with Dr. Quigley's report, will form some of the basis for reply evidence contemplated by the Town of Milton.

Yours sincerely,



DAVID ESTRIN

DE:sbr
encl.

cc by fax : M. McQuaid
T. Vigod ✓
E. Cronk
S. Garrod
J. Tidball



Geocon

GEOTECHNICAL CONSULTANTS

August 2, 1988

David Estrin
Barristers and Solicitors
22 Scollard Street
Toronto, Ontario
M5R 1E9

GEOCON INC.
3210 AMERICAN DRIVE, MISSISSAUGA
ONTARIO, CANADA L4V 1B3
TEL.: (416) 673-1664
FAX.: (416) 673-0282

RE: SUITABILITY OF ON-SITE BARRIER MATERIALS
PROPOSED LANDFILL SITE F
BURLINGTON, ONTARIO

Dear Mr. Estrin:

In March 1988 samples of weathered Queenston Shale and Halton Till were collected from the site to conduct laboratory testing to assess the suitability of the two materials for use as compacted liner or cover barriers. After classification tests, grain size and Atterberg Limits, and preliminary compaction testing were undertaken in Geocon Mississauga laboratory, samples of each of the two materials were shipped to the University of Western Ontario for testing at the Geotechnical Research Centre. In addition to the specialized hydraulic conductivity testing on compacted shale and till, specimens were also subjected to preliminary mineralogical assessment in the laboratory. The results of the specialized testing are presented in the University of Western Ontario report accompanying this letter.

Source of Materials

The Halton Till and weathered Queenston Shale samples, delivered to the University of Western Ontario, were collected by Geocon from Site F in Burlington in March 1988. The shale sample was hand dug from a weathered shale bedrock exposure on the west side of the site. The till sample was the combination of a soil sample taken at a depth between 2 and 2.5 m from

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The weathered Queenston Shale has about 17 percent clay fraction and a plasticity index of 9 percent. Testing at the University of Western Ontario gave a hydraulic conductivity of approximately 1×10^{-8} cm/sec for compacted shale.

Much of the Queenston Shale excavated on Site F will be unweathered. This unweathered shale will require more treatment than the weathered shale to produce a barrier material that can be compacted to produce a barrier of low hydraulic conductivity. Selection of an effective treatment process will probably require some field trials.

Suitability of Materials

Compacted Halton Till having a hydraulic conductivity of slightly less than 1×10^{-8} cm/sec should form a suitable barrier material for the liner of the landfill structure. The compacted weathered Queenston Shale has a hydraulic conductivity slightly greater than the value of the compacted till but nevertheless could be suitable barrier material. The weathered shale, and more so the unweathered shale, must be processed to reduce the irregular excavated shale sizes.

Daily cover of domestic and municipal wastes does not require material of the same low-permeability characteristics as the final cover, and should preferably be more permeable. Excavated Queenston Shale should be suitable for use as daily cover material with limited, if any, process treatment.



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Further testing of both the Halton Till and Queenston Shale materials should be anticipated to not only investigate leachate compatability with these materials but also in the development of material and construction specifications and field quality assurance protocols for construction of the liner and final cover barriers. It may be necessary to construct test pads with the two materials in order to demonstrate field performance.

We trust that you will find the opinions of this letter and the accompanying University of Western Ontario report satisfactory for your current needs on the project. If you should have any questions or wish any additional information then please call.

Very truly yours
GEOCON INC.

R.A. Sullivan, P.Eng.
General Manager

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