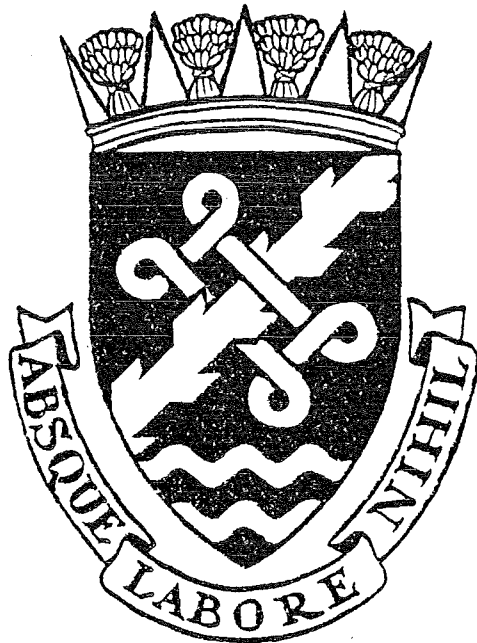


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THE REGIONAL MUNICIPALITY OF HALTON



Solid Waste Management Committee

Agenda

JULY 11, 1983

THE REGIONAL MUNICIPALITY OF HALTON

MEETING NO: 10-83

NAME OF COMMITTEE:

SOLID WASTE MANAGEMENT

DATE OF MEETING:

Monday, July 11, 1983
1:30 p. m.

PLACE OF MEETING:

Committee Room No: 1
Regional Administration Bldg.
Oakville, Ontario

A G E N D A

See item 6. (also 1.)

ITEM NO.

PAGE NOS.

DISCLOSURES OF CONFLICT OF INTEREST

DELEGATIONS

DAY TO DAY

1. C Report No: 6/83 re: The "Not In My Backyard" Syndrome (NIMBY) A Two-Day Symposium on Public Involvement in Siting Waste Management Facilities, May 13 and 14, York University.

1 - 9

(This report was previously distributed on June 10th as it had relevance to the meetings of June 15th and June 22nd)

2. PW. Report No: 42/83 re: Government Refuse Collection and Disposal Association's (GRCDA) 21st Annual International Seminar and Equipment Show, August 29 to September 1, 1983, Winnipeg, Manitoba.

10 - 22

3. C. A. O. Report No: 181/83 re: Hydrogeological Investigations - University of Waterloo Research Team - Existing Burlington Landfill; Proposed National Sewer Pipe Landfill; Closed Bayview Landfill.

23 - 29

SOLID WASTE MANAGEMENT COMMITTEE MEETING NO: 10-83
Monday, July 11, 1983

- 2 -

<u>ITEM NO.</u>		<u>PAGE NOS.</u>
4.	C. A. O. Report No: 222/83 re: Blueprint for Waste Management - Area and Regional Councillors - August 10, 1983: 7:30 p. m. and September 15, 1983 - 2:00 p. m. (Blueprint document under separate cover).	30 - 32
5.	PW. Report No: 134/83 re: Temporary Transfer Station, Halton Hills (Georgetown) - Leferink Disposals Limited, Proposal for Permanent Station - Status Report, File SWM-HH-01.	33 - 35
6.	C. A. O. Report No: 219/83 re: Region of Halton - Proposed 1983 Interim Waste Disposal Plan - (4 years) June, 1984 - June, 1988.	36 - 69
7.	<u>Other Business</u>	

Adjournment

* * * * *

THE REGIONAL MUNICIPALITY OF HALTON

Report to Chairman and Members of
The Solid Waste Management Committee

From Councillor Walter Mulkewich

Date 1983 05 30

Report No. C-6/83

Re: The "Not In My Backyard" Syndrome (NIMBY)
A Two-Day Symposium on public involvement
in Siting Waste Management Facilities,
May 13 & 14, York University

The Symposium was excellent.

Councillor Johnson, Mayor Krantz, myself, a number of staff people from the Region of Halton, City of Burlington and Town of Milton attended the Conference. The Symposium brought participants from a number of municipal councils and staffs which have had waste siting problems thrust upon them, citizens group representatives from several areas in the province, federal and provincial government representatives, private industry representatives, private consultants and lawyers, and several academics.

The problem of locating waste facilities is getting bigger and worse and is in North America in its scope.

NIMBY was originally coined by private proponents seeking to get waste disposal site approvals. These private proponents were thwarted or frustrated by local citizens concerned about "their backyard".

Questions raised at the symposium were whether NIMBY actually existed or not, Or, was it a question of "anybody's backyard"?

If NIMBY existed, was it a positive or negative thing?

If the processes used in the past to obtain siting for waste facilities were not working to everyone's satisfaction, what are the alternatives?

These and many other questions were discussed by the speakers and participants. It was good to obtain views from different vantage points. It certainly was apparent that viewpoints differed. It was apparent that this kind of dialogue was needed if we are to solve real problems.

In the report that follows, I would like to summarize some of the key speakers and sessions, give some evaluation of the session, and give some suggestion of relevance to the Halton situation.

A Sessions Summary:

1. Perspectives on NIMBY:

- * George Cornwall, Environment Canada:
 - it's understandable and predictable that people will react when they feel that they are not informed or adequately listened to.
 - there needs to be a shared responsibility by industry, government, and consumers.
 - need more emphasis on reduction and recycling.
- * Dennis Caplice, Ministry of Environment:
 - NIMBY is not unique. It surfaces in issues dealing with group homes, shopping centres, etc.
 - need an alternative to the present adversarial process.
 - need greater social acceptability of waste disposal facilities.
- * Jim Temple, Waste Management Inc.:
 - the trend to larger and regional sites and with fewer sites means more selectivity, and it means someone else's backyard.
 - waste disposal problems are getting worse as society produces more waste and municipalities allow an unlimited amount.
 - hearing process should be simplified.
 - citizens should accept responsibility for waste.
 - against NIMBY
- * Pat Hayes, H.O.P.E., Cayuga:
 - NIMBY is a positive thing.
 - The Cayuga fight was for democratic rights. Without the protection of these rights through E.A.A., the people were frightened.
 - The process needs to give people all the information before the proposal is dropped on peoples' heads. The M.O.E. lost all credibility in Cayuga.

2. Public Opposition to Waste Management Proposals:
The Role and Responsibility of the Media:

- * Tom Reid, Senior Counsel, Reid Management (worked for Waste Management Inc. in Stouffville)
 - role of media in environmental issues is dubious. The media can drive the public and politicians into a frenzy. Groups use the media to their advantage. He used the example of the role of the Toronto Star in the Stouffville case.
- * Michael Keating, Globe and Mail:
 - If the process allowed for more dialogue, there would be less need for debate through press releases.
 - NIMBY is people showing healthy skepticism in view of the concern that exists for sloppy handling of sites.
- * Steve Kline, York University:
 - there has been a conspiracy of silence on matters such as nuclear waste.
 - The media has a role in creating NIMBY since neighbourhoods have to defend themselves and environmentalists have to create events to get coverage - and this is because of the way the media works.
 - News stories deal with the issues in terms of two people with opposing views. Who do you believe?
 - People obtain their reference points and sense of security from the news. Toxic wastes are disturbing to people.

3. The Social and Psychological Impact of NIMBY disputes:

- * Rev. Ted Creen, Minister, Stouffville:
 - once people's fears are aroused, governments have difficulty in dealing with fears.
 - drinking water is of special concern to people.
 - if the community fails to satisfy the fears, then the concerned people will form their own groups as a support system. These are mainly middle class people who have not previously been involved in issues.
 - Citizens have to be taken seriously. If not, the gap between government and citizens widens. The intensity of feeling gets higher.
 - A prolonged confrontation increases the level of personal stress in people, internal divisions in the citizen's group, and increases stress on the community.
 - The "next shoe" syndrome occurs when citizens think that the next report will be the significant one.
 - If NIMBY is not dealt with, it will have psychological and social effects which will tear apart communities.

4. The Waste Disposal Dilemma: A question of Trust

- * David Smythe, Atomic Energy Control Board:
 - more important than trust is understanding the issue.
 - to foster trust governments need a style and a responsiveness and a thorough public consultation.
The style has to be set by Senior Staff and they have to overcome the sins of the past.
- * Eric Hunter, TRICIL:
 - trust must be earned.
 - credibility is increased by sharing among participants.
- * Fran Sutton, Concerned Citizens of Whitchurch-Stouffville:
 - NIMBY is an unfair term because it insinuates that it's okay in someone else's backyard. It should be "Not in Anyone's Backyard".
 - With stories of problems with waste sites across North America, citizens are simply not reassured with statements that a site in their backyard can be made safe.
 - Government record has been poor because governments have reassured citizens that everything is okay, and then the next report drops the shoe with a problem. Governments tend to try to avoid the issue or blame the problem on something other than the site. Therefore, governments create fear in people.
 - The Environmental Hearing Process has a history of insulting citizens and broken promises and lack of guarantees.
- * Jim Cameron, York University:
 - NIMBY is not a matter of trust but of conflict of fundamental interests of the parties. For example: The private industries want cost efficient disposals, governments try to balance conflicting demands to stay in office, citizens want to protect their quality of life and property values.
 - The further away you are from the site, the more benefits you get from the site.
- * Phil Weller, Waterloo P.I.R.G.:
 - Trust has broken down and facilities are not being approved.
 - Citizens have a right to know and to participate.
 - Public concern is healthy as it usually results in better conditions of approval.

5. The Hearing Process: A Help or Hindrance:

- * Tom Fowle, Simcoe Engineering:
 - In waste facilities the hearing process results in delay, higher costs, frustration, while in other projects the hearing process helps.
 - Evidence at hearings is highly technical and legal and does not help the public to understand. The hearings are adversarial with winners and losers. Therefore, a different approach is needed.
 - NIMBY is spreading.
 - Need a new environmental model to relate all interests and factors to each other.
- * Tom Connolly, Maple Against Dumping:
 - Hearing process is effective for proponents.
 - The problem is the public perception of the hearing and the lack of help for citizens.
 - Need local representatives on the Hearing Board, and more information meetings and public participation before the Hearings.
- * Wally Wells, Dillon:
 - Public hearings are good but the process is getting out of hand and getting worse - i.e. some are long, complex, etc.
 - Need to start the approval process early before the Hearing and be completely above board and honest with everyone.
 - He used the Burlington Hearing in 1980 as an example of a good hearing.
- * John Willens, Lawyer, C.E.L.A.
 - negotiated settlements are preferable to Hearings.
 - Hearings can be time consuming, expensive, leave out details, polarize parties, and simply become a forum for the lawyers.
 - All parties need funding for Hearing.
 - Hearing process can diffuse hostility and tension if it is perceived to be fair.

6. Waste Disposal: A Technical or Political Problem

- * Dr. Harry Parrot, former Minister of the Environment
 - It's political. Need political will to do what is technically possible.
 - Better ways of treating waste than landfilling but likely because it could be more expensive, it will be politically difficult.

- * Nigel Guilford, TRICIL:
 - Problem is mainly communication. People don't oppose projects for the hell of it. They have fears. A proper proposal properly communicated can be successful.
- * Barry Randall, Ontario P.I.R.G.:
 - It is more than political. It is also perception and communication. What is usually missing is a local level synthesis of all groups and parties.
- * Richard Lippes, Sierra Club, New York:
 - The problem is both technical and political.
 - NIMBY has good reasons for existence because in the U.S.A. of 30,000 sites, 1500 are proven health hazards.
 - Local community needs to be co-equal in the siting process. Citizens need money to hire their own consultants. Need for an education process for citizen groups.
 - We can't blame a community for being emotional when we have not given it resources for understanding technical problems.
 - More costly disposal may be good because it will force us to find alternatives to NIMBY.
 - European example of the conservation ethic and a history of pollution concern.

7. Environmental Mediation:

- * Chris Houssman, Burson-Garsteller
 - Outlined a model which would be an alternative to E.A.A. process and which borrows something from the labour mediation field in mediating the issue among opposing parties.
- * Richard Collins, The Institute of Environmental Mediation of Virginia.
 - Talked of his experience in mediating environmental disputes among parties in the U.S.A.

8. Small Group Discussion with Municipal Representatives

Part of the discussion was on the basic questions of whether NIMBY really existed, and, if it did, whether it was positive or negative. Some participants expressed that for the first time they had become really aware of the intense feelings of citizen groups and citizens near proposed sites.

There appeared to be general agreement that better and more communication was required and at earlier stages of the process. There was agreement that at the hearing stage public funding of citizen groups may be necessary. There also was agreement that we required clear provincial guidelines and standards.

B. Evaluation

It was obvious that effective dialogue among the various parties, governments at all levels, private industry, and citizen groups had not taken place in the past. It was also obvious that this dialogue is needed if we are to deal effectively with the real problem of siting waste facilities. To achieve this dialogue, the adversarial atmosphere needs to be removed through a process of information sharing and real listening, as well as an attitude of trust. The present methods under the E.A.A. and E.P.A. umbrellas and the hearing method are not succeeding.

I was disappointed with the federal and provincial governmental spokesmen as they were very general and couched their terms carefully. They did not provide any leadership out of the problem, and indeed, in my estimation appeared to compound the problem.

It was interesting to note that in most NIMBY disputes the issue in the end was not simply the quality of the proposal but the process itself, public fears and democratic rights. This, therefore, becomes not an argument for more effective public participation programs but for a revamped approval process that allows in public consultation and information sharing.

I was struck by the fact that all the examples used were about landfill. It became obvious that the landfill method has become suspect because of the examples of problem landfills with the resulting health problems and hazards. The public is not easily going to be satisfied with either politicians or scientists saying a landfill can be made safe. An obvious solution to this problem is to minimize landfill and to find alternatives to landfill. Several speakers touched on this but generally concentrated on the process. In the end, the minimization of landfill will require not only technical alternatives but a conservationist ethic and the involvement of the public. Politicians and their consultants cannot solve the waste disposal siting problems that face us. In the end the solution lies with the public and in the ability of the politicians to inform and trust the public.

Wally Wells of Dillon used the 1980 Burlington Interim Landfill Hearing as an example of a good hearing and that the hearing process works. So it was a good hearing. I pointed out to the session the real reason it was a good hearing. The proposed landfill was an extension of an existing site on an interim basis only, after which it was assumed there would be no further landfill in the area. The Region indicated that there was an urgency for an interim solution until the long term solution of its then recently adopted four point waste disposal strategy was implemented.

Two of these four points were a landfill at Site "F" and Garbage vs Resource Utilization Plant somewhere in the Region. Therefore, the local citizens, the City and everyone assumed that the proposal was short term, urgent and part of a larger plan that, in fact, involved an alternative to landfill. Today, similar applications for further landfill in the same area by either the Region or a private proponent such as N.S.P. is not meeting the same local attitude because the history of events since 1980 has damaged the credibility of the Region, the Ministry of the Environment, and the process generally.

The example of Site "F" was not used at the Symposium. However, several of the examples which were discussed were reminiscent of the Site "F" story since 1976.

The positive side of NIMBY came out a number of times. In most cases where NIMBY became an issue, the result was that either the project was scrapped because it was ill conceived or the project that was approved was a much better project than the original proposal. The question must be raised whether the community needs to be put through the stress of a NIMBY dispute to obtain better decisions, or whether the process can be changed to obtain those better decisions without NIMBY disputes.

C. Relevance to Halton:

NIMBY is here now. The Halton community has already experienced the stress of NIMBY disputes since 1976. The unfortunate history of events since 1980 which set the stage for a Site "A" versus Site "F" conflict ensures a NIMBY dispute unless it can be defused.

The public fears about landfill are present in Halton and no amount of studies or learned disquisitions will take away that fear. The public will only be satisfied with a waste program that takes away much of the landfill fear. Unless the current E.A.A. concludes that the waste disposal program for the next twenty years includes an alternative to landfill, we can be assured of a major NIMBY dispute with all of its social and psychological effects.

The history of waste site approvals in Halton since 1976 has created suspicions about the process and the actors in the process. Therefore, the current E.A.A. process will continue to face the emotional onslaught of suspicions from several angles. If there is any attempt to shortcut the current E.A.A. process, these fears about the process and democratic rights will only be heightened. Indeed, the E.A.A. process is at a point now where the public participation process must proceed in greater depth and caution. Above all, the process must be one of participation and not public relations.

There will be the political temptation to take the easy way out in the short run. This easy way may appear to be long term landfill because it appears cheaper in the short run. This easy way out may appear to be cutting the E.A.A. process down through less exhaustive studies or public participation to minimize costs and time.

The NIMBY symposium has convinced me that such short term decisions will only prolong the process in the end - as indeed did happen in the former Site "F" process. It will also cause social and psychological divisions, and impacts on the Halton community which will have a long term effect. In the long run, it will be more expensive.

We do have the opportunity of using NIMBY in its positive sense - the sense of people working towards a better and safer neighbourhood and environment by making better and safer decisions about waste management. To make NIMBY a positive impact on our community I believe we must choose an alternative to landfill and make no shortcuts to the current E.A.A. process. Indeed we should be looking to ways to improve the E.A.A. process.

REGIONAL MUNICIPALITY OF HALTON

Report to The Chairman and Members of the
Solid Waste Management Committee

From The Director of Public Works

Date 1983 06 21

Report No. PW.42/83

RE: GOVERNMENT REFUSE COLLECTION AND DISPOSAL
ASSOCIATION'S (GRCDA) 21ST ANNUAL INTERNATIONAL
SEMINAR AND EQUIPMENT SHOW, AUGUST 29 TO
SEPTEMBER 1, 1983, WINNIPEG, MANITOBA

RECOMMENDATION

THAT Report PW.42/83 re Government
Refuse Collection and Disposal Associa-
tion's (GRCDA) 21st Annual International
Seminar and Equipment Show, be received
for information.

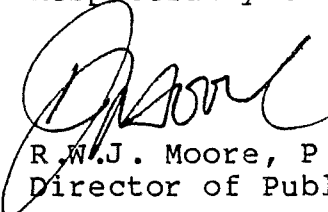
REPORT

The GRCDA is an international non-profit association with chapters in the United States and Canada.

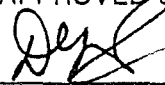
From August 29 through September 1, 1983 the GRCDA is holding their 21st Annual Seminar and Workshop at the Winnipeg Convention Centre. This year's program will focus on the operations of solid waste management systems, and how operations can better assure that government responsibilities to the public are fulfilled. Mr. George Woodburn, P.Eng., Manager, Waste Disposal, has been authorized to attend this international seminar and report back to this Committee on the technical programs.

Every attempt will be made to secure all technical papers presented at the workshops, including those occurring concurrently, in order to provide a full binder of all information available. This would then be available for review by Councillors and staff interested in this particular topic.

Respectfully submitted,


R.W.J. Moore, P.Eng.
Director of Public Works

APPROVED BY C.A.O.



GNW:sw
Attach.

COME TO WINNIPEG!

Center of North America

AND ATTEND

GRCDA's 21st ANNUAL INTERNATIONAL SEMINAR & EQUIPMENT SHOW

August 29 through September 1, 1983

Winnipeg Convention Center

Winnipeg, Manitoba, Canada

OPERATIONS – FULFILLING THE PROMISE

OPERATIONS, the means by which the promise of economic, efficient and environmentally sound solid waste management services are fulfilled. This year's convention will focus on the operations of solid waste management systems and how operations can better assure that our responsibilities to the public are fulfilled. Solid waste management professionals, whether employed by public agencies or private companies, will find the technical programs and the equipment show and exposition applicable to their current and future needs. The convention will be held in Winnipeg, the center of North America and only a short airplane or car trip away from most of the U.S. and Canada. Come, sample Canada, take advantage of the technical programs offered and enjoy the social activities planned.

MAJOR ATTRACTIONS

- 5 International Technical Symposia
- Equipment Show and Exposition
- Special International Resource Recovery Conference
- Special International Landfill Utilization Conference
- Family Tours and Spouse Program
- Technical Tours
- Golf Tournament

TECHNICAL ACTIVITIES

MONDAY, AUGUST 29, 1983 and FRIDAY, SEPTEMBER, 2, 1983

TECHNICAL TOUR

GRCD's Technical Tour will focus on landfilling practices in Western and Northern Canada. Western and Northern Canadian climates present many design and operational challenges to those involved in all stages of implementation and operation of solid waste facilities. This tour will take a look at field studies of landfill settling and gas control techniques; landfill utilization approaches; and environmental monitoring programs. The tour will visit a number of landfills in the Winnipeg area.

TUESDAY - THURSDAY, AUGUST 30 - SEPTEMBER 1, 1983

TECHNICAL PROGRAM

This year's Technical Program will offer 5 International Symposia on the following areas of solid waste management:

- Residential Solid Waste Collection: Operating Collection Systems
- Landfill Gas Control, Recovery and Utilization: Successfully Operating Landfill Gas Systems
- Disposal of Municipal Solid Waste: Operating Disposal Systems to Meet All Conditions and Needs
- Hazardous Waste Management: The Operational Challenges of the Future
- Resource Recovery: A Primer of Resource Recovery Operations

During the three days of technical sessions a total of 50 papers will be presented in the five symposia.

INTERNATIONAL SYMPOSIUM ON RESOURCE RECOVERY - A PRIMER ON RESOURCE RECOVERY OPERATIONS

SESSIONS

A Primer On Resource Recovery Technology Operating Experiences

This session will provide a frank and candid report of current operational experiences at functioning resource recovery systems. Both successful and unsuccessful operating experiences will be discussed fully. The papers will explore, in some detail, various resource recovery technologies; their applications to municipal solid waste problems; and will review the problems and solutions related to the application of these technologies. The papers will present facts in a manner to assist others to more effectively plan and implement resource recovery.

A Primer on Financing Resource Recovery Systems

This session will consist of case studies covering a broad range of approaches which may be used in financing a resource recovery system. The emphasis will be on the financing techniques used and evaluation of the relative strengths and weaknesses of the various approaches. The case studies will be used to demonstrate how various financing approaches affect the success of a resource recovery project. An overview of financing techniques will serve as a basis for the project case studies.

A Primer on the Procurement of Resource Recovery Systems

There are a number of approaches to procuring a resource recovery system. Because of the unique character of a resource recovery project, the traditional procurement approaches of local government are merely one of the ways to procure, finance and operate a resource recovery facility. This session will explore the various procurement approaches open to the procurement of resource recovery systems and discuss in detail the advantages and disadvantages of each approach. Approaches and techniques that will be included are consultant selection, the "A and E" approach, the full-service approach and construction management of a resource recovery project.

INTERNATIONAL SYMPOSIUM ON HAZARDOUS WASTE MANAGEMENT - THE OPERATIONAL CHALLENGES OF THE FUTURE

SESSIONS

Siting Hazardous Waste Management Facilities - How Operations Affect the Success of Siting

No greater problem faces all North America than trying to obtain sites for hazardous waste management facilities. This session will explore the problems of siting; how to deal with local citizen resistance; what are the differences in siting for public and private ownership; and a discussion of various roles for each level of government.

Transporting Hazardous Wastes - The Most Vulnerable Operation in Hazardous Waste Management

This session will be devoted to an in-depth look at transportation equipment and technologies; emergency response procedures for highway, rail and waterway spills; and will present several case studies of hazardous waste spill emergency response incidences.

Managing Hazardous Wastes The Canadian Way

This session will examine some of the unique characteristics of hazardous waste management in Canada. Because of the relationship between the federal government and the provincial governments, regulation, siting, public participation and facility ownership issues are considerably different than in the U.S. These unique characteristics will be examined in some detail with emphasis on public experiences in hazardous waste management.

INTERNATIONAL SYMPOSIUM ON LANDFILL GAS CONTROL, RECOVERY AND UTILIZATION — SUCCESSFULLY OPERATING LANDFILL GAS SYSTEMS

SESSIONS

Landfill Gas Recovery and Control Problems and Solutions

This session will look at some of the common problems faced by the planners, designers and developers of landfill gas systems and review how solutions to some of these problems were developed. The session will explore institutional barriers to implementation; review the unique problems confronting a landfill gas electric generating project; explore ways to conduct feasibility studies to minimize problems; and look at some new and innovative concepts to master landfill gas project problems.

Landfill Gas Control and Recovery — A Canadian Perspective

This session will explore in detail the current state of the art of landfill gas control, recovery and utilization in Canada. The session will present papers on a number of Canadian landfill gas projects; look at a series of Canadian studies of landfill gas migration; and review the future for landfill gas recovery and utilization in Canada.

Landfill Gas Technical Assistance Booth

The International Landfill Gas Symposium will only offer two technical sessions, but will also provide a TECHNICAL ASSISTANCE BOOTH (TAB) during the hours that the Equipment Show is open. TAB will provide an opportunity for attendees of the convention to seek assistance, information and advice on landfill gas programs, projects and problems. Recognized international experts in landfill gas control, recovery and utilization will be available at the TECHNICAL ASSISTANCE BOOTH to answer questions, participate in problem solving exercises and provide more detailed information which might not have been available during the technical sessions. TAB will be open Tuesday through Thursday.

INTERNATIONAL SYMPOSIUM ON RESIDENTIAL SOLID WASTE COLLECTION — OPERATING COLLECTION SYSTEMS

SESSIONS

Operational Approaches for Residential Solid Waste Collection

This session will feature mechanized residential solid waste collection technologies and systems. Presentations will include discussions on approaches for switching to mechanized systems; explore unique problems that terrain and weather present for mechanized systems; and review operational techniques for managing day-to-day operations of a mechanized system.

The Computer — Another Operational Tool

This session will explore various known and potential applications of computer technology to routing, management, personnel utilization, scheduling of services and financial management.

Equipment Specifications, Purchasing, Maintenance and Operations

This session will provide information on fleet maintenance systems for collection equipment; how to prepare specifications for various equipment applications; explore the economical benefits of a cooperative purchasing program for multi-governmental jurisdictions; and present a discussion of safe driving techniques.

INTERNATIONAL SYMPOSIUM ON THE DISPOSAL OF MUNICIPAL SOLID WASTES — OPERATING DISPOSAL FACILITIES TO MEET ALL CONDITIONS AND NEEDS

SESSIONS

Future Disposal Facility Operational Considerations

This session will explore the application of computer technology to the planning and operation of disposal facilities; discuss ways for on-site density determinations; and discuss regulation compliance through new designs and operational techniques.

Operating Disposal Facilities Under Adverse Weather Conditions

This session will explore various techniques and practices utilized by disposal facility operators to cope with the operational challenges of hot, cold and wet climatic conditions.

Should Landfill Operators Be Certified?

This session will look at the concept of certification for landfill operators; discuss the various policy considerations related to a certification program; review the impact that a certification program can have on government and industry; and discuss the role of training for certification and continuation of operator proficiency.

SOCIAL ACTIVITIES

MONDAY, AUGUST 29, 1983

Family Tour

The Monday family tour will offer a unique opportunity to sample Winnipeg and Western Canadian history. The first stop of the tour will be old Lower Fort Garry, one of the fur trade posts still standing. The fort was originally built in 1830 and has been restored to its original character. The fort is a living museum demonstrating the life and times of the Hudson Bay Company fur trade. Following the visit to Fort Garry, the tour will visit the Manitoba Museum of Man and Nature. The Manitoba Museum is one of the finest interpretive museums in the world and offers demonstrations of a number of unique interpretations of life on the Western Canadian Prairie and North Countries. The museum also includes a replica of a Hudson Bay Company fur trading ship as it would have looked preparing for its voyage to the fur country of Canada.

GOLF TOURNAMENT

GRCDA's annual golf tournament will be held at the John Blumberg Golf Course on the western outskirts of Winnipeg along the banks of the Assiniboine River.

WELCOMING PARTY

The convention officially begins with the Welcoming Party. The party, hosted by GRCDA, presents an opportunity for old friends to meet once again to renew friendships and plan the week; and will provide a chance to make new friends for those who are attending for the first time.

**TUESDAY - THURSDAY,
AUGUST 30 - SEPTEMBER 1, 1983**

SPOUSE PROGRAM

The Spouse Program will feature the unique flavors and customs of Winnipeg and Manitoba. The program begins with the Welcoming Party on Monday, sharing the Opening Family Breakfast on Tuesday and a tour on Tuesday to the Winnipeg Art Gallery, which features native Manitoba art and artifacts. Wednesday includes a day at Stage West - a dinner theater, where a special luncheon presentation of a Broadway musical will be presented for the GRCDA spouses. Wednesday closes out with Manitoba Magic Nite. Thursday includes a visit to Osborne Shopping Village, a series of shops reminiscent of old Winnipeg days, and the GRCDA Awards Banquet that evening. The highlight of Thursday and perhaps the entire Spouse Program is a tea at the Governor's House (official

residence of the Governor) with H. Gordon of Her House. Paul Mordue is the official representative of Her Majesty Queen Elizabeth II to the Province of Manitoba.

WEDNESDAY AUGUST 31, 1983

MANITOBA MAGIC NITE

Winnipeg and the Manitoba Province are centers for a collage of ethnic and national characteristics reflective of the settling of the Canadian West. Offering opportunities for people seeking land and freedom, Winnipeg and Manitoba have grown from a Canadian prairie wilderness to a vibrant representation of what can result when strangers from many countries join together to conquer a land and build an empire. The peoples of the City of Winnipeg and the Province renew their history and heritage every year through celebrations centered around ethnic carnivals featuring foods, dances and customs from their past. Manitoba Magic Nite will recreate, on a miniature scale, the magic of the history of Winnipeg and Manitoba. The evening will include foods from many foreign lands, traditional dances and costumes from many countries, and an opportunity to relive the formation of the west.

THURSDAY, SEPTEMBER 1, 1983

GRCDA AWARDS BANQUET

GRCDA will once again recognize those people in the Association who have done so much to build GRCDA into its present prominence as the Association for Solid Waste Management Professionals. The banquet will also include entertainment and dancing.

FRIDAY, SEPTEMBER 2, 1983

SPECIAL FAMILY TOUR ON FRIDAY

GRCDA will offer a special family tour on Friday, September 2, 1983 to provide an opportunity for families attending the convention to visit two special attractions in the Winnipeg area. The first attraction to be visited will be the Steinbech Mennonite Museum - home of one of Canada's few wind powered grist mills (just like in Holland). The museum is actually a working village exemplifying the Mennonite life style. Following the Mennonite Museum, the tour will visit the Royal Canadian Mint for a tour of this ultra-modern architectural gem that makes coins for countries throughout the world.

EQUIPMENT SHOW

The Equipment Show will feature the very latest in solid waste service companies' equipment, technologies and systems. Booking for space is continuing. However, the following companies have already reserved space for the Show:

American Carrier Co.
AMERICAN CITY & COUNTY
Amhoist
Belgium Standard Industries
Bennett Enterprises
Birmingham Slurry
Bomag
Browning-Ferris Industries
Capsule Club
Combustion Engineering
Control & Metering, Ltd.

Crane Carrier Co.
Cummins Engines
Dempster Systems
Educational Research Inst.
EMCO
EMCON Associates
Genstar Waste Technology
Getty Synthetic Fuels
Global Fabrications
Hallco Manufacturing
The Heil Co.

John Sexton Contractors
Keith Manufacturing
Laidlaw Industries
Mag-Torg
Manitoba Dept. of Tourism
Mayran International
Methane Development
Neulohdt Industries
Peabody Galion
Pelnor Plastics
Plexco

PUBLIC WORKS PUBLICATIONS
Publishers for Conventions
Reynord
SaniFoam, Inc.
SCS Engineers
SOLID WASTE MANAGEMENT
Turn-Key Containers
WASTE AGE
Waste Management
Wayne Engineering

REQUEST FOR RESERVATION FORM

GRCDA 21ST ANNUAL INTERNATIONAL SEMINAR AND EQUIPMENT SHOW

August 29 - September 1, 1983 • Winnipeg, Manitoba, Canada

Complete and send to: GRCDA HOUSING BUREAU
Winnipeg Convention & Visitors Bureau
232 — 375 York Avenue
Winnipeg, Manitoba, CANADA R3C 3J3

All requests must be received by August 1, 1983

NAME _____
Last Name Given Name

ORGANIZATION _____ TITLE _____

ADDRESS _____ TELEPHONE _____

Zip/Postal Code _____

ARRIVAL DATE _____ DEPARTURE DATE _____

ARRIVAL TIME _____ (____ AM; ____ PM) DEPARTURE TIME _____ (____ AM; ____ PM)

CHOICE OF HOTEL: 1st _____

2nd _____

3rd _____

TYPE OF ACCOMMODATION:

- _____ Single • _____ Suite: Bachelor _____
- _____ Double _____ 1 Bedroom _____
- _____ Kingsize, if available

Sharing with (Name) _____

Hospitality suites in the Headquarters Hotel must be arranged for directly with the HOLIDAY INN, and/or the WINNIPEG CONVENTION CENTER.

Signature _____ Date _____

SEE MAP ON BACK PAGE FOR HOTEL LOCATIONS

HOTEL RESERVATION INSTRUCTIONS

GRCDA 21ST ANNUAL INTERNATIONAL SEMINAR AND EQUIPMENT SHOW

August 29 - September 1, 1983; Winnipeg, Manitoba, Canada

GRCDA has blocked space in the following hotels and their rates for attendees of the GRCDA convention are as follows (rates are quoted in Canadian dollars):

● HOLIDAY INN DOWNTOWN ● (Headquarters Hotel)	● Rooms with 2 double beds ● Kingsize & poolside ● Children under 16 when staying in parents room	\$63.00 single/double \$ 6.00/night extra FREE
● PLACE LOUIS RIEL	● Bachelor Suites (queensize bed; sitting area w/sleep couch; kitchen) ● 1-Bedroom Suites (queensize bed; separate parlor w/sleep couch; kitchen) ● Children under 16 when staying in parent's room	\$50.00 single; \$57.00 double \$55.00 single; \$62.00 double FREE
● CHARTER HOUSE	● All rooms equipped w/2 double beds or kingsize bed ● Children under 16 when staying in parent's room	\$45.00 single; \$50.00 double FREE
● CARLTON INN	● All rooms equipped w/ 2 double beds ● Children under 16 when staying in parent's room	\$40.00 single; \$45.00 double FREE

NOTES:

- All rates quoted are in Canadian Dollars.
- The Headquarters Hotel is the HOLIDAY INN DOWNTOWN. The other hotels are overflow hotels. Unless specifically requested, all reservations will be made at the HOLIDAY INN until our reserved block of rooms is filled.
- Please send in your accommodations request as soon as possible. The cutoff date for these convention rates is August 1, 1983. Late arrivals must be guaranteed by credit card or deposit.
- Telephone reservations will **not** be accepted.
- Use one form per reservation; photocopy if necessary.
- Upon receipt of the enclosed request for reservations form, the Winnipeg Convention & Visitors Bureau will forward same to the hotel which will return a room confirmation.
- If multiple confirmations are to be mailed to a single address, please attach a note to this effect including a contact telephone number.
- Please do not send a deposit with the Request for Reservations.
- Rates subject to 6% room tax.

SEE MAP ON BACK PAGE FOR HOTEL LOCATIONS

CONVENTION REGISTRATION INFORMATION

- Full Delegate Registration:
Fee includes Welcoming Party; 3 Breakfasts; 3 Luncheons; Manitoba Magic Nite; GRCDA Awards Banquet; Technical Program and Proceedings; Receptions in Equipment Show; and Equipment Show.
- Spouse Registration:
Fee includes Welcoming Party; Opening Breakfast; Manitoba Magic Nite; GRCDA Awards Banquet; Technical Program; Equipment Show; Tuesday, Wednesday and Thursday Tours.
- Day Registration:
Fee includes Luncheon; Equipment Show; and Technical Program for the days registered.
- Family Tours:
Fee includes transportation and luncheons.
- Golf:
Fee includes green fees; transportation; refreshments; and prizes.

REGISTRATION FORM

GRCDA 21ST ANNUAL INTERNATIONAL SEMINAR AND EQUIPMENT SHOW

August 29 - September 1, 1983; Winnipeg, Manitoba, Canada

NAME _____ TITLE _____

AGENCY/COMPANY _____ GRCDA MEMBER? Yes _____ No _____

ADDRESS _____ TELEPHONE _____

Street/P.O. Box

City State/Province Zip/Postal Code

DATE OF REQUEST FOR REGISTRATION _____

Please register for the following using the rates given below.
Please indicate whether payment will be in U.S. or Canadian Currency.



- Delegate Full Registration: # _____ @ \$ _____ = \$ _____
- Day Registration; Dates _____: # _____ @ \$ _____ = \$ _____
- Technical Tour; Day _____: # _____ @ \$ _____ = \$ _____
- Extra Luncheon; Dates _____: # _____ @ \$ _____ = \$ _____
- Extra Breakfast; Dates _____: # _____ @ \$ _____ = \$ _____
- Extra Manitoba Magic Nite Party: # _____ @ \$ _____ = \$ _____
- Extra GRCDA Awards Banquet: # _____ @ \$ _____ = \$ _____
- Golf Tournament: # _____ @ \$ _____ = \$ _____
- Extra Proceedings: # _____ @ \$ _____ = \$ _____
- Spouse Program: # _____ @ \$ _____ = \$ _____
- Family Tours: (Monday) # _____ @ \$ _____ = \$ _____
- Family Tours: (Friday) # _____ @ \$ _____ = \$ _____

TOTAL REGISTRATION: (US \$ or CN \$; please circle) _____ = \$ _____



REGISTRATION RATES

	Prior to 7/31/83				After 7/31/83			
	Member		Non-Member		Member		Non-Member	
	US \$	CN \$	US \$	CN \$	US \$	CN \$	US \$	CN \$
Delegate Full Registration:	200	240	240	300	225	280	265	330
Spouse:	-	-	100	125	-	-	125	160
Day Registration	\$60 (US \$);		\$75 (CN \$)					
Technical Tour	\$20 (US \$);		\$25 (CN \$)					
Extra Luncheon	\$12 (US \$);		\$15 (CN \$)					
Extra Breakfast	\$12 (US \$);		\$15 (CN \$)					
Extra Manitoba Magic Nite Party	\$30 (US \$);		\$35 (CN \$)					
Extra GRCDA Awards Banquet	\$30 (US \$);		\$35 (CN \$)					
Golf Tournament	\$25 (US \$);		\$30 (CN \$)					
Extra Proceedings	\$30 (US \$);		\$35 (CN \$)					
Family Tours	\$20 (US \$);		\$25 (CN \$)					

- My check in the amount of \$ _____ (US \$ or CN \$; please circle) is attached.
- Please bill my Registration to my MasterCard: _____ Visa Account: _____
- Card No. _____ Expiration Date: _____

Signature: _____

Return form to: GRCDA-WINNIPEG, P.O. Box 6126, Silver Spring, MD 20906

GRCD A ANNOUNCES A SPECIAL CONFERENCE ON RESOURCE RECOVERY

PLAIN TALK ABOUT RESOURCE RECOVERY

Holiday Inn Downtown, Winnipeg, Manitoba, Canada

MONDAY, AUGUST 29, 1983

This one-day conference is being offered in advance of GRCD A's 21st International Seminar and Equipment Show, which will begin the evening of August 29 with a Welcoming Party. The conference titled **PLAIN TALK ABOUT RESOURCE RECOVERY** will be devoted to a series of presentations directed at addressing the successes and failures of resource recovery implementation; finding and keeping an energy market; public acceptance of resource recovery; and negotiating contracts.

The purpose of the conference is to present hard, relevant facts and information about resource recovery to planners, designers, vendors and operators of existing and future resource recovery systems. The conference will include a general session in the morning of August 29 and three concurrent workshops in the afternoon of August 29. A brief description of the sessions follows.

GENERAL SESSION

Monday Morning, August 29, 1983

RESOURCE RECOVERY - WHAT'S THE EXPERIENCE?

This session will be a roses and thorns review of implementing successes in resource recovery. The session will focus on real projects now in various stages of implementation and will address what has worked and failed in those projects. The session speakers will be people actually involved in the operation of the projects under review. Projects that will be included are the resource recovery projects in the City of Chicago (Northeast RDF Facility and Southwest Waste-to-Energy Plant); the Hamilton, Ontario; Akron, Ohio; Toronto, Ontario; and the Pinellas County, Florida Plants.

CONCURRENT WORKSHOPS

Monday Afternoon, August 29, 1983

Workshop I: FINDING & KEEPING AN ENERGY MARKET

An energy market is the most critical element in the success of a waste-to-energy project. A viable and meaningful energy market is essential for the economic success of a project and to keep the tipping costs at a reasonable level. This workshop will explore the various aspects of how to find and keep an energy market and will look at such issues as the pricing of energy to gain a market; the relationship between financing and markets; and the impact of regulations on the ability to secure a market. Speakers will be individuals representing the various sides of the energy market issue including regulators, power companies, local government and individuals with experience in securing a market.

• Workshop Presentations •

- Regulatory Framework Including PURPA
- The Industry Perspective
- Risks to Rate Payers
- Philadelphia Navy Yard Energy Contract Negotiations

Workshop II: PUBLIC ACCEPTANCE OF RESOURCE RECOVERY, CAN YOU WIN AN ELECTION?

The most critical constraint to the implementation of resource recovery is not economics or technology, but the necessary political will to see a project through to implementation. Local elected or appointed official support is essential. This support, however, tends to waiver in the face of public resistance leading to project failure. This workshop will look at resource recovery as a political issue and examine how various elected and appointed officials have backed away from implementation when public support was not enthusiastic. The workshop will explore this issue from the perspective of a project which was stopped because of the withdrawal of political support: will present techniques to make citizens understand the options and costs, if a resource recovery project is abandoned; and explore how mediation and arbitration can be used to reach agreement between the technical, public and political groups.

• Workshop Presentations •

- New York - Brooklyn Navy Yard Experience
- California - Creating a Garbage Crisis
- Mediation
- Can An Election Be Won? The Westchester, Portland & San Francisco Experiences

Workshop III: NEGOTIATING CONTRACTS - HOW IT SHOULD BE DONE

Contracting for resource recovery projects is probably the most complex contract type in use. However, despite the complexity, there are rules for these types of contracts and local governments are often at a disadvantage in negotiating them. This workshop will examine the techniques and approaches for negotiating resource recovery contracts through the experiences of a number of projects that have successfully negotiated contracts for resource recovery. The participants in the workshop will be individuals who have been directly involved in successful resource recovery project contract negotiations.

• Workshop Presentations •

- Haverhill, Massachusetts Contract
- Tampa, Florida Contract
- Westchester County, New York Contract
- Small U.S. Systems Contracts: Auburn, Maine; Pittsfield, Massachusetts; Hampton, New Hampshire; Gallatin, Tennessee

REGISTRATION FORM PLAIN TALK ABOUT RESOURCE RECOVERY

Monday, August 29, 1983
Holiday Inn Downtown, Winnipeg, Manitoba, Canada

Name _____ Title _____

Agency/Company _____

Address _____

Telephone _____ GRCDA Member? _____ Yes; _____ No

Date of Registration Request _____

_____ of PLAIN TALK ABOUT RESOURCE RECOVERY registrations at:

\$ _____ (US \$ or CN \$ - please circle) = \$ _____ amount enclosed.

Please check appropriate boxes:

_____ Registration fee enclosed (check payable to GRCDA).

_____ Use my MasterCard # _____ Exp. Date _____

_____ Use my Visa Card # _____ Exp. Date _____

Signature _____ Date _____

Mail form to: GRCDA-RR83, P.O. Box 6126, Silver Spring, MD 20906

REGISTRATION INFORMATION

A special registration fee for this conference has been arranged. The fee includes all conference sessions and workshops, conference materials, coffee breaks, luncheons and conference proceedings.

GRCDA Members: \$ 85.00 (US \$); \$100.00 (CN \$) - prior to 7-31-83;
\$100.00 (US \$); \$115.00 (CN \$) - after 7-31-83.

Non-Members: \$100.00 (US \$); \$115.00 (CN \$) - prior to 7-31-83;
\$115.00 (US \$); \$130.00 (CN \$) - after 7-31-83.

GRCD A IN COOPERATION WITH THE BIOMASS ENERGY INSTITUTE
ANNOUNCES A SPECIAL CONFERENCE ON
**OLD LANDFILL STABILIZATION AND RESTORATION
(OLSAR I)**

Holiday Inn Downtown, Winnipeg, Manitoba Canada

Monday, August 29, 1983

This one-day conference is being offered in advance of GRCD A's 21st International Seminar and Equipment Show, which will begin the evening of August 29 with a Welcoming Party. The conference titled OLD LANDFILL STABILIZATION AND RESTORATION will be devoted to a series of presentations addressing, in-depth, the problems and techniques for stabilizing and restoring landfills.

- **OPENING SESSION**

OLSAR will be opened by the General Conference Chairman, Dr. W. George Bowen, Assistant Deputy Minister of Manitoba, Department of the Environment.

- **MORNING SESSIONS**

- **Conference Overview**

OLSAR's first speaker will be Dr. Phillip H. Jones of the University of Toronto's Institute for Environmental Studies. Dr. Jones is an internationally recognized expert on landfill sites and has recently completed a series of guidelines for the World Health Organization for finding and rehabilitating abandoned landfills.

Dr. Jones will provide a comprehensive overview from an international perspective; provide some insight into the scope of the problem; and will specifically address the methodology of tracking down and identifying landfill sites.

- **Decomposition of Municipal Solid Waste**

Mr. John G. Pacey, President of EMCON Associates of San Jose, California, will describe the decomposition that occurs inside a completed landfill; the processes that occur; and what can be done to influence these processes.

- **Design and Installation of Methane Migration Control Systems**

Mr. L. Doug Keil, P.E., Director of Solid Waste Management, Division of the UMA Group, Winnipeg, Manitoba has been actively involved across Western Canada in the siting, design and monitoring of new sanitary landfills as well as identifying completed landfills. Mr. Keil will discuss the design and installation of methane gas migration controls relative to buildings on or near landfills.

- **Legal Relationships**

Mr. Yude Henteleff, Q.C., is a partner of the law firm of Buchwald, Asper, and Henteleff of Winnipeg. Mr. Henteleff has been involved in several court cases involving landfill gas and has surveyed legal precedents in North America. Mr. Henteleff will discuss the legal background for the control and utilization of landfill gas.

- **LUNCHEON SPEAKER**

The Honorable Jay Cowan, Manitoba's Minister Responsible for Environmental Management, Workers' Compensation and Workplace Health and Safety will address the luncheon audience. Mr. Cowan has a lengthy background in environmental concerns.

- **AFTERNOON SESSION**

- **Techniques and Economics**

The afternoon session will feature several speakers who will describe their experiences with different stabilization, restoration and gas management techniques and methodologies. Presentations will include an indepth look at the costs of abandoning buildings; passive and active control techniques; gas detectors; membranes; gas collection methodologies; chemical soil treatments; and the bottom line economics for these approaches.

- **Closing Statement**

REGISTRATION FORM
OLD LANDFILL STABILIZATION AND RESTORATION

Monday, August 29, 1983

Holiday Inn Downtown, Winnipeg, Manitoba Canada

Name _____ Title _____
Agency/Company _____
Address _____
Telephone _____ GRCDA Member? ☐ Yes ☐ No
Date of Registration Request _____

_____ of OLD LANDFILL STABILIZATION AND RESTORATION registrations at \$ _____
(US \$ or CN \$ - please circle) = \$ _____ enclosed.

Please check appropriate boxes:

☐ Registration fee enclosed (check payable to GRCDA)
☐ Use my MasterCard # _____ Exp. Date _____
☐ Use my Visa Card # _____ Exp. Date _____

Signature _____ Date _____

Mail form to: GRCDA-OLSAR
P.O. Box 6126
Silver Spring, MD 20906



REGISTRATION INFORMATION

A special registration fee for this conference has been arranged. The fee includes all conference sessions, conference materials, coffee breaks, luncheon and conference proceedings.

GRCDA Members: \$ 85.00 (US \$); \$100.00 (CN \$) - prior to 7-31-83
\$100.00 (US \$); \$115.00 (CN \$) - after 7-31-83

Non-Members: \$100.00 (US \$); \$115.00 (CN \$) - prior to 7-31-83
\$115.00 (US \$); \$130.00 (CN \$) - after 7-31-83

PRINTED IN THE UNITED STATES

HOTEL LOCATION MAP



PRINTED IN THE UNITED STATES



GRCDA
P. O. Box 6126
Silver Spring, MD 20906

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SILVER SPRING, MD.

THE REGIONAL MUNICIPALITY OF HALTON

Report to Solid Waste Management Committee
From Dennis Y. Perlin, C.A.O.
Date 1983 05 31
Report No. C.A.O. Report 181/83 .
Re: Hydrogeological Investigations - University of
Waterloo Research Team - Existing Burlington
Landfill; Proposed National Sewer Pipe Landfill;
Closed Bayview Landfill

RECOMMENDATION:

THAT C.A.O. Report No. 181/83 re:
Hydrogeological Investigations by
the University of Waterloo at
Existing Burlington Landfill;
Closed Bayview Landfill and
National Sewer Pipe Landfill in
Burlington be received for
information.

REPORT:

Back in 1979 when National Sewer Pipe first proposed a privately owned and operated landfill site as a complementary use to its shale extraction on the existing lands which it owns between the existing Regional landfill in Burlington and the Closed Bayview Landfill owned by the City, west of King Road, east of Tridon, north of Highway 403, the Region obtained the services of Dr. John Cherry to oversee the hydrogeological investigations carried out by Mr. Beatty of Morrison, Beatty on behalf of National Sewer Pipe and to provide advice to the Region.

Dr. Cherry retained the well known ecologist, Dr. Lush, to work with him, with Dr. Cherry concentrating on ground water conditions and Dr. Lush concentrating on surface water conditions, downstream from the area.

After filing that report with respect to whether or not the National Sewer Pipe lands were hydrogeologically suitable or could be made hydrogeologically suitable, Dr. Cherry who is a full time Professor at the University of Waterloo proposed to the Region, the City and to National Sewer Pipe, that the University be permitted to carry on a research project in the area on the attenuation capabilities of leachate and shale. This research project was being carried out in cooperation with Stanford University of the United States.

The University also indicated that for the contribution of certain monies, the research could be extended to provide helpful information to those examining and proposing a landfill in that particular area. The Region agreed to participate in the research project as did National Sewer Pipe and the City, with each to contribute \$7,500.00.

The University indicated that it would provide progress reports from time to time. The first year of the research project has come to end (i.e. May 1982-April 1983) and the first progress report has now been filed.

A copy of the progress report is in the Councillors' library and may be reviewed in depth there.

Attached to this report is a copy of the "INTRODUCTION" and "SUMMARY AND CONCLUSION" for your immediate information.

Respectfully submitted,

A handwritten signature in dark ink, appearing to read 'Dennis Y. Perlin', with a stylized flourish at the end.

Dennis Y. Perlin
Chief Administrative Officer

DYP:bu

INTRODUCTION

In the past several years, research by the University of Waterloo on the movement of landfill-derived contaminants has been primarily restricted to unconfined sand aquifers with relatively simple stratigraphy and groundwater flow patterns. The major processes working to produce contaminant plumes in this type of geologic setting are now beginning to be understood, and so research efforts are expanding to investigate contaminant movement in groundwater at landfill sites situated on fractured rock. As part of this effort, a study began at the Bayview Park Landfill in the spring of 1982.

The Bayview Park Landfill is located in Burlington, Ontario about 4 km north of Lake Ontario on the flank of the Niagara Escarpment (Figure 1). There are two main objectives of the hydrogeological investigations at the site. These are:

- i) to delineate a zone of groundwater that has been impacted by the landfill. The shape and position of this zone will then be compared to the position predicted by conventional methods based on equivalent porous medium concepts in order to determine the applicability of these methods to fractured rock environments;
- ii) to identify any major mechanisms of attenuation and the degree to which they may be effecting contaminant migration in the groundwater system in the fractured bedrock.

In pursuit of these objectives, detailed hydrogeologic data collected from multilevel devices and conventional piezometers will be used to examine the groundwater flow system and water quality trends in the vicinity of the site.

The purpose of this report is to describe the groundwater monitoring system that now exists at the site along with the results of groundwater sampling between May, 1982 and February, 1983. At this stage in the investigation, the distribution of diagnostic contaminants is not yet mappable so the information presented herein must be considered preliminary. The results of an additional sampling program, conducted during March, 1983 will be presented in a later report.

SUMMARY OF CONCLUSIONS

Hydrogeological investigations by the University of Waterloo have been on-going at the Bayview Park Landfill since the spring of 1982. Seven multilevel devices have been installed at the site, one to provide background water quality, the remaining six to monitor water quality with increasing distance downgradient of the landfill. Development and testing of these devices indicates that they are effective in isolating at least 10 vertical zones within a single borehole. Regular hydraulic head measurements and analysis of groundwater samples for chloride and total organic carbon for each of these discrete sampling intervals has established equilibrium profiles with depth.

The conventional approaches to describing groundwater flow have several associated uncertainties in the fractured shale environment at this site. In most cases, water level recoveries during rising-head tests produced two time lag values and therefore two hydraulic conductivities for each sample interval. These values were generally on the order of 10^{-5} ^{8.64 cm/day} cm/s for the early water level response and 10^{-7} ^{0.0864 cm/day} cm/s for the late water level response. The geometric mean of all the hydraulic conductivities based on the later time water levels, 4.57×10^{-7} cm/s, was used in subsequent calculations because it was believed this value was more representative of the hydraulic properties of the shale on a larger scale. ^{0.4 cm/d}
_{= 4.36 m/y.}

The use of the average linear groundwater velocity to track the movement of contaminants is justified in a porous medium where hydraulic conductivity remains fairly constant and changes can easily be measured. The use of this parameter in a fractured rock environment however, is fraught with difficulty because the multilevel devices isolate discrete vertical intervals in the shale which generally contain a series of fractures rather than a single fracture. In this case then, field tests provide values for bulk hydraulic conductivity. Using the geometric mean of bulk hydraulic conductivities cited above yields an average linear groundwater velocity of about 6 m/yr.

While most of the bulk values were found to be on the order of 10^{-7} cm/s, the hydraulic conductivity of individual fractures probably ranges many orders of magnitude on either side of this value. In order to obtain an upper limit estimate of the rate at which contaminants may have moved, the average linear groundwater velocity was calculated using the geometric mean of hydraulic conductivities generated using early time water level response. This produced an average linear groundwater velocity of about 130 m/yr. Whether or not contaminants actually move at this rate cannot be determined with the existing data.

Although chloride and total organic carbon have been shown to be well suited for mapping contaminant plumes in unconsolidated sand aquifers beneath landfills in Ontario, they are not suitable to define the distribution of contaminants at the Bayview Park site. This is because the background quality water has very high concentrations of both these parameters and these concentrations show extreme fluctuations with depth. Without a relatively constant water quality against which

other samples can be compared, it is essentially impossible to assess the degree of groundwater contamination related to the landfill. As a result, the Cl^- and TOC profiles are useful only to determine order of magnitude changes in water chemistry between the multilevel device sites and to monitor the stability of water chemistry with time at the individual sites.

Tritium was used as a natural tracer at the site because the time of input to the system is known and its concentrations are generally only affected by radioactive decay. Results indicate that tritium has penetrated to depths of at least 23 m. Considering that the beginning of tritium input to the groundwater system occurred not much earlier than the landfill operation, the tritium zone is also a zone where landfill contamination may occur.

In summary, the distinct differences in hydraulic head seen in the multilevel devices, the moderate permeability of the bedrock and the distribution of tritium all seem to indicate that the shale in the vicinity of the Bayview Park Landfill is a moderately active environment for contaminant transport. Investigations at the site are now focusing on the use of synthetic organic compounds as diagnostic tracers of landfill contamination. The distribution of these compounds will be used to confirm and refine the trends presented in this report and will aid in eventually developing a representation of the extent of landfill constituents.

THE REGIONAL MUNICIPALITY OF HALTON

Report to Chairman and Members Regional and Area Councils

From Dennis Y. Perlin, Chief Administrative Officer

Date 1983 07 07

Report No CAO 222/83

Re: Blueprint for Waste Management - Area and Regional
Councillors - August 10, 1983: 7:30 p.m. AND
September 15, 1983 - 2:00 p.m.

RECOMMENDATIONS:

1. THAT the Regional and Area Councils endorse the proposed approach set out in Regional C.A.O. Report 222/83 for a joint and co-ordinated response to the "Blueprint for Waste Management" issued by the Province of Ontario in June of 1983.
2. AND THAT the holding of two working meetings for all Area and Regional Councillors regarding the Blueprint for Waste Management for August 10, 1983 at 7:30 and September 15, 1983 at 2:00 p.m. be approved.
3. AND THAT the costs for any working meetings for all Area and Regional Councillors be handled by way of the Region's Solid Waste Management Budget.

REPORT

Blueprint for Waste Management

In June of this year the Ministry of the Environment issued a document entitled "Blueprint for Waste Management in Ontario" which is intended to be a comprehensive plan for the handling of waste in Ontario - problems and possible solutions - for the foreseeable future. The Ministry of the

Environment hoped that the document will provide an opportunity to interested parties and the public to comment, criticize and otherwise contribute to the process of drafting Provincial Legislation and policies for waste management in the future in Ontario.

Copies of the document and appendices have been ordered for all Area and Regional Councillors and will be delivered when received in the next couple of weeks.

Joint And Co-ordinated Response

Because of the mutual involvement of the Area Municipalities (collection) and the Region (disposal) in waste management in Halton, the Blueprint is an important document for both. Since we are dealing with the Province our response might have more meaning and more impact if it could be a joint and co-ordinated one. To this end the Regional and Area CAO's at a recent meeting discussed the merits of a joint and co-ordinated response to the Blueprint Document. It was agreed by all that the best approach to take was through such a response.

Therefore, subject to Council approval, we took the initiative and appointed the Joint Regional Area Staff Blueprint Task Force consisting of the same persons as are on the Regional/Area Transfer Station Task Force. The task for the Blueprint Task Force would be to put a draft response together for consideration of all Councils.

The Blueprint Task Force met on Thursday, July 7th and agreed to recommend the following approach.

1. Seek approval of the "Blueprint Task Force" and its intention to put together a draft response for the consideration of Area and Regional Councils.

2. Have an input stage which all Area and Regional Councillors would be invited to attend a joint meeting where the Ministry of Environment Staff involved in the formation of the Blueprint come and review the Blueprint and elaborate upon it. At that meeting in addition to the presentation by the Ministry of the Environment, various questions and comments could be received. The first meeting would be scheduled for Wednesday evening, August the 10th, 1983 at 7:30 p.m. in the Oakville Room in the Oakville Town Hall on White Oaks Boulevard.

3. Upon Completion of this first get together of the Area and Regional Councillors, the Blueprint Task Force would put together its initial draft response during the month of August to be forwarded to all the Area and Regional Councillors by the end of August, first week of September in preparation for a second meeting of all Area and Regional Councillors.

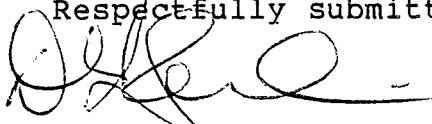
4. The second meeting of all Area and Regional Councillors would occur on Thursday, September the 15th, 1983 at 2:00 p.m. at a location yet to be determined. At that September meeting a workshop approach would be utilized to discuss the draft response and to obtain from Regional and Area Councillors their viewpoints and ideas vis a vis changes, deletions, additions, etc. The various workshops would be held during the afternoon followed by dinner and then a final group session in the evening where the various ideas generated from the workshops could be presented to the entire group with the hope of getting general agreement on some and/or rejection from others etc.

5. After the September meeting the Blueprint Task Force would use the rest of September to finalize the response in light of the September meeting of Area and Regional Councillors and then same would come back to each Area and Regional Council in October for approval and submission to the Province.

Timing of Response

The above approach and the timing related thereto are in response to the Province's request for comments by the end of October, 1983 so that Provincial Policies and Legislation can be formulated for early, 1984.

Respectfully submitted,



D.Y. Perlin,
Chief Administrative Officer

JB:jmb

REGIONAL MUNICIPALITY OF HALTON

Report to The Chairman and Members of the
Solid Waste Management Committee

From The Director of Public Works

Date 1983 07 06

Report No. PW.134/83

Re TEMPORARY TRANSFER STATION, HALTON HILLS (GEORGETOWN) - LEFERINK DISPOSALS LIMITED, PROPOSAL FOR PERMANENT STATION - STATUS REPORT, FILE SWM-HH-01

RECOMMENDATION

THAT Report PW.134/83 re Temporary Transfer Station, Halton Hills (Georgetown) - Leferink Disposals Limited, Proposal for Permanent Station - Status Report, be received for information.

REPORT

Regional Council at their meeting of January 5, 1983, requested a six month update report on the operation of the temporary transfer station on Armstrong Avenue in Halton Hills (Georgetown), and on Leferink's application for a permanent transfer station in Halton Hills (Georgetown).

When the landfill site on Armstrong Avenue in Georgetown closed in late 1979, an open air "temporary" container facility went into operation at the closed landfill site to provide a convenient level of service for private citizens to dispose of small no charge loads of bagged garbage weighing 150 kg (300 lbs.) or less. The facility was operated for the Region by Monarch Disposal Limited until January, 1981. The station was then taken over by Leferink Disposals who added a compactor unit to the operation in order to pack the maximum amount of garbage possible into transfer trailers for transport to the landfill. The operations agreement between the Region and Leferink, covering the transfer of small no charge loads, was due to terminate on January 18, 1983. In view of the impending closure of the landfill site in Oakville, on December 31, 1982, and faced with the prospect of long distance uneconomic haul to the one remaining landfill in Burlington, the Town, with the concurrence of the Region, worked out an agreement with Leferink whereby, for a fee of \$16 per ton, Leferink would increase the capacity of the facility to that of a temporary open transfer station through the addition of a larger compactor to handle the Town's packer trucks, as well as other private haulers in the area. Leferink, with the

APPROVALS
BUS. DEV.
HEALTH
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PERSONNEL
PLANNING
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TREAS.

support of the Town Council and Regional Council, obtained approval from the Ministry of the Environment to operate the station up to June 30, 1983 for the larger capacity transfer station, and the Town's packer trucks started using it the third week in January 1983. At the same time, Regional Council entered into a revised agreement with Leferink which not only extends the term of operation for the receipt and transfer of smaller no charge loads through 1983, but permits the expanded transfer operation for the Town packer trucks and private haulers as well.

The transfer station has always been considered by the Region, Town, and the Ministry of the Environment to be a temporary facility which will be replaced when the location(s) of the Region's new landfill site(s) is finalized and the location(s) of any transfer station(s) deemed necessary for the system (if any at all) is finalized. The establishment of a full service enclosed permanent transfer station in Halton Hills (Georgetown) was actively pursued up to a few months ago, however, the Leferink application to the Ministry of the Environment (made almost a year ago now for approval of a full service station on Armstrong Avenue, just to the east of the temporary station) has been considered premature since the start of the Region's environmental assessment. Thus the Province and Leferink have been requested to hold the application at least until the results of the Stage 2, Phase 2 part of the environmental assessment (landfill site selection) are known. Leferink itself is anxious to proceed with its application and have a hearing as soon as possible.

However, in view of the environmental assessment work program and the time it will take to determine future landfill locations, Leferink, on May 5, applied to the Ministry of the Environment for approval to operate the expanded transfer station for a further twelve months from June 30, 1983 to June 30, 1984. The Town has supported Leferink's application and on June 20 approved of extending the agreement with Leferink to use the expanded station for a fee of \$15 per ton, all of which is subject to MOE approval. Leferink has not as yet received Ministry of the Environment approval for the application, but we understand that it is being looked on favourably by the MOE.

Up to now, waste passing through the transfer station has not been weighed, which has left uncertainty as to the fairness of the charges that are being levied by Leferink based on an estimate of the tonnage in each vehicle. Pursuant to Regional Council's instructions, the weigh scales located at the closed landfill site on Fourth Line in Oakville have been moved to the transfer station in Georgetown and are

presently being installed by Leferink. It is expected that they will be ready to use early in July and that the overall operation will improve accordingly.

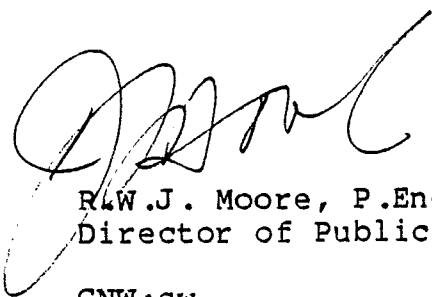
The use of the station has been increasing and waste coming in has increased since the beginning of the year. Leferink is now in the process of acquiring one more transfer trailer and two extra containers to handle the increased waste quantities. Leferink has supplied us with the following statistics:

<u>Date</u>	<u>Charged Waste</u>	<u>No Charge Waste</u>
February/83	1000 tons	Approx. 45 tons (1020 vehicles)
March	1275 tons	approx. 65 tons (1445 vehicles)
April	1100 tons	approx. 70 tons (1590 vehicles)
May	1390 tons	approx. 85 tons (1900 vehicles)

Effective January, 1983 the transfer station has been open six days a week, 8:30 a.m. - 4:30 p.m. weekdays, and 9:00 a.m. - 3:00 p.m. Saturdays as opposed to a three day per week operation in 1982 for the smaller capacity station.

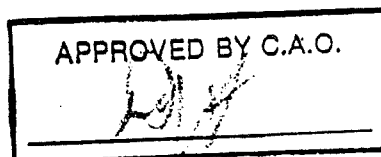
The larger capacity container facility and compactor unit operations have been carried out by Leferink in an environmentally safe manner and they should be able to continue with a satisfactory operation. The only difficulties they have had have all related to the open temporary nature of the station; namely, no storage in the event of mechanical breakdowns and inadequate facilities for repairing and maintaining equipment. We have received no complaints concerning the operation to date. Further, in accordance with Council instructions, we have provided no financial assistance except to pay for the no charge waste disposal and to allow Leferink to use the old Fourth Line landfill site scales.

Respectfully submitted,



R.W.J. Moore, P.Eng.
Director of Public Works

GNW:sw



THE REGIONAL MUNICIPALITY OF HALTON

Report to Solid Waste Management Committee

From Dennis Y. Perlin, C.A.O.

Date 1983 07 08

Report No. C.A.O. Report No. 219/83

Re: Region of Halton - Proposed 1983 Interim
Waste Disposal Plan - (4 years) June, 1984 -
June, 1988

RECOMMENDATION:

*Passed, except as noted,
by the committee*

1. THAT the Proposed 1983 Interim Waste Disposal Plan for the Region of Halton set out in C.A.O. Report No. 219/83 for the four year period from June, 1984 to June, 1988 be received.

*Regional Council
meeting July 20.*

*has "received" this
for decision after*

*public meeting (Sept. '83),
i.e. Fall of '83*

2. THAT should Regional Council approve of the Proposed 1983 Interim Waste Disposal Plan then Regional Council would thereby commit itself and thereby recommend to future Councils that they commit themselves to no further continuation of the sanitary landfill use within the existing boundaries of the existing Regional Landfill Site in Burlington beyond the four-phase program set out in the Report on possible continued use prepared by the consulting engineers and planners, M M Dillon Limited, dated June, 1983. AND FURTHER THAT should permanent waste disposal facilities be opened in Halton arising out of the exploration of energy from waste and/or the Environmental Assessment of the Landfill Component for Halton's future Solid Waste Management System before all four phases set out in the Dillon Report were implemented, then those phases not implemented would not proceed and the commitment to no further continuation of sanitary landfill use within the existing boundaries of the existing Regional Landfill Site would go into effect at that time.

3. THAT each of the Area Municipalities be circulated for its comments and hopefully

agreement with the Proposed 1983 Interim Waste Disposal Plan and that Regional consultants and staff be authorized to appear before Area Councils and any appropriate Committees thereof and to meet with Area Staff as required to assist with respect to their review of this proposal. AND FURTHER THAT their comments be requested within 30 days of circulation, if at all possible.

4. THAT the Solid Waste Management Committee be authorized within the next 30 days to hold a public meeting in the Aldershot area of the City of Burlington to explain the Proposed 1983 Interim Waste Disposal Plan, to present the proposal for continued landfilling at the existing Regional Landfill Site in Burlington on the phased basis set out in the Dillon Report dated June, 1983 and to receive input and comments with respect thereto from those in attendance. AND FURTHER THAT Regional consultants and staff be authorized to meet with the neighbours of the existing site to present and explain to them the final report prepared by Dillon dated June, 1983 and to receive their input and comments with respect thereto and finally to report back thereon to the Solid Waste Management Committee and Council.

5. THAT, firstly, to ensure interim capacity until the commencement of the "20-year planning period" which is the basis of the Environmental Assessment being carried out by Walker, Wright, Young Associates for the Landfill Component for Halton's future Solid Waste Management System, and secondly, for the purpose of transferring any sanitary landfill use for the remainder of the interim period after the completion of Phase B of the Dillon plan for continued use at the Regional Landfill Site in Burlington to the new permanent landfill facility or facilities for Halton's future Solid Waste Management System arising out of the Environmental Assessment of the Landfill Component, that Walker, Wright, Young Associates be requested to comment on the proposal in the Proposed 1983 Interim Waste Disposal Plan that Walker, Wright secure 1.4 million cubic yards of landfill capacity in addition to the 7.2 million cubic yards required for the 20-year planning period.

Change:

Too quick -
local time
To be held
in Sept '83

6. THAT Browning-Ferris Industries Limited and its affiliates, Newco Waste Systems of Buffalo, New York, and Robran Construction Limited of St. Catharines, as well as the management of the Occidental Energy from Waste Facility in Niagara Falls, New York, be sincerely thanked for their proposals and their assistance, as the case may be, with respect to the investigation of the use of the Occidental Energy from Waste Facility for Halton waste disposal purposes, and that same be informed that their proposals will again be considered in the Energy from Waste exploration regarding the long-term solid waste disposal requirements for Halton.

*Note: This means
keeping this option
under more active
consideration.*

REPORT: 1 as per R. Berlin, C.A.O.

I BACKGROUND

Report No. C.A.O. 95/83 dated 1983 02 25 presented an update on Solid Waste in the Region of Halton and set out specific alternatives with respect to interim waste disposal capacity and the finalization of the Environmental Assessment of the Landfill Component of the Region's Solid Waste Management System.

This report set out the following options:

1. Develop a reciprocal option with the Region of Peel for Waste Disposal at the Britannia Sanitary Landfill Site.
2. Develop a reciprocal relationship with the Region of Hamilton-Wentworth to utilize their transfer stations for landfilling at the Glanbrook Sanitary Landfill Site.
3. Negotiation with the Region of Hamilton-Wentworth with respect to the utilization of the SWARU facility in Hamilton-Wentworth for Halton waste disposal.
4. Negotiate with Garden City Sanitation Disposals Limited of St. Catharines with respect to transferring waste from the Burlington Landfill Site to the energy-from-waste facility at the Occidental Chemical complex in Niagara Falls, New York.
5. The authorization of M.M. Dillon Limited to look at the possibility of buffer and contour modifications at the existing Burlington landfill

site in order to develop additional landfill capacity at that site.

At the Solid Waste Management Committee meeting of March 2, 1983, the above recommendations were approved, with the exception of developing reciprocal relations with other Regions with respect to landfill. It was the position of Committee and Council that we should not be transferring the waste disposal problems of this Region to another Region. Further development of a reciprocal arrangement with Peel and Hamilton-Wentworth would by necessity, result in waste generated from these Regions entering the Halton Region at some future date and this would therefore have to form part of the environmental assessment process which we are currently involved in, to allow for such additional capacity.

II BURLINGTON LANDFILL SITE - REMAINING CAPACITY

Prior to analyzing each of the options, a review of the existing waste disposal capacity in the Region is required and a time frame established for the capacity requirements for an interim waste disposal plan.

The Region of Halton has continued to monitor the amount of remaining landfill capacity available at the Burlington Landfill site through the use of aerial photography and computerized interpretation by employing the consulting services of Northway Gestalt in conjunction with Dillon Consulting Engineers & Planners. Dillon's report of June 1983 on the possible continued use of the Burlington landfill site indicates that the expected closure date of the site is June 1984, based on an annual waste generation rate of 180,000 tonnes/year (15,000 tonnes/month). Dillon's, in consultation with Regional staff, have been advised that the Halton Region is currently experiencing a reduction in wastes being landfilled at the Burlington site of approximately 13% or 13,100 tonnes per month and have noted that should this trend continue in 1984, the Burlington landfill site would have approved capacity until August of 1984. Staff are continuing to monitor closely the amount of waste being landfilled at the site.

III INTERIM PLANNING PERIOD - FOUR YEARS (JUNE, 1984 - JUNE 1988)

The first issue when preparing an Interim Waste Disposal Plan is to know the planning period. The planning period that staff are recommending is four years from the end of June, 1984 through the end of June, 1988.

The reason for the starting date being the end of June, 1984 rather than the end of August, 1984 is the belief that we should be very cautious about the 13% decline experienced this year and that, indeed, we should go through a couple of years before concluding that the type of decline we have experienced in 1983 is here to stay. In fact, we do not believe that will be the case and while the Dillon Report which accompanies this proposed plan reflects both the 1982 annual waste generation rate as well as the projected 1983 generation rate, for financial purposes, we have presumed the higher generation rate and therefore we should also be presuming the higher generation rate as far as capacity requirements are concerned.

The four year "interim" period is based on the amount of time that staff have previously projected in Report No. C.A.O. 184/83, DPD 51/83 and PW 116/83 wherein we projected that the "20-year planning period" that we are working with in the Environmental Assessment would not come into effect until all of the facilities making up the proposed system for that 20 years are in place.

In the approach adopted to date by Council, the system is a resource recovery-based one with staff authorized to explore the possibility of energy from waste in Halton to be the major component of the system (in fact, to take 75% of the waste) with the landfill component of 7.2 million cubic yards and source separation taking care of the disposal of the remainder.

The landfill component of 7.2 million cubic yards is only meaningful for a 20-year period when the resource recovery/energy from waste facility(ies) taking 75% of Halton's waste is/are in operation.

Staff projected in the above mentioned previous report that based on Walker, Wright's advice, we would need approximately 5 years to have an EFW facility or facilities in Halton in operation and taking 75% of Halton's waste presuming a successful market search, a successful feasibility study(ies), a successful approvals stage, a successful hearing stage, and then financing, final design, tendering, construction and start-up.

The completion of the Environmental Assessment for the Landfill Component, followed by the receipt of necessary approvals, satisfaction of conditions of approval, final design, tender, construction and start-up is such that the new landfill component is not likely to be in place in Halton until late 1986 or

early 1987. Even if the landfill component is in place, the 20-year planning period does not begin at that point. The 20-year planning period only begins when the resource recovery facility(ies) are in place. Thus, the interim period really runs until June of 1988 when the five-year period that we talked about in the previous report (CAO 184) ends (June, 1983 - June, 1988).

Since we have waste disposal capacity until the end of June, 1984, the interim waste disposal period is thus the four years from June, 1984 through June, 1988.

IV SWARU

Since the approval of Report CAO.95/83 as modified, Regional staff have been in contact with staff of the Region of Hamilton-Wentworth with respect to utilizing the SWARU facility. Initially staff had been advised by staff of the Hamilton-Wentworth Region that the possibility existed of utilizing spare capacity at this facility. Our initial investigations indicated that some 30,000 tons per year could be made available, however 20,000 tons seemed more realistic to staff of the Hamilton-Wentworth Region.

Since undertaking our preliminary investigations with the Region of Hamilton-Wentworth, operational difficulties have developed within the SWARU facility itself, which have necessitated a cutback in the volume of waste being processed through that facility. In our most recent conversation with staff of the Region, we have been advised that the Hamilton-Wentworth Region is no longer interested in accepting waste from the Halton Region at the present time. A future commitment on the part of the Hamilton-Wentworth Region would be dependent upon any investigations which take place concerning the operation of their facility, and whether any additional capacity is in fact available. A copy of their correspondence dated 1983 06 03 is attached. Therefore, the SWARU facility can no longer be considered as an option to the Region of Halton for developing an interim waste management plan.

V MAPLE

Since the approval of C.A.O. Report No. 95/83 as modified, another event which occurred that might have been considered for interim waste disposal purposes was the receipt of a Certificate of Approval by Metro Toronto for the Maple Pits Landfill in Vaughan in the Region of York.

The distance to that particular location for some parts of the Region of Halton is less than to Niagara Falls,

New York, but discussions with Metro Toronto staff indicate that that location would not be available, even on an interim basis, to the Region of Halton for disposal purposes, based on the existing Certificates of Approval, and therefore, that type of option is not available to the Region of Halton.

VI OPTIONS AVAILABLE

Because of the "interim" nature of the Waste Disposal Plan, there is very little flexibility for the Region of Halton.

To introduce any waste disposal facilities in new locations in Halton where waste disposal has not taken place requires an Environmental Assessment.

Thus, to suggest other areas for landfilling other than the existing Regional Landfill Site in Burlington is not realistic because it would require the Region to go to new areas. For new areas, no exemptions have been given to date by the Ministry from the provisions of The Environmental Assessment Act. Further, an Environmental Assessment obviously cannot be done by June of 1984 for any particular location. Thirdly, the doing of an Environmental Assessment would require the consideration of alternative methods and alternative sites, and that really is exactly the same process that we are doing now for our permanent landfill component.

For any other type of waste disposal facility, other than landfill, the same situation exists.

As a result, investigations have shown that there would appear to be only four viable ways for developing interim waste disposal capacity in the Region as part of an Interim Waste Disposal Plan. They are:

- i) The continued use of the Region's sanitary landfill site in Burlington for sanitary landfilling;
- ii) The export of waste to the Occidental Energy from Waste Plant in Niagara Falls, New York;
- iii) The increasing of the size of the landfilling component that Walker, Wright are to seek on a permanent basis to include some for an interim basis as well; and
- iv) The continuation of the source separation program.

An analysis has indicated that none of these options alone will assure the interim capacity that is needed for the four-year period for the Interim Waste Disposal Plan. Thus, some combination will be required.

VII INTERIM WASTE DISPOSAL PLAN

The Interim Waste Disposal Plan which is being proposed for Council adoption is three-fold:

- 1) A four-stage program for the continuation of sanitary landfilling at the existing Regional Landfill Site in Burlington in accordance with a Report on the Continued Use of the Regional Landfill Site in Burlington by the consulting engineers, Dillon, dated June, 1983 with an attempt to avoid, if possible, the use of as many of the phases as possible. The phases are lettered A through D and would be carried out in that order. Approvals would be sought for all four phases, but on a basis that each would be used only if necessary. It is expected by Staff that at least Phases A, B and C will be necessary although many of those who have been consulted in advance have indicated that perhaps only Phases A and B will be necessary before the permanent landfill component for Halton's Solid Waste Management System is found and is operating.
- 2) An instruction to Walker, Wright, Associates to increase the size of the landfill component that they are seeking by 1.4 million cubic yards to cover the interim period from March, 1985 through June, 1988 to try and avoid the continuation of sanitary landfill at the existing Regional Site in Burlington beyond the Phase A and B part of the Dillon Report, and yet to ensure interim capacity for the entire interim period to June of 1988.
- 3) The continuation and where possible the expansion of the Source Separation Program.

*Opposed
by neighbor
and local
public;
A+B may
be accepted?*

The above-described proposed Interim Waste Disposal Plan is put forward after considerable thought and analysis.

With respect to the Source Separation proposal, while it would be a feature of any Interim Waste Disposal Plan, it unto itself cannot eliminate the need for interim waste disposal capability from June, 1984

through June, 1988. It can help. Hopefully it will be expanded and that the participation rates will be greater than Resource Integration Systems projected in 1980, and/or Walker, Wright have projected in 1983. Hopefully new types of proposals similar to that now being experimented with in Burlington will lead to much improved participation rates, but based on experience to date no one can reasonably expect Source Separation itself to replace the need for interim waste disposal capacity.

Therefore, Source Separation will be a help but in Staff's opinion it can and should be only a part of any Interim Waste Disposal Plan and not the entire solution.

As far as the export option to the Energy from Waste Plant in Niagara Falls, New York, the financial analysis done in preparation for this report, a copy of which is attached, simply indicates that that export option is much too expensive requiring either a tippage fee of twice that previously projected for 1984 alone, or a substantial increase in the Regional mill rate of some 13% just to finance that option, let alone any other Regional services. It may be that at some point in the future, a large increase in the mill rate may be necessary for waste disposal service and/or that a large increase in the tippage fee may be necessary for waste disposal service, but staff believe that any such increase should in the face of the other options available to Regional Council at this time, await the results of the Energy from Waste exploration in Halton. If the generic results produced by Walker, Wright work in the best way possible, for Halton, then Halton should be able to have within Halton, an Energy from Waste facility, along with the other waste disposal requirements for the system, at a much cheaper tippage fee than that set out for the Energy from Waste proposal for Niagara Falls, New York. If not, then the proposal for Niagara Falls, New York may still have some merits in the context of a long-term permanent system for Halton and should therefore be deferred for further consideration as part of the long-term situation as per the previous report on the systems analysis being Report No. C.A.O. 184/83, DPD 51/83 and PW 116/83.

It should be noted, however, that a combination of the export option at 75% plus Phase A of the Dillon Report should provide the interim capacity through June of 1988, if an Interim Waste Disposal Plan of that nature were adopted, thus avoiding the need for Phases B, C and D of the Dillon Report and also avoiding any instruction to Walker to increase the size of the

landfill component being sought under the Environmental Assessment.

With the rejection of the export option, the only other option available is the continuation of sanitary landfill use at the existing landfill site in Burlington in accordance with the Dillon Report combined with an instruction to Walker, Wright to increase the size of the landfill component they are seeking in order to accommodate all of the interim capacity required through the interim waste disposal planning period.

(Opposed by public)

While less additional capacity could be requested from Walker if all of the Phases of the Dillon Report were put into effect, there have been requests from those previously consulted to avoid use of as many Phases of the Dillon Report as possible. I believe that all would recognize the need for Phases A and B and as stated above, we as staff believe that Phases A, B and C, at least, will be needed. However, if the others are correct in believing that the Environmental Assessment process should be completed such that new landfill(s) can open by April of 1985, then to meet that belief it is reasonable at this point to request Walker, Wright to seek the additional capacity to take the Interim Plan to June of 1988. If at a future date it becomes necessary to in fact institute Phase C and/or Phase D of the Dillon Report because the Environmental Assessment process is not complete and the new landfill(s) are not ready, then Walker, Wright can be instructed when those decisions to proceed with either Phase C or Phase D or both are made to reduce the 1.4 million additional cubic yards to that which is then necessary to meet the interim planning period through to June, 1988.

In the recommendations it is suggested that the Proposed Interim Waste Disposal Plan be received and circulated to the Area Municipalities for comment. Further, it is recommended that a public meeting be held by the Solid Waste Management Committee in the Aldershot area of Burlington to receive comments regarding the Interim Waste Disposal Plan. Further, authorization is requested for meetings with neighbours to indicate the results of the study and analysis being carried out at the time they were first consulted and to seek their further comments and input.

11/ (Sept. '83)

It is also suggested that Walker, Wright be consulted as to the proposed instructions which they would receive should the Interim Waste Disposal Plan be adopted.

Once the comments from the Area Municipalities, the public meeting, the neighbours, and Walker, Wright are received, the Committee in late August would deal with and finalize the 1983 Interim Waste Disposal Plan for the period beyond the time when the existing landfill reaches its presently approved contours and before the permanent waste disposal system is in place for Halton.

After Council adoption of the Plan, approvals and exemptions from approvals, as the case may be, would be sought and agreements, tendering, construction, start-up, etc., as the case may be, would be carried out with the intention of having the Interim Waste Disposal Plan ready to begin at the time necessary in 1984.

The second recommendation that is contained in the report is intended to provide the same commitment to the neighbours and concerned citizens in West Burlington as was given to the Oakville citizens during the last Interim Waste Disposal Plan and that is that any plan for the continued use of the Regional Landfill Site in Burlington within its existing boundaries that is adopted as part of the 1983 Interim Waste Disposal Plan would be the final continuation, and that this Regional Council itself would commit itself to that finality and would recommend the same finality to future Councils.

Obviously the commitment does not deal with any possible landfill uses that have been proposed by others to the east of the existing Regional Site, nor with what may happen with any lands in the neighbourhood of the existing site as a result of the examination of all of Halton for permanent landfill alternatives as part of the Environmental Assessment now being carried out by Walker, Wright, but at least as far as the existing Regional Landfill Site in Burlington is concerned, there would be no further continuation. That is recommended by Dillon and while it does not meet the desire of some of the neighbours and of some of the concerned citizens in West Burlington that there be no further landfilling after the existing approved contours are reached, it does provide those people with a commitment that this four-phase program would definitely be the end for the existing site. That would then put these people in the same position as their counterparts in Oakville were when a similar commitment was given back in 1979 and 1980 as part of the last Interim Waste Disposal Plan.

The final recommendation is that a "thank you" be submitted to Browning Ferris and Garden City Sanitation, as well as to the management of the

3000 names
(50% of house-
holds) have
petitioned:
"No further
dumping"

Occidental Energy from Waste facility in Niagara Falls, New York, and that they be advised that the export option will be further considered as part of the Region's long-term Solid Waste Management System.

The remainder of this report deals with the two major options that have formed the cornerstone of the Proposed Interim Waste Disposal Plan; namely, the continued use of the Burlington Landfill Site and the export option. These options and variations are set out in some detail to provide the basis on which the Proposed Interim Waste Disposal Plan as set out above was reached.

III Regional Landfill Site - Burlington - Possible Continued Use

In accordance with the recommendations of report CAO.95/83 dated 1983 02 25, Dillon Limited were authorized to look at the possibility of developing additional landfill capacity at the Burlington landfill site. The results of their investigation are now complete with the submission of their report entitled "Burlington Landfill Site - Possible Continued Use" dated June 1983 a copy of which is enclosed with this Report.

The report addresses the issue of continued landfill capacity at the site within the presently approved boundary limits, and establishes four distinct phases of development of the site. As indicated in the report, discussions regarding Dillon's preliminary investigations have taken place with the following agencies:

Ministry of the Environment
City of Burlington Staff
Local Citizens
National Sewer Pipe

✓ → West Burlington Ratepayers' Association

Following meetings with the above groups a follow-up meeting was held with the Ministry of the Environment in order to determine the approval process which would be required for the various phases of development of the site, and a landfill site tour visit was also arranged for some of the Local and Regional Councillors representing the City of Burlington.

The initial proposal for the continued use of the Burlington landfill site was based upon raising the final contours of the Burlington landfill site approximately 6 m at the north end of the site and filling in approximately 11 m of the depression created by the Bell cable which traverses the site.

This would, by necessity, mean increasing the height of the Bell cable. Following the contour modifications it was then proposed to utilize the buffer area to the east and then the buffer area to the north as the final means of creating capacity at the site.

Throughout the public involvement phase of our investigations, considerable concern was expressed with respect to raising the contours of the site, and the visual impact which would be created by those living in the vicinity of the site. As a result of our discussions, we have restructured the phases of development of the site where possible and initial continued use of the site would be within the present contour limits. The sequential development of the site would be in accordance with the following phases.

Phase A - this would involve raising the contours in the vicinity of the Bell Canada line approximately 11 m to blend in with the existing surrounding elevations and would require the Bell Line to be raised. Additional capacity provided would be 6 - 6.5 months.

Phase B - this would involve the extension of the landfill operation into the buffer area on the east of the site. Final and base contours would be blended in with those presently approved. Additional capacity provided by Phase B would be 3 - 3.5 months.

Phase C - this would involve raising the final approved contours by approximately 6 m at the site's north end, and by 2 m adjacent to the Bell easement. Additional capacity provided by Phase C would be 13 - 15 months.

Phase D - this would involve extending the landfill operations into the buffer zone into the north. Additional capacity provided by Phase D would be approximately 10 - 11 months.

The completion of the above four phases of development of the Burlington landfill site could result in its continued use for approximately 32 to 36 months beyond the projected date, when the existing available capacity at the site will be fully utilized.

We have been advised by Dillon, our consulting engineers on this project, that the above development phases represent the total amount of landfill capability within the existing property limits of the Burlington landfill site. No additional capacity is available within these property limits.

The costs associated with the development of each phase is as follows:

Phase A -	\$155,000
Phase B -	\$138,000
Phase C -	\$251,000
Phase D -	\$147,000

It should be noted that the cost of development of each of these phases has been considered independent of the other phases. In Phases A and C a major portion of the cost is related to the necessary cover material which would be required. This cost, however, could be offset by the development of Phase C and the resultant availability of cover material which would be available from the excavation of Phase B. A complete summary of the cost associated with the development of the site in these phases is shown on the attached table.

IX EXPORT OF HALTON WASTE TO THE ENERGY FROM WASTE PLANT - NIAGARA FALLS, NEW YORK

In considering the aspects of fully utilizing the Burlington landfill site, staff have investigated the possibility of exporting waste to the Occidental Energy from Waste Plant in Niagara Falls, N.Y. Since the preparation of Report CAO.95/83, staff have been in consultation with staff at Garden City Sanitation with respect to the exporting of waste to the Occidental Energy from Waste plant in Niagara Falls, N.Y. Recently staff and Councillors had an opportunity to tour the facility and witness first hand the processing of solid waste into a refuse derived fuel (RDF) for incineration and steam and energy production at the Occidental Chemical complex. Considerable interest has been shown by the Occidental Corporation in having the Region of Halton export waste to their facility to be used as additional fuel for their incineration process. While there remains to be additional work undertaken with respect to the evaluation of any agreement which this Region may consider entering into, regarding the services which the facility could offer for the Region, we must be aware of the additional cost that such a system would result in to our Waste Management system. There is, however, a clear wish on behalf of the "waste-finders" for Occidental Corporation to enter into the necessary agreements which would allow the Halton Region to participate in an energy-from-waste facility, and thereby reduce its reliance on landfill sites. The option of exporting waste to the Energy-from-Waste plant in Niagara Falls, N.Y. could be considered in two ways: firstly as part of an interim waste disposal plan pending the establishment of our permanent facilities, and secondly, as the energy-from-waste component of the Region's long term waste management system, depending upon the results of our own evaluation of other energy-from-waste options in Halton. This latter evaluation would largely be the responsibility of the task force which was recommended in the Joint Report C.A.O. 184/83, PW. 116/83, DPD.51/83 dated 1983 05 31. In this report we are dealing with the Occidental Energy-from-Waste facility as an interim waste disposal option only.

Regional staff have received a proposal from Browning Ferris Industries (BFI) to supply the Occidental Energy-From-Waste facility in Niagara Falls, N.Y. with waste generated in the Halton Region. BFI have formed a joint venture company which includes Robran Construction of St. Catharines, Ontario (Garden City Sanitation) and Newco Waste Systems of Buffalo, N.Y.

Under the proposal as it has been submitted, Robran Construction would be responsible for the supply of the transfer vehicles necessary to transport and dispose of all or a portion of Halton's waste to the Occidental Energy-From-Waste plant in Niagara Falls, N.Y. in conjunction with Newco Waste Systems which is owned by BFI and have the contract to supply wastes to the Occidental plant. Newco also have a landfill site near the Occidental Plant and are able to provide back-up waste disposal facilities when the energy-from-waste plant is not operating, which enables them to guarantee a means of waste disposal to a municipality independent of the operation of the energy-from-waste facility.

The proposal by BFI sets out an approximate cost of \$25 CDN/ton, exclusive of any transfer station operation and construction costs for a five year contract or longer to manage the waste generated in the Halton Region. This is based on the Region guaranteeing a minimum amount of 150,000 tons per year (approximately 75% of Halton waste) plus the option of managing the additional 25%. A decision as to how much of the waste generated within the Halton Region that would be available for exporting to the Occidental plant is dependent upon the acceptance of the continued use plans for the Burlington landfill site.

As previously stated, the proposal by BFI does not include the construction or operating cost of the transfer station, nor does it include the necessary operations at the Burlington landfill site such as operation of the weigh scales, traffic control, container facilities, maintenance of facilities, or the landfill operations for that portion of waste which would not be exported.

We have been advised by Robran Construction that the cost of the transfer facility which would consist of a ramp for loading open top transfer vehicles and a tipping pad for the waste to be compacted prior to loading would be in the order of \$30,000. The other costs associated with the compacting of the wastes, prior to loading, the loading itself and the continued operation of the landfill site, is difficult at

this point to estimate because it would not be an exclusive right in our contract with BFI to perform the operation, and would therefore be open to the public tendering process. We must also realize that we have an existing contract with Environmental Quality Handling to dispose of waste at the Burlington site at a cost of \$4.54/tonne, based on our current landfill operation which covers generally all activities at the site.

In discussions with Environmental Quality Handling, we have been advised that with respect to exporting 75% of the waste, they foresee very little in the way of a reduction in the unit price cost for landfilling the remaining 25% of Halton's waste because of the necessity to maintain sufficient landfill equipment and staff on site to continue with the present mode of operation. Some potential savings in the loading cost, however, could be realized through the joint use of equipment for both landfilling the waste and compacting and loading. This compacting and loading operation has been estimated to range in the area of \$3/ton, and therefore for the purposes of estimating only, staff would provide the following as a best estimate of the costs for transfer operation plus landfilling as required.:

\$5.00/ton - 100% export of waste and would include all activities associated with loading the trailers and operating the landfill site in accordance with our existing contract specifications, with the exception of disposing of the waste on site.

\$6.00/ton - 75% export/25% landfilling, which would include the cost of loading 75% of the waste plus the cost of landfilling 25% of the waste (and all other operations at the Burlington site).

Accordingly, the cost range for the operation only of the Burlington site under the 100% export and 75% export would be in the order of \$35/ton and \$38/ton respectively. Capital costs associated with the transfer station costs plus fixed costs of construction necessary at the site plus administration are in addition to this and are shown on Table 1 of the Financial Impact of Solid Waste Disposal Options attached to account for the ongoing waste management costs, including administration, debt charges, cost of maintaining the closed landfill sites, and capital costs required to complete the current operation of the Burlington landfill site.

In considering the viability of the BFI proposal, there is recognition of the fact that border crossings between Canada and the U.S.A. are assumed to be open to the transporting of waste to the Energy-From-Waste plant in Niagara Falls, N.Y. This is in accordance with the present exporting of waste from St. Catharines, Ontario to the E.F.W. plant which has been performed since November of 1982 without problem, but the Region of Halton would still require some form of landfill capacity on a contingency basis should this unexpected closure occur.

As briefly discussed earlier, there is the possibility of blending the exporting option with reduced continued use of the Burlington landfill site. These options have been reviewed and would be:

- (1) 100% landfill at Burlington.
- (2) 75% export to Occidental E.F.W., 25% landfill.
- (3) 100% export to Occidental Energy-From-Waste.

The following is a discussion of each of the options:

1. 100% Landfill Option

Under this option, 100% of the waste generated within the Halton Region (other than source separation materials) would be landfilled at the Burlington landfill site in accordance with the phased approach developed by Dillon Consulting Engineers, or until such time as a new landfill site(s) is available. The landfilling operation would be within the presently approved property limits for the Burlington landfill site and if all Phases were needed would entail raising the contours at the site to accommodate additional landfill capacity and would entail landfilling operations taking place in the buffer area to the east and to the north of the present landfilling area.

The advantages of this option are that full use will be made of the existing facilities presently in place at the site, primarily the leachate collection system, and the cost for this option including approval costs of about \$75,000 can be financed from the tipping fee revenue currently being generated by our existing operation.

The disadvantage of this option is that it does require an increase to the presently approved contours of the site and will result in some additional visual impact to the residents in the vicinity of the site. In addition, as discussed previously, we have been advised by the Ministry of the Environment that a hearing under the Environmental Protection Act will be required in

order to obtain environmental approval for at least Phases B, C and D.

2. 75% Export to Occidental E.F.W. 25% Landfill

Under this option, 75% of the waste generated within Halton Region would be exported to the Occidental E.F.W. The remaining 25% of waste would then be landfilled in accordance with our existing practices. As a result, there would be a dual function occurring at the landfill site of both the loading of transfer trailer vehicles, as well as the landfilling of refuse. Careful co-ordination of activities on the site will be required in order to promote the interaction of the two distinct operations.

The advantage of this option is that it can limit the landfill activities to Phase A which is the area of the depression at the site caused by the Bell cable, and possibly landfilling into the easterly buffer area, with no increase in contours being required beyond those presently approved. If operations were to commence January, 1984, the remaining six months of site capacity could be extended to approximately 24 months and capacity achieved by raising the Bell cable of an initial six months could also become an additional 24 months. Accordingly, if this option was commenced January 1, 1984, then the modifications to the Bell cable alone would amount to four years of capacity at the site. However, recognition is required of the fact that the loading facility consisting of a ramp and tipping area would be required as part of the exporting operation. Hopefully this could be located on the buffer area to the north previously referred to so as to not interfere with any of the interim capacities which could be developed through progressive stages of development of the site.

By employing this option, contour modifications to the site would not be required, and there would be no increase in visual impact of the site to the surrounding neighbours. The other advantages are similar to the 100% export option.

The major disadvantage of this option relates to the cost of exporting the waste plus the continued requirement of landfilling. Although this option is somewhat less expensive than Option 3, it still requires a financial restructuring of our waste management system in order to accommodate the increased cost of operation at the site, similar

to those noted for Option 3. In addition, if a five year contract was entered into with BFI, we would be faced with the continuing export of waste during that period during which time our environmental assessment may have been completed and a new landfill site established in the Region, which may be financially more desirable than continuing to export the waste to the Occidental facility. The resultant tipping fee for the 75%/25% option is shown on the attached Table 1 of the Financial Impact Report.

3. 100% Export to the Occidental EFW

This option would involve the full export of all municipal industrial and commercial non-hazardous solid waste generated within the Region of Halton being transferred from the existing Burlington landfill site to the Occidental Energy-From-Waste plant in Niagara Falls, N.Y. The method of conveyance would be via open top trailers, which would be loaded at or near the working face of the present site. The loading operation would be by means of a large front-end loader or loaders capable of dealing with an expected waste quantity of 600 tons per day. In order to accommodate the operation, a loading ramp would be constructed at the site and a tipping area which would be used for waste deposited at the site, which in turn would be compacted by means of heavy equipment running over top of the waste, thus compressing the material and reducing the amount of voids in the waste material. This would allow for a greater density of compaction in the open top trailers. Prior to leaving the site, the open top trailers would be carefully tarped to avoid spillage of the waste material in transit to the Occidental E.F.W.

The advantages of employing the 100% option are that the Region would no longer be dependent upon the Burlington landfill site for disposal of wastes during the length of the contract, which we have assumed to be of a five year duration because of the size of the "penalty" for any term less than that. As such, there would be no adverse environmental impact from waste generated within the Region. In addition, no further landfilling activity would be required at the Burlington landfill site other than the mechanical operations of compacting and loading the open top transfer trailers, therefore the present contours of the Burlington site would remain basically unchanged and there would be no visual impact created by the

additional requirement for contour modifications to raise the presently approved contours at the site. Another advantage is that if it works out it could play a longer term role in our Solid Waste Management plans.

The disadvantages of operating the system with 100% export of the waste relate primarily to the cost of handling, transportation, and disposal, in relationship to the present cost of landfilling. A Financial structure will have to be developed to accommodate this additional cost either through raising the tipping fee to approximately \$38/ton plus, or establishing a cost to be placed on the Regional tax levy to accommodate this operation. If the operation is to be paid for totally on the existing user-fee basis, we could expect that a reduction in wastes entering the landfill site would occur and increased illegal dumping of waste may prevail because of this high tipping fee. Another disadvantage is the length of the term, i.e. 5 years which then means more interim capacity than is otherwise needed. Another disadvantage is the lack of control over border closures and the lack of effective remedies for breach of contract.

Financial Analysis

The cost implications of proceeding with each of the above alternatives have been analyzed by our Finance Department. Attached is a detailed analysis of each of these options setting out future costs and the effects on our current tipping fee as well as the initial mill rate increase if the Regional Tax Bill were utilized and tipping fees were only increased as we projected same in our 1983 Solid Waste Disposal Budget papers.

See
p. 61-69

Conclusions

Based on the financial analysis of the export option to the Occidental Energy-From-Waste plant and its effect on either the tipping fee required to provide sufficient funds to finance this option, or the increase in Regional tax levy required, we are recommending that the necessary approvals for the continuing use of the Burlington Landfill Site be obtained. This would be in accordance with the phased approach developed by Dillon Consulting Engineers in the report on the possible continued use of the Burlington Landfill Site dated June, 1983. Until the Environmental Assessment process proceeds further and we are in a better position to determine the precise timing of the new landfill component of our waste

management system, the option of exporting Halton's waste to the Occidental Energy-from-Waste plant cannot be forgotten. This should be reviewed on an annual basis for each future year until such time as the new location(s) is known. A re-evaluation of this recommendation may be required if, for example, delays in the environmental assessment process are experienced beyond the landfill capability of the Burlington Landfill Site. This is an acknowledgement of the previously referenced Dillon report which indicates that, based on current waste generation rates, the four phases represent the maximum attainable capacity utilizing good and proper landfill design criteria from the Burlington site. While we recognize that the Region at this point in time has the opportunity to participate in an energy from waste project outside of the Region, the amount of funding required to finance this project cannot be considered as reasonable at this time in light of the interim nature of our plans and the possibility of continued use of the Burlington site. With the completion of the current environmental assessment review for energy from waste options within the Halton Region, we will be in a better position to analyze the relative merits of proceeding with energy from waste as it affects this Region in the long term including the energy from waste opportunity available for us in Niagara Falls, New York.

(Niagara Falls, NY.)

Yates
than June '84

Respectfully submitted,



Dennis Y. Perlin
Chief Administrative Officer

DYP/gh



THE REGIONAL MUNICIPALITY OF HALTON-WENTWORTH

Department of Engineering
71 Main Street West, Hamilton, Ont. L8N 3T4 (416) 526-4170

RECEIVED

83 06 03

8 JUN 1983

Refer to File No. E308-01
Attention of R. F. Palombella
Your File No.

HALTON REGION
PUBLIC WORKS

The Regional Municipality of Halton
P.O. Box 7000
2316 South Service Road West
Oakville, Ontario
L6J 6E1

Att: R. W. J. Moore, Director of Public Works

SWARU Waste from Halton

Gentlemen:

Further to our letter of 83 01 26 and a recent telephone conversation between Mr. G. Woodburn and Mr. V. Terluk of this office, we wish to advise you of the status of the referenced scheme.

The Ministry of the Environment and its consultants are involved in a testing program to evaluate the SWARU combustion process, and to ascertain the levels of dioxin which are present in the flue gases. This testing was completed last week, and the analysis and reporting of results will require about three additional months of time.

Until the conclusions of this investigation are completed, and remedial measures implemented, if required, the plant must operate at a reduced rate, limited to 1,600 Tons (1 440 tonnes) per week.

We will, therefore, be unable to proceed further in our evaluation of the feasibility of receiving Halton waste at SWARU, until the quality of stack emissions has been determined.

We will notify you of the results of the Ministry's investigation as soon as the reports are released. Should you wish to discuss this matter in more detail, please contact Mr. R. Palombella at 526-4422.

Yours very truly,

G. S. Spencer
Director of Environmental Services

VT:lg

cc. G. Woodburn, P. Eng.
Regional Municipality of Halton



**Waste
Systems™**

BROWNING-FERRIS INDUSTRIES LTD.
Toronto District

161 BRIDGELAND AVENUE • TORONTO, ONTARIO M6A 1Z1 • 416/789-7341

June 7, 1983

RECEIVED
8 JUN 1983
HALTON REGION
PUBLIC WORKS

Regional Municipality of Halton
P.O. Box 7000
2316 South Service Road W.
Oakville, Ontario
L6J 6E1

Attention: Mr. George Woodburn, P.E.
Manager of Waste Disposal

Subject: Proposal for Solid Waste Management Services

Gentlemen:

During the past months your office has had several conversations with affiliates of Browning-Ferris Industries Ltd. regarding solid waste management services for the Region. The purpose of this letter is to formalize our offer to provide services, establish a frame work for further discussions of those services and the negotiations of a solid waste management contract.

The Region presently uses the City of Burlington's landfill as a disposal site for solid waste. The landfill has limited capacity and therefore the Region is desirous of exploring alternatives to landfill disposal at the City of Burlington's facility for both short and long term. One of the alternatives being considered is the use of the Occidental Energy from Waste Facility in Niagara Falls, New York. A joint venture company that includes Browning-Ferris Industries and its affiliates; Newco Waste Systems of Buffalo, New York a sister company and Robran Construction Ltd. of St. Catherines; would like to offer a proposal for solid waste management that entails the following:

1) The permitting and construction of a temporary transfer station at the City of Burlington's landfill or some other site designated by the Region to facilitate the loading of open top tractor trailers for solid waste transfer out of the Region to an Energy from Waste Facility.

Continued.....2

2) Disposal of all or part of the Region's 200,000 tons per year of solid waste at the Occidental Energy Corporation Energy from Waste Facility in Niagara Falls, New York.

3) In the event that the Energy from Waste Facility is inoperable during certain periods we would propose to continue to dispose of the Region's waste at alternate landfill facilities located in Buffalo, New York and/or the Province of Ontario.

We have estimated that such services could be priced at approximately \$25.00 CDN per ton of waste exclusive of transfer station operation and construction costs if a five year contract, or longer, could be executed. Our estimate of \$25.00 per ton is predicted upon receiving 100% of the Region's waste. The price increase, for a lesser amount, for example 50,000 tons per year (25%), would be less than \$5.00 per ton. A more important factor in minimizing the cost to the Region for said services would be the length of the contract. The minimum length of the contract that should be considered is three years. Assuming however special provisions could be included in the contract that would provide for the Region and buy the transfer tractors and trailers in the event of contract termination at the end of the third year. Failure to include such a term in the contract would require the accelerated depreciation of the tractors and trailers over three years rather than five with a proportionate increase in cost to the Region. This increased cost is estimated to be less than \$5.00 per ton. We would recommend the following contracting approach to provide lowest cost services to the Region:

Initial contract term of three years with mutual options to renew for five successive five-year periods. This will accommodate the interim transfer station permit and construction to allow immediate extension of the City of Burlington's landfill life expectancy and provide for future long term disposal.

The Region would guarantee a minimum amount of 150,000 tons per year with the option for an additional 50,000 tons by mutual agreement.

Our joint venture would agree to manage the guaranteed minimum at a price of approximately \$25.00 per ton, excluding transfer station operations/construction costs, and would have the right, but not the obligation, to manage the additional 50,000 tons per year. All materials handled by the joint venture would be disposed of in the Occidental Facility or alternate landfill sites in the New York State and/or the Province of Ontario.

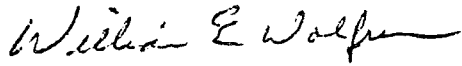
Continued.....3

We feel the joint venture company can offer you the unique advantages of having guaranteed disposal services for your waste, short term and long term through the utilization of Resource Recovery facilities and landfills, a combination unavailable to other potential solid waste management services companies.

I would like to meet with you on Thursday, June 9, in your offices to discuss our proposal further and determine how we may proceed to develop a Services Agreement. Thank you for your consideration.

Very truly yours,

BROWNING-FERRIS INDUSTRIES



William E. Wolfram
Divisional Vice President
East Central Region

WEW/ddm

FINANCIAL IMPACT OF SOLID WASTE DISPOSAL OPTIONS

The financial impact of various solid waste disposals options was assessed, specifically based upon:

- Option 1 : a 100% landfill option;
- Option 2 : a 75% BFI / 25% Burlington landfill option; and
- Option 3 : a 100% BFI option.

Tables 2 to 4 attached to this report, detail the results of this analysis as related to revenues, expenditures, reserve fund position, and required capital program.

Following these tables is a list of assumptions employed in the analysis.

Table 1 below summarizes the results of the financial analysis. In this table, each option is first considered if tipping fees were held at the level forecasted in the 1983 Capital Budget.

In each option, other than the 100% landfill, this results in a significant revenue shortfall (\$3 Million - \$3.3 Million in 1984).

Two further calculations were then undertaken: the required tipping fee necessary to eliminate any revenue shortfall, and the required mill rate increase should the revenue shortfall be financed on the general tax levy.

It should be noted that the tipping fee calculation is somewhat technical since it assumes that the significant increases required would not reduce the tonnage generated. This is unrealistic, but it is impossible to estimate how sensitive waste generation would be to significant increases in the tipping fee. In all likelihood, an increase in tipping fees in the range of \$35 to \$38 would result in reduced tonnage and therefore would not generate sufficient revenues to completely cover expenditures required under Option 2 and 3. An even greater tipping fee would therefore be required to make the solid waste function totally self-supporting.

The alternative method of financing the revenue shortfall on the general tax levy has an equally dramatic impact. The analysis indicates that a required mill rate increase of between 13% and 15% in 1984 would be necessary to provide funding for the solid waste function under Options 2 and 3. Mill rate increases would not be experienced in the years 1985 to 1988 since the increase would be built into the base in 1984.

FINANCIAL IMPACT OF SOLID WASTE DISPOSAL OPTIONS

TABLE 1

	<u>1984</u>	<u>1985</u>	<u>1986</u>	<u>1987</u>	<u>1988</u>
Tipping Fee (\$)	\$17.50	\$19.00	\$20.50	\$21.50	\$22.50
Tonnage (000)	164	172	180	186	194
Revenue (\$000)	\$2,870	\$3,270	\$3,690	\$4,000	\$4,370

Revenue Shortfall (\$000)

Option 1: 100% Landfill	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0
Option 2: 75% BFI Proposal/ 25% Burl. Landfill	\$2,944	3,124	2,774	3,483	3,692
Option 3: 100% BFI Proposal	3,356	3,675	3,585	4,381	4,702

Imputed Tipping Fee (\$)*

Option 1: 100% Landfill	\$17.50	\$19.00	\$20.50	\$21.50	\$22.50
Option 2: 75% BFI Proposal/ 25% Burl. Landfill	35.45	37.17	35.91	40.23	41.56
Option 3: 100% BFI Proposal	37.96	40.38	40.42	45.06	46.76

Required Mill Rate Increase
to Finance Shortfall (Average
Residential Taxpayer)

Option 1: 100% Landfill	0%	0%	0%	0%	0%
Option 2: 75% BFI Proposal/ 25% Burl. Landfill	13.0	0	0	0	0
Option 3: 100% BFI Proposal	14.8	0	0	0	0

*Tipping fee required to eliminate revenue shortfall.

(\$000 inflated)

OPTION 1: 100% LANDFILL

TABLE 2A

REVENUE	1984	1985	1986	1987	1988	
Tipping Fee (\$)	17.50	19.00	20.50	21.50	22.50	
Tonnes (000's)	164	172	180	186	194	1983 + 0% + 5% + 4% + 4% + 4%
Revenue	<u>\$2,870</u>	<u>\$3,270</u>	<u>\$3,690</u>	<u>\$4,000</u>	<u>\$4,370</u>	
EXPENDITURE						
Operations	\$1,827	\$1,937	\$2,053	\$2,176	\$2,307	1984 + 6% p.a. (1983 C.B. Forecast)
Contrib. to Capital	336	452	166	700	0	
Debt Charges	514	511	509	258	840	
Transfer to Reserve	193	370	962	866	1,223	
	<u>\$2,870</u>	<u>\$3,270</u>	<u>\$3,690</u>	<u>\$4,000</u>	<u>\$4,370</u>	
REVENUE SHORTFALL	0	0	0	0	0	
RESERVE FUNDS/WORK-IN-PROGRESS STATUS						
Opening Balance	\$2,041	\$2,693	\$3,155	\$ 1	\$ 963	
Interest (10%)	204	269	316	0	97	
Prev. Year's Transfer	448	193	370	962	866	
Contrib. to Capital	336	452	166	700	0	
Application	(336)	(452)	(4,006)	(700)	(1,926)	
Closing Balance	<u>\$2,693</u>	<u>\$3,155</u>	<u>\$ 1</u>	<u>\$ 963</u>	<u>\$ 0</u>	
APPLICATION OF RESERVES / WORK-IN-PROGRESS						
New Landfill & Trans.Stn.\$	-	-	\$3,840	-	-	
Resource Utilization Fac.	-	-	-	-	1,926	
Miscellaneous	336	452	166	700	-	
	<u>\$ 366</u>	<u>\$452</u>	<u>\$4,006</u>	<u>\$700</u>	<u>1,926</u>	

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(\$000 Inflated)

OPTION 1: CAPITAL PROGRAM - 100% LANDFILL

TABLE 2B

	<u>1984</u>	<u>1985</u>	<u>1986</u>	<u>1987</u>	<u>1988</u>
Burlington Extension*					
Phase A	31				
B		146			
C		6			
D			166		
Environmental Approval	75				
New Landfill					
Construction			7,500		
Environmental Assessment (Add.)	200				
Transfer Station	30	300	1,500		
Resource Utilization Facility				700	6,300
Total:	<u>336</u>	<u>452</u>	<u>9,166</u>	<u>700</u>	<u>6,300</u>

*Burlington Extension - Phase	<u>A</u>	<u>B</u>	<u>C</u>	<u>D</u>
Dillon Estimate	155	138	251	147
Less Cover Avail.	(124)	0	(246)	0
	31	138	5	147
Inflation	0	8	1	19
Total:	<u>31</u>	<u>146</u>	<u>6</u>	<u>166</u>

-64-

(\$000 inflated)

OPTION 2: 75% BFI PROPOSAL / 25% BURLINGTON LANDFILL

TABLE 3A

REVENUE

	<u>1984</u>	<u>1985</u>	<u>1986</u>	<u>1987</u>	<u>1988</u>
Tipping Fee (\$)	17.50	19.00	20.50	21.50	22.50
Tonnes (000's)	164	172	180	186	194
Revenue	<u>\$2,870</u>	<u>\$3,270</u>	<u>\$3,690</u>	<u>\$4,000</u>	<u>\$4,370</u>

1983 + 0% + 5% + 4% + 4% + 4%

EXPENDITURE

Operations:

Export Contract (Burl LF)	\$ 924	\$1,029	\$1,134	\$1,250	\$1,378
Occidental Contract	3,075	3,419	3,792	4,154	4,592
Other	966	971	1,029	1,091	1,156
Contrib. to Capital	335	464	0	700	0
Debt Charges	514	511	509	288	936
Transfer to Reserve	0	0	0	0	0

75% X \$6 + 25% X \$4.54 + 6% p
\$25/tonne + 6% per annum

Total:

<u>\$5,814</u>	<u>\$6,394</u>	<u>\$6,464</u>	<u>\$7,483</u>	<u>\$8,062</u>
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REVENUE SHORTFALL

<u>\$2,944</u>	<u>\$3,124</u>	<u>\$2,774</u>	<u>\$3,483</u>	<u>\$3,692</u>
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RESERVE FUND/WORK-IN-PROGRESS STATUS

Opening Balance	\$2,041	\$2,693	\$2,962	\$ 8	\$ 8
Interest (10%)	204	269	296	0	0
Previous Year's Transfer	448	0	0	0	0
Contrib. to Capital	335	464	0	700	0
Application	(335)	(464)	(3,250)	(700)	0
Closing Balance	<u>\$2,693</u>	<u>\$2,962</u>	<u>\$ 8</u>	<u>\$ 8</u>	<u>\$ 8</u>

APPLICATION OF RESERVES / WORK-IN-PROGRESS

New Landfill & Trans. Stat.	\$ -	-	\$3,250	-	-
Resource Utilization Fac.	-	-	-	700	-
Miscellaneous	335	464	-	-	-
	<u>\$ 335</u>	<u>\$464</u>	<u>\$3,250</u>	<u>\$700</u>	<u>-</u>

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TABLE 3B

OPTION 2: CAPITAL PROGRAM - 75% BFI PROPOSAL/25% BURLINGTON LANDFILL

(\$000 inflated)

	<u>1984</u>	<u>1985</u>	<u>1986</u>	<u>1987</u>	<u>1988</u>
Burlington Extension					
Phase A*		164			
Environmental Approval	75				
Facilities for Export	30				
New Landfill					
Construction			7,500		
Environmental Assessment (Additional)	200				
Transfer Station	30	300	1,500		
Resource Utilization Facility				700	6,300
Total:	<u>\$335</u>	<u>\$464</u>	<u>\$9,000</u>	<u>\$700</u>	<u>\$6,300</u>

*\$155,000 (Dillon estimate) + 6% inflation.

(\$000 inflated)

OPTION 3: 100% BFI PROPOSAL

TABLE 4A

<u>REVENUE</u>	<u>1984</u>	<u>1985</u>	<u>1986</u>	<u>1987</u>	<u>1988</u>
Tipping Fee (\$)	17.50	19.00	20.50	21.50	22.50
Tonnes (000's)	<u>164</u>	<u>172</u>	<u>180</u>	<u>186</u>	<u>194</u>
Revenue (000's)	<u>\$2,870</u>	<u>\$3,270</u>	<u>\$3,690</u>	<u>\$4,000</u>	<u>\$4,370</u>

1983 + 0% + 5% + 4% + 4% + 4%

EXPENDITURE

Operations					
Export Cont. (Burl LF)	820	912	1,006	1,109	1,222
Occidental Contract	4,100	4,558	5,056	5,538	6,123
Others	532	664	704	746	791
Contrib. to Capital	260	300	0	700	0
Debt Charges	514	511	509	288	936
Transfer to Reserves	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
Total:	<u>\$6,226</u>	<u>\$6,945</u>	<u>\$7,275</u>	<u>\$8,381</u>	<u>\$ 9,072</u>

\$5/tonne + 6% per annum
\$25/tonne + 6% per annum

<u>REVENUE SHORTFALL</u>	<u>\$3,356</u>	<u>\$3,675</u>	<u>\$3,585</u>	<u>\$4,381</u>	<u>\$4,702</u>
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RESERVE FUND/WORK-IN-PROGRESS STATUS

Opening Balance	\$2,041	\$2,693	\$2,962	\$ 8	\$ 8
Interest (10%)	204	269	296	0	0
Previous Year Transfer	448	0	0	0	0
Contrib. to Capital	260	300	0	700	0
Application	<u>(260)</u>	<u>(300)</u>	<u>(3,250)</u>	<u>(700)</u>	<u>0</u>
Closing Balance	<u>\$2,693</u>	<u>\$2,962</u>	<u>\$ 8</u>	<u>\$ 8</u>	<u>\$ 8</u>

APPLICATION OF RESERVES/WORK-IN-PROGRESS

New Landfill & Trans. Stn.	\$ -	-	\$3,250	-	-
Resource Utilization Fac.	-	-	-	700	-
Miscellaneous	<u>260</u>	<u>300</u>	<u>-</u>	<u>-</u>	<u>-</u>
Total:	<u>\$ 260</u>	<u>\$300</u>	<u>\$3,250</u>	<u>\$700</u>	<u>-</u>

OPTION 3: CAPITAL PROGRAM - 100% BFI PROPOSAL

TABLE 4B

(\$000 inflated)

	<u>1984</u>	<u>1985</u>	<u>1986</u>	<u>1987</u>	<u>1988</u>
Facilities for Export (Burl.)	30				
New Landfill:					
Construction			7,500		
Environmental Assessment Additional					
Transfer Station	30	300	1,500		
Resource Utilization Facility	—	—	—	<u>700</u>	<u>6,300</u>
Total:	<u>\$260</u>	<u>\$300</u>	<u>\$9,000</u>	<u>\$700</u>	<u>\$6,300</u>

LIST OF ASSUMPTIONS

OPTION 1: 100% LANDFILL

Tipping Fee - 1983 Capital Budget Forecast + \$1/tonne in 1988.
Tonnes - 1984 = 1983 estimate.
- 1985 = 1984 + 5%.
- 1986 = 1985 + 4%.
- 1987 = 1986 + 4%.
- 1988 = 1987 + 4%.

Operations - 1984 = 1984 estimate from 1983 Capital Budget Forecast.
- 1985 - 1988 = 1984 + 6% per annum.

Contributions to Capital = Miscellaneous capital projects as per Table 2B.

Debt Charges - 1984 - 1986 = Burlington Landfill Extension.
- 1987 - 1988 = Net Cost of New Landfill.

Transfer to Reserve = Year-end surplus.

Burlington Extension - Phase A - 1984
- Phase B - 1985
- Phase C - 1985
- Phase D - 1986

OPTION 2 - 75% BFI PROPOSAL / 25% BURLINGTON LANDFILL

Tipping Fee - as per Option 1.
Tonnes - as per Option 1.
Operations - Burlington landfill contr.-export waste (75%) - \$6 + 6% per annum.
- landfill waste (25%) - \$4.54 + 6% per annum.

- Occidental contract - \$25/tonne + 6% per annum.
- Others - 1984 & 1985 specific costs related to reduced operations.

- 1986 - 1988 = 1985 + 6% per annum.

Contributions to Capital = Miscellaneous capital projects as per Table 3B.

Debt Charges - As per Option 1.

Burlington Extension - Phase A - 1985.

OPTION 3: 100% BFI PROPOSAL

Tipping Fee - as per Option 1.
Tonnes - as per Option 1.
Operations - Burlington landfill contract - \$5/tonne + 6% per annum.
- Occidental Contract - \$25/tonne + 6% per annum.
- Others - 1984 & 1985 - specific costs related to reduced operations.
- 1986 - 1988 - 1985 + 6% per annum.

Contributions to Capital - Miscellaneous capital projects as per Table 4B.

Debt Charges - as per Option 1.

