

Report on Public Hearings
Browning Ferris Industries (BFI)
Waste Systems Inc.
Integrated Waste Management Facility
Rural Municipality of Rosser

December, 1995

MANITOBA CLEAN ENVIRONMENT COMMISSION

Unit 4, 284 Reimer Avenue
Post Office Box 21420
Steinbach, MB R0A 2T3

TABLE OF CONTENTS

EXECUTIVE SUMMARY	
PREFACE	
1.0 THE ENVIRONMENTAL REVIEW PROCESS IN MANITOBA.....	1
1.1 THE ENVIRONMENTAL HEARING PROCESS	2
1.2 CLEAN ENVIRONMENT COMMISSION AND BFI PANEL.....	2
1.3 CHRONOLOGY OF EVENTS	2
2.0 PROPOSED INTEGRATED WASTE MANAGEMENT FACILITY	4
2.1 OVERVIEW	4
2.2 THE SITE	4
2.3 INTEGRATED WASTE MANAGEMENT FACILITY DESIGN	5
2.3.1 Landfill Component	7
2.3.2 Environmental Monitoring Systems	9
2.3.3 Ancillary Components	9
2.3.4 Standard Operating Procedures (SOPs)	10
3.0 ISSUES	10
3.1 PROCEDURAL CONCERNS	10
3.1.1 Time and Fairness	10
3.1.2 Access to Information	11
3.1.3 Other Procedural Concerns	13
3.2 PROCEDURAL CLARIFICATION	13
4.0 ISSUES PERTAINING TO THE APPLICATION	14
4.1 FACILITY DESIGN	14
4.1.1 General Concerns	14
4.1.2 Definition of Facility Activities	15
4.1.3 Liner System	15
4.1.4 Leachate Collection and Treatment	16
4.1.5 Surface Design Features	17
4.1.6 Facility Access	18
4.2 ENVIRONMENTAL ANALYSIS	18
4.2.1 Subsurface Site Characteristics	18
4.2.1.1 Overburden Issues	18
4.2.1.2 Ground Water Issues	19
4.2.2 Monitoring Systems	20
4.2.3 Aviation Concerns	21
4.3 WASTE STREAM.....	22
4.4 SOCIO-ECONOMIC IMPACTS	23
4.4.1 Corporate Commitment and Accountability	23
4.4.2 Educational Material	24
5.0 WASTE MANAGEMENT PLANNING & POLICY ISSUES	24
6.0 OBSERVATIONS	26
6.1 Process Concerns	26
6.2 Planning Concerns	27
6.3 Aquifer Management	27
7.0 RECOMMENDATIONS	29
APPENDIX A - TERMS OF REFERENCE	
APPENDIX B - SUSTAINABLE DEVELOPMENT GUIDELINES	
APPENDIX C - LIST OF REGISTERED PRESENTERS	
APPENDIX D - LIST OF EXHIBITS	

EXECUTIVE SUMMARY

A hearing was convened under the instructions of the Minister of the Environment to examine a proposal submitted by Browning Ferris Industries (BFI) to construct and operate an integrated solid waste management facility in the Rural Municipality of Rosser, about one km north of the City of Winnipeg.

The site had been selected after several years of investigations and consultations with communities and municipalities.

Hearings were held in the community of Grosse Isle, Manitoba, beginning in mid October, 1995 and then were reconvened in early November, 1995. Concerns were expressed related to the scheduling of the hearing soon after the the release of a report by the CEC respecting solid waste management in the capital region, and the proximity of the hearing to civic elections. Responding to these concerns, the October hearing was adjourned for a three week period of additional review and preparation time for interested parties.

During the hearings, the Panel heard concerns respecting the need to protect an important ground water aquifer, the management of gas emissions, dust control, aesthetics, and the interests of neighbors and adjacent municipalities.

The proponent presented a plan that undertook to address the numerous concerns and interests of both local residents and other concerned parties. Features of the proposal included a composite liner and re-compacted clay, leachate collection system, monitoring wells, management of biogas, landscaping to deal with aesthetic concerns, a materials recovery facility, and the management of the flow of traffic into and out of the site.

The Panel concluded that a license could be issued subject to specified conditions. The Panel identified the need to increase the level of protection of the groundwater aquifer, creation of a community liaison committee, increased ground water monitoring, emergency response plans, financial assurance respecting the protection and decommissioning of the site, and preservation of native prairie grasslands.

The panel identified the need to review several aspects of the environmental assessment process that proceeds the public hearing.

PREFACE

Browning Ferris Industries (BFI) Waste Systems Inc. has applied to Manitoba Environment for a licence under the Environment Act to develop and operate an integrated waste management facility in the Rural Municipality of Rosser. Because of the high level of public interest in the proposal and the potential for environmental impacts, the Minister of Environment asked the Manitoba Clean Environment Commission to convene public hearings and provide recommendations as to whether a licence should be issued to the applicants and, if recommended, under what terms and conditions.

The Commissioners on the Panel who reviewed the proposal conducted six days of public hearings in Grosse Isle, Manitoba, deliberated over the information provided, and arrived at the conclusions, observations, and recommendations contained in this report. In presenting this report, the Commission has fulfilled the request made by the Minister.

A detailed account of the evidence presented to the Panel is contained in the *Verbatim Transcript* of the hearing, which is available for review at the Clean Environment Commission office and at designated Public Registries.

1.0 THE ENVIRONMENTAL REVIEW PROCESS IN MANITOBA

Proposed developments that may have a significant impact on the environment require an environmental license under the Manitoba Environment Act before a project can begin. Depending upon the extent and complexity of potential impacts, projects are classified as:

- Class 1 developments with a specific discharge(s),
- Class 2 developments with a specific discharge(s) and related land-use issues, or
- Class 3 developments which are large and involve a number of environmental issues.

As part of the environmental licensing process, a proponent may be required to prepare an environmental impact statement which assesses the potential impacts of the project. The public is also informed about all license applications and public participation and comments are invited. Documents related to the project and other pertinent information are placed in Public Registries for review.

Before a decision is made about a license, the Minister may direct the Clean Environment Commission to hold public hearings and provide advice and recommendations related to the project. The Commission has 90 days after a hearing to arrive at its conclusions and recommendations and present its report to the Minister.

The Director of Approvals of Manitoba Environment is responsible for the issuing of Class 1 or 2 licenses and if so, the terms and conditions that apply. The Minister of Environment decides for Class 3 projects. While the Director and Minister are not obligated to accept the Commission's recommendation(s), they must state in writing their reasons for not doing so.

A Director's license may be appealed to the Minister within 30 days of the decision; in cases where the Minister makes the licensing decision, appeals may be made to the Lieutenant Governor in Counsel.

1.1 THE ENVIRONMENTAL HEARING PROCESS

The Clean Environment Commission provides an environmental decision-making process in which the public can participate. To facilitate and encourage participation, the Commission will hold a hearing in a community close to the location of the prospective development, as well as in other centres where interest is high or where environmental impact is sufficient to elicit interest from individuals and/or environmental groups. The Commission respects the opinions of all presenters.

1.2 CLEAN ENVIRONMENT COMMISSION AND BFI PANEL

The Clean Environment Commission is comprised of a full-time Chairperson, a Secretary and Senior Technical Advisor, and Commissioners appointed by an Order in Council who are called to serve as Panel members on specific hearings. The Commissioners represent a wide variety of occupations and reside in different regions of the province. For this hearing, EnviroScribe Consulting, Winnipeg was retained to assist with the preparation of the report.

A Panel with a minimum of three members is selected for each hearing. The Panel of four which reviewed the proposal for the BFI Integrated Waste Management Facility in the Rural Municipality of Rosser included:

- Lori Dennis of Winnipeg;
- Ravi Kumar of Winnipeg;
- Jake Schroeder of Altona; and
- Dale Stewart of Winnipeg, Chairman of the Clean Environment Commission, who also served as Panel Chair.

Barrie Webster, a fifth Commissioner, withdrew from the Panel in the second week of the hearing due to a scheduling conflict.

1.3 CHRONOLOGY OF EVENTS

In March, 1992 a pre-licensing, intergovernmental Technical Advisory Committee (pre-TAC) was formed under the Interdepartmental Planning Board to provide advice to BFI

during the siting, public consultation and land-use permitting processes. Nine provincial government departments were represented on the Committee.

On July 29, 1994, Browning Ferris Industries (BFI) Waste Systems made application to Manitoba Environment for a license under the Environment Act to construct and operate an integrated waste management facility (IWMF) in the Rural Municipality of Rosser. The proposal included the landfilling of residual (non-recyclable) waste materials, waste recovery and recycling, community information and public education.

The submission of BFI's Environment Act Proposal Form (EAPF) in July, 1994, brought about a change in the role of the pre-TAC. By September, 1994 the committee's role changed to that of a licensing authority under the Environment Act, and involved the appointment of a new Chairperson, the change of some committee members and the addition of several new provincial and federal representatives.

In April, 1995, in response to some broad issues and concerns raised by the City of Winnipeg and others with regard to the management of solid waste in the Capital Region which includes Winnipeg, Selkirk, Stonewall and thirteen adjacent municipalities, the Minister of Environment directed the Clean Environment Commission to conduct a hearing to obtain opinions and concerns related to waste ownership, competitive sites, regional systems, sustainable development as it relates to waste management and other issues. The hearing took place August 14 - 16, 1995.

BFI's Environmental Impact Assessment (EIA) was filed with the Department of Environment in July, 1995. The proposal and EIA were advertised in local papers in July and August, 1995. On August 15, 1995, the Minister of Environment sent a letter to the Clean Environment Commission requesting that a public hearing be held to consider the integrated waste management facility proposed by BFI and to obtain public input and comment. The Commission was asked to provide advice respecting the issuance of an Environment Act License (Appendix A), consistent with the Principles and Guidelines of Sustainable Development (Appendix B).

The BFI hearing was scheduled for October 16, 17 and 18, 1995 with notice provided in the Winnipeg Free Press and Stonewall Argus. The hearing took place in the town of Grosse Isle which is located in the Rural Municipality of Rosser.

On the first day of the hearing, Counsel for the City of Winnipeg made several procedural motions to the Commission to delay the hearings, and sought recourse in the court of Queen's Bench. A review period was negotiated and a second session convened November 6, 7 and 9, 1995.

Forty-six (46) presentations were made at the hearing (Appendix C) and forty-five (45) exhibits were filed (Appendix D). The issues and concerns of participants at the BFI Integrated Waste Management Facility hearing, and the recommendations and conclusions of the Panel, are presented in this report pursuant to Sub-section 7(3) of The Environment Act.

2.0 PROPOSED INTEGRATED WASTE MANAGEMENT FACILITY

2.1 OVERVIEW

To meet the regional needs for sophisticated waste management within the haul-distance of the Rural Municipality of Rosser, BFI Waste Systems proposes to construct an integrated waste management facility (IWWMF) which would include the landfilling of residual (non-recyclable) waste, materials recovery and recycling, community information and public "4 Rs" (reduce, reuse, recycle and recovery) education. The landfill component of the facility would serve more than 5,000 people, and satisfy the provincial Class 1 landfill requirements under MR 150/91.

The initial cost of the facility is projected to be \$10-20 million dollars. The facility has a projected lifespan of at least 40 years, and two phases of development are planned. BFI has committed to long-term care of the site including post-closure maintenance.

To enhance visual aesthetics and screening, the property would be bermed and then landscaped with cultivated and native plants. The potential for agriculture activity (e.g. haying) would be maintained and where appropriate, elements of the original prairie habitat would be recreated.

2.2 THE SITE

Over a 3 1/2 year period, BFI undertook an extensive, public consultation site-selection process. The company committed to developing the facility in an environmentally appropriate location, upon the invitation of a host community. BFI worked with citizen

advisory groups and municipal Councils representing Rockwood, Rosser and Woodlands, as well as individual homeowners. At the invitation of municipal Councils, nine *Open Houses* were convened by BFI over a three year period.

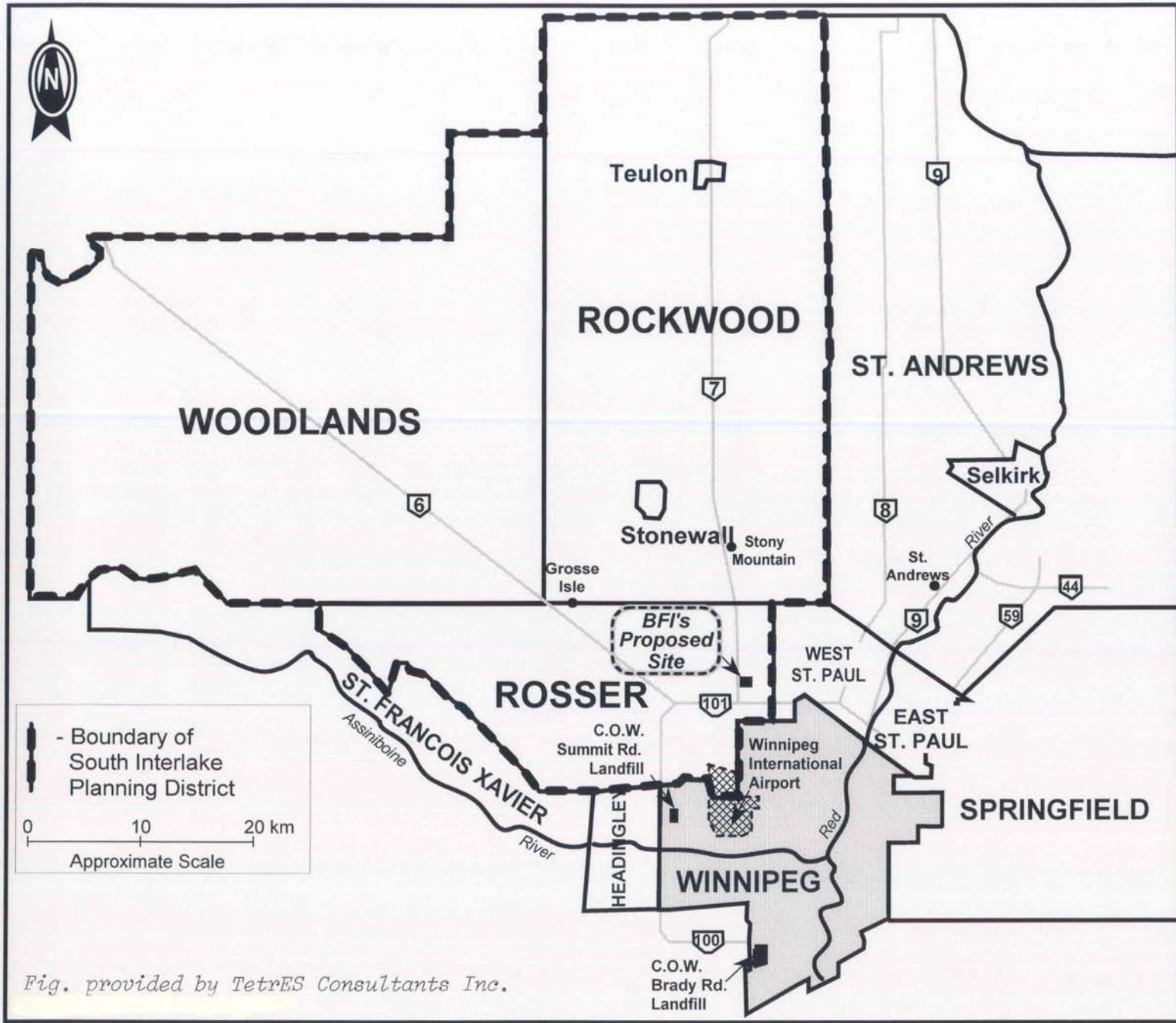
Site criteria were developed through on-going consultation with nine provincial government departments that functioned as a pre-licensing Technical Advisory Committee (pre-TAC). The site which best met BFI's environmental and socio-economic parameters was Section 14, Township 12, Range 2 EPM in the Rural Municipality of Rosser. This site is located 1.6 km north of the perimeter highway (PTH 101), east of and adjacent to PTH 7, and would accommodate the first and second phases of the landfill. Access would be along the east-west municipal section road along the south boundary of Section 14 (Figure 1).

The lands proposed for the integrated waste management facility (IWMF) development are zoned A80 under the Rosser Zoning By-Law (RM Rosser 1985), and are classified as "agricultural rural area" under the South Interlake Planning District Development Plan . The population density of the area is 3 people/km² (8 people/mi²). The site is crossed east-west by a Manitoba Hydro power line right-of-way, and by a Canadian Pacific Railway right-of-way in a north-south orientation.

Recycling facilities, a leachate storage tank(s), a scale reception area, a local transfer station, a maintenance building, a parking lot, an equipment storage building, a tree farm and nursery, an office and a Community Information Centre would be located on the south half of Section 14. At any given time, less than 25% of the property would be developed for active landfill activities.

2.3 INTEGRATED WASTE MANAGEMENT FACILITY DESIGN

The following sections reflect the information presented in Section 1.0 of the BFI Environmental Impact Assessment prepared by TetrES Consultants Inc..



BFI's Proposed IWM Facility - Site Location
 Figure 1

Fig. provided by TetrES Consultants Inc.

2.3.1 Landfill Component

The Rural Municipality of Rosser is located on the broad plain of the Red River Valley. The overburden of this area is comprised of glacial Lake Agassiz silt and clay deposits over glacial till and carbonate bedrock. The uppermost unit of the regional deposits typically consist of stratified silty clay and silt, with occasional layers of alluvial silts and sand. The thickness of the clay deposit at the site varies between 4.0 m and 8.6 m (13 to 28 ft) but on average was found to be about 7 m to 8 m (23 to 26 ft) thick (Figure 2).

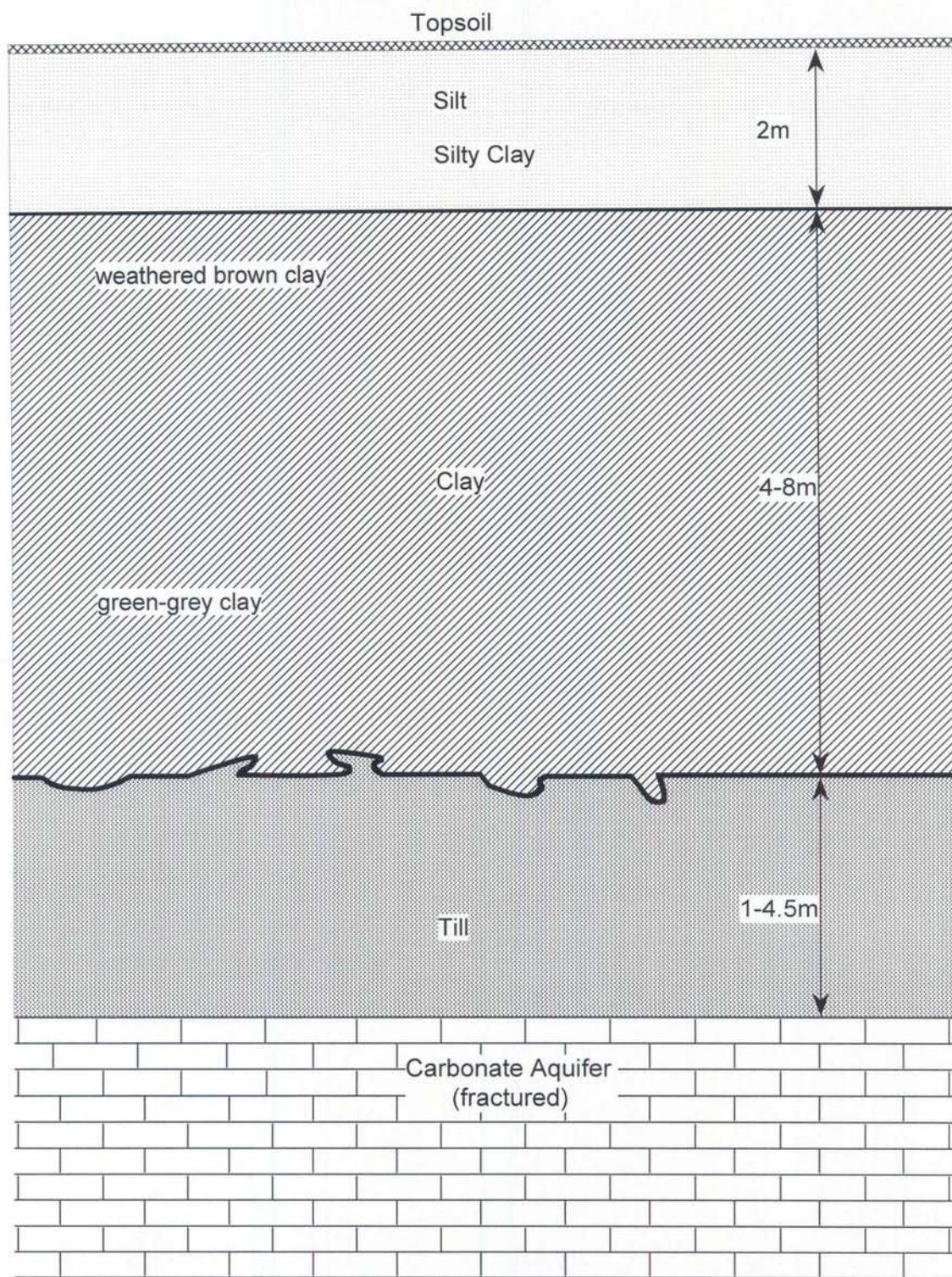
Geotechnical analyses determined that based on a conservative depth to till of 9 m (29.5 ft), the site can be excavated to a depth of 3.6 m (12 ft). Hydraulic conductivity values for the silt and clay units were found to be in the range of 6.76×10^{-9} to 1.15×10^{-7} m/sec.

Testing of the glacial till indicated that it has a relatively low hydraulic conductivity with values ranging from 6.1×10^{-10} to 1.0×10^{-9} m/s. The estimated downward time of travel (TOT) of leachate has been calculated to be 210 years. The lateral TOT of leachate has been calculated to be 110 years.

The average base-grade elevation for the proposed landfill is estimated to be 3.6 m (12 ft) below the present ground surface. Excavation would provide soils for daily and intermediate cover of the refuse, perimeter screening berms and final cover. Topsoil would be segregated and stored for final cover. The first phase of the landfill assumes that 15 cells would be excavated for a Phase I "footprint" of 48 ha (119 ac) over the first 20 years.

A composite liner system for each cell would be constructed including a welded base and flexible sidewall of 60 mil (1.5 mm) High Density Polyethylene (HDPE) geomembrane, overlying a 0.6 m (2 ft) re-compacted clay liner. The re-compacted clay would provide a continuous, low-permeability soil barrier across the base and side slopes of the landfill as well as a firm foundation for the geomembrane.

A leachate collection and removal system would be designed on top of the composite liner. It would consist of granular drainage layers, perforated pipes within the granular layers, collection sumps and sidewall risers.



**Generalized Site Stratigraphy
of Proposed BFI Landfill Site (Sec 14)**

Figure 2

*Fig. provided by TetrES
Consultants Inc.*

Leachate would either be removed, treated and disposed of, or recirculated through the landfill to enhance biodegradation. BFI would remove leachate for disposal at an existing wastewater treatment facility in the short term.

2.3.2 Environmental Monitoring Systems

An independent leak detection sump would be installed beneath the leachate-collection sump. Monitoring of any leakage from the leachate collection and removal system would be undertaken and groundwater monitoring wells on site would be an integral part of the comprehensive leakage detection system.

The monitoring-well network would monitor the effectiveness of the liner system and the effects, if any, on groundwater conditions. A total of 15 groundwater monitoring well nests are proposed. Bedrock aquifer groundwater quality would be tested prior to development, during operations and post-closure for general, inorganic and metal parameters. The groundwater would be sampled on a quarterly basis, in accordance with established protocols and methods.

The BFI landfill design would reduce the potential of off-site movement of landfill gas through various control features and detection systems such as composite liner barriers, vent systems and monitoring probes to force the gas upwards through passive vents to the atmosphere. Gas recovery would be considered in the future when volumes warrant collection.

Sixteen (16) monitoring probes along the property boundary would monitor for subsurface methane gas migration within the landfill buffer zone.

2.3.3 Ancillary Components

Materials recovery and recycling services would be part of the integrated waste management facility. A transfer station and recycling depot would be constructed at the existing nuisance grounds on Ridge Road in the Rural Municipality of Rosser. There would also be a public waste drop-off for local residents near the entrance of the IWMF as well as a recycling depot, which may eventually be replaced by a full-scale materials

recovery facility (MRF), constructed as soon as feasible, to facilitate large-scale recovery of recyclable materials.

A Community Information Centre would be the location of a solid waste management and recycling Resource Centre, facilities for group meetings, an outreach program for schools and displays of data and information regarding the design and operation of the facility, including environmental monitoring results.

2.3.4 Standard Operating Procedures (SOPs)

BFI would operate the facility utilizing Standard Operating Procedures (SOPs) in accordance with the terms of an Environment Act license, conditions of permits issued under MR 150/91, and all relevant BFI policies and procedures. A sample of these include:

- establishing suitable hours of operation with the Rural Municipality;
- vehicles crossing the scale at the reception area before entering the site with license plate numbers videotaped and the type and source of loads recorded;
- only wastes that are legally acceptable under Provincial regulations and BFI's environmental license would be managed at the facility. BFI would not accept waste delivered from outside of Manitoba without the approval of the citizen's advisory group and the Rural Municipality of Rosser, and
- protocols would be followed for the 'area method' of sanitary landfilling, litter control and inspection, dust control, noise and scavenging birds.

BFI has retained bird/plane interaction experts to advise on any site-specific mitigation which may be required.

3.0 ISSUES

3.1 PROCEDURAL CONCERNS

A number of procedural issues were raised during the hearing.

3.1.1 Time and Fairness

A letter was sent from the Minister of Environment on August 15, 1995 which directed the Clean Environment Commission to hold a hearing to consider the proposal by BFI Waste Systems Inc. for an integrated waste management facility (IWMF) in the R.M. of Rosser. This date coincided with the second day of the CEC Solid Waste Management in the Capital Region hearing (see Section 1.3).

Many presenters were concerned that the unfolding of events did not provide enough time for the government to receive and act on the Commission's recommendations from the hearing in August or to evaluate the BFI proposal in the broader context of the solid waste management needs of the Capital Region. The Report on Public Hearings: Solid Waste Management - Capital Region was released to the public on September 26, 1995 (see Section 1.3).

A delegation representing the City of Winnipeg made a case regarding the fairness of the proceedings given the untimely filing of the Addendum to the EIA, two days before the hearing convened. There was particular concern that the CEC process allow enough time for the public to adequately review the proponent's information and prepare participant commentaries for review by other parties including the proponent.

The City delegation presented a chronology of recent Canadian case law which address the obligations of administrative tribunals to proceed in fairness to all participants, and a motion was made to adjourn the hearing until such time as the City and the public had reasonable opportunity to consider and respond to BFI's documents. Five parties spoke in support of the motion and five parties spoke in opposition to the motion. The CEC declined the motion and the hearing continued.

A second motion was made to postpone the hearings until the City's counsel had presented its application for postponement to the Court of Queen's Bench. The Commission declined this motion also.

3.1.2 Access to Information

In 1991, the Provincial Planning Branch chaired a pre-licensing, inter-governmental Technical Advisory Committee (pre-TAC) which developed the landfill siting criteria ultimately adopted by BFI. Several participants expressed concern that they had been

denied access to the minutes of the pre-TAC meetings under the Freedom of Information Act (see Section 1.3).

Another situation developed before the hearing when BFI requested that several EIA background documents be deemed proprietary. Although it is the Commission's mandate to facilitate an open public forum process, section 12 of the Clean Environment Commission guidelines state that:

12(1) At the request of a participant, the Commission may, if in its opinion the public interest will be best served by so doing, restrict access to part of a hearing and treat all material or business information filed with the Commission as confidential.

12(2) All proprietary information shall be marked as "confidential" and sealed.

The CEC will consider this provision under unusual circumstances if it is anticipated that a restriction would not disadvantage parties who may be impacted by the outcome of the hearing. BFI is the first proponent in recent years to request that the provision be implemented.

After reviewing the documents in question, the Commission decided to restrict access to the BFI Site Selection Study. RM of Rosser. (Dyregrov Consultants Ltd., 1993), the Economic Analysis of Landfill Alternatives for the Winnipeg Region, 1995 (Sedley Associates Ltd., 1995) and the Report to BFI: Preliminary Evaluation of Candidate Siting Areas, Proposed Integrated Waste Management Facility in the RM of Rosser (TetrES Consultants; 1994). The Chairman of the CEC, who served as scrutineer, determined that the documents either contained information that was not relevant to the hearing, or that the details which were relevant to the application, had been provided elsewhere in BFI's documents in the Public Registry.

A letter was entered into evidence from the Chair of the CEC to the City of Winnipeg Commissioner for Works and Operations which explained the rationale for the decision. However, it was the belief of many participants that pertinent information might be hidden in these documents, and the decision remained to be controversial throughout the hearing.

3.1.3 Other Procedural Concerns

One presenter suggested that the Province's involvement in the pre-TAC committee is a conflict of interest. It was felt that because of this association, the Department could not render a fair and impartial licensing decision which would account for the evidence brought forth at this, and the former hearing into Solid Waste Management in the Capital Region (see Section 1.3).

Representatives of several local interest groups indicated that they had applied to the Minister of Environment for participant funding, but had not received a response.

CEC presentation procedures were called into question. Some participants felt the process required the element of scheduling so that participants could be given a reasonable approximation of when they would be called to address the Panel. Several registered presenters withdrew due to the lengthy presentations of others, long question periods and procedural delays.

Intervenors questioned the absence of hearings in the City of Winnipeg where over half of the province's population resides and where it is anticipated that the BFI development will have significant impact. It was also pointed out that the civic election process leading up to, and coinciding with the first session of the BFI hearing, hindered the preparation of some presentations for the hearing (see Section 1.3).

3.2 PROCEDURAL CLARIFICATION

A presentation was made by the Director of Approvals for Manitoba Environment and the Department's solicitor in response to the concerns raised about time and fairness. It was shown that the Commission had complied with its obligations under the Environment Act and the CEC guidelines (see Section 1.0).

It was stressed that the Director of Approvals would not issue the BFI license without looking at the project in the broader context of the issues discussed at the August, 1995 hearing into Solid Waste Management in the Capital Region. Letters were entered into evidence from the Minister of the Environment to the Mayor of Winnipeg, and the Minister to Chairman of the Works and Operations Committee which reaffirm this commitment (see Section 1.3).

4.0 ISSUES PERTAINING TO THE APPLICATION

The issues pertaining to the proposed BFI Waste Systems Integrated Waste Management Facility (IWWMF) in the Rural Municipality of Rosser have been grouped into the areas of facility design, environmental analysis, the waste stream and social impacts.

4.1 FACILITY DESIGN

4.1.1 General Concerns

Many individuals were concerned that such a large landfill is proposed for land situated on a potable aquifer when the EIA discusses the inevitable leakage of the landfill composite liner system. It was of particular concern that 90% of the population in the RM of West St. Paul resides immediately down gradient from the proposed site and relies upon the aquifer for daily use (see Section 2.1 and 2.3.2).

This point was expanded upon by a presenter who cited a US Environmental Protection Agency (EPA) document stating that the best liner and leachate collection systems will ultimately fail due to natural deterioration, despite recent improvements in municipal solid waste landfill containment technologies. It was noted that warranties on HDPE liners are only for 20 years.

BFI referenced aspects of the IWWMF as 'state of the art' in the EIA and throughout their presentation. This description was challenged by several participants who showed that the BFI landfill design for Rosser meets the requirements of a US EPA Subtitle D Design landfill which includes a single composite liner with a liner leakage detection system (based on vertical monitoring wells) and a leak detection system under the leachate collection sumps. It was suggested that US EPA Subtitle D landfills can not meet the groundwater protection performance standard for landfills in Manitoba. Others noted that 'acceptable' technology today may be much different from what is necessary in the future (see Section 2.2.1).

Problems were discussed concerning frozen soil and it was determined that it is BFI policy to permit excavation when the soil is frozen but compaction activities for liner

construction are prohibited. Compaction activities would occur when the soil has thawed sufficiently.

4.1.2 Definition of Facility Activities

In the EIA, BFI notes that there is no Canadian equivalent for the proposed Rosser facility in terms of 'environmental protection measures and recycling facilities'. Upon examination, it was determined that this would be the Company's first Canadian 'green field site' which is a facility that is constructed and developed on a site that has had no previous related activity. BFI landfill properties in Alberta, Ontario and Quebec have been existing municipal or private landfills that the company has purchased (see Section 2.1 & 2.3.3).

Some participants requested further clarification of BFI's intent to divert waste "to the extent practical for reuse or recycling ...", indicating that the EIA lacked sufficient detail about the volume of waste which would be diverted. The proponent responded that maximum waste diversion would be predicated on economics throughout time, but that the facility design had incorporated both procedure and infrastructure to address waste diversion in the future.

The proponent indicated that the EIA reference to an 'eventual' replacement of a recycling depot at the IWMMF with a full-scale materials recovery facility (MRF) was an error. The Panel was informed that this will be constructed on-site in the second year following the start date of construction and until then, BFI's recycling and recycle-rich loads will be processed at the company's existing MRF in Winnipeg (see Section 2.3.3).

It was shown the Rosser 'full-scale MRF' is not detailed in the BFI documents. Having toured a BFI 'MRF' in Ontario, one presenter expressed concern that the speed of the conveyor belt prevented workers from recovering anything more than the large, valuable components of the waste passing by.

4.1.3 Liner System

Consultants for BFI indicated that Geomembrane Research Institute has done some testing on HDPE liners in northern climates and the Department of Environment noted that HDPE had been approved for an installation at the Repap waste disposal ground in

The Pas, MB. However, participants wanted to be assured that the synthetic liner would perform as intended under severe northern climatic conditions.

Many questions were asked regarding the life expectancy of the synthetic HDPE liner. While the delegation for the proponent indicated that this is a difficult, if not impossible prediction to make, the BFI team reiterated that in their opinion, the real protection comes from the re-compacted clay layer which has a higher density and lower permeability than the in-situ clay. It was noted that the re-compaction process can reduce vertical fractures in the clay and thus, reduce natural conduits to the aquifer (see Section 2.3.1).

4.1.4 Leachate Collection and Treatment

Participants described leachate as foul smelling, toxic in composition, difficult to treat and that it is one of the most significant by-products of landfill operations. It was shown to contain a range of conventional pollutants (e.g. iron (Fe), manganese (Mn), hydrogen sulfide (H₂S), biochemical oxygen demand (BOD), total organic carbon (TOC), total dissolved solids (TDS), un-ionized ammonia (NH₃), taste and odours), hazardous chemicals (e.g. heavy metals such as lead (Pb), cadmium (Cd), mercury (Hg)) and unregulated chemical unknowns which could contaminate groundwater.

The EIA indicates that approximately 7,750 L (2,000 gal) of leachate will be generated per day at the site and some participants expressed concern that the proponent needs to address leachate treatment more closely. There was concern that the sheer volume of leachate requiring treatment could burden small, regional wastewater treatment facilities creating an aquatic hazard (see Section 2.3.1).

In addition, the EIA states that leachate may be recirculated through the landfill to enhance biodegradation. Through examination, it was established that this is an unproven operational practice but with further research and experience elsewhere, it may be introduced at the Rosser landfill at some point in the future (see Section 2.3.1).

One participant indicated that while the proponent has allowed a cell floor elevation of approximately 5.4 m (18 ft) of clay, the excavation of 15 leachate trenches of up to 2 m (7 ft) in depth will reduce the remaining clay thickness to approximately 3.4 m (11 ft). It was observed that this creates a situation where the maximum leachate volume and depth

will be concentrated in areas with the least natural protection, and this was believed to be inadequate (see Section 2.3.1).

It was further noted that the soil in the low points of the leachate collection trenches will be more soft and wet making the re-compaction of clay and the installation of the HDPE liner difficult. A case was made that there would be an increased risk of a 'blow-out' of the landfill floor arising from upward pressure in the bedrock aquifer beneath these deep excavations (see Section 2.3.2).

4.1.5 Surface Design Features

In its presentation, BFI indicated that the surface water ditching and dry retention ponds around the site had the capacity to manage a one-in-25 year, one-day peak storm event. This was deemed to have a net positive effect in the area, relative to the absence of natural drainage characteristics on the site. However, based on other engineered features worldwide, one participant questioned why one-in-50 or 100 year storm events were not considered in the design.

A difference was noticed between BFI's 1994 proposal and sections of the EIA regarding the classification of the soils at the site. The proponent' indicated that upon closer examination of federal/provincial maps in preparation of the EIA, the earlier interpretation was changed. It was confirmed that the adjoining lands are not of good agricultural quality and correspond to Canada Land Inventory (CLI) classification 3W (see Section 2.2).

Concern was expressed that site berming and landscaping would not commence until the fifth year of development. The residents of West St. Paul were particularly concerned that BFI provide a visual barrier to the landfill much earlier in the process (see Section 2.1).

BFI plans to implement measures to control the nuisance of particulate emissions including dust, through different techniques such as the application of stored runoff water or calcium chloride chemical spray to roads and soil stockpiles, the use of dust suppressants in construction areas, road grading and maintenance, landscaping, and paving the access road with asphalt. Some presenters challenged the prediction in the

EIA that dust or soil loss would be negligible compared to the seasonal agricultural activities in adjoining fields (see Section 2.3.4).

According to BFI standard operating procedures (SOPs), mud would not be tracked from the landfill onto public roads. There would be speed bumps along the main roads inside the facility and truck-wheel wash stations on the site (see Section 2.3.4).

4.1.6 Facility Access

The Manitoba Weights and Measures Act currently requires that all trucks using PTH 7 be weighed at the provincial scale facility slightly north and west of the access road to the proposed landfill site. It was shown how awkward it would be for trucks to proceed past the landfill and cross traffic many times only to be weighed a second time upon reaching the IWMF. The issue of safety was raised and BFI reported that while a proposal to the Compliance Branch of Manitoba Highways and Transportation to streamline the procedure but that an agreement had not yet been reached.

4.2 ENVIRONMENTAL ANALYSIS

4.2.1 Subsurface Site Characteristics

4.2.1.1 Overburden Issues

Of the 24 test holes drilled by the proponent in and around the proposed Phase I and Phase II developments, it was suggested that only eight met the 10 m (32.81 ft) or greater, depth of clay requirement prescribed by the 1993 Manitoba Environment draft guidelines for the siting and design of landfills (see Section 2.3.1).

There was considerable discussion about the hydraulic conductivity of the clay unit and the proponent was criticized for adopting a porosity based on literature values when extensive studies on Manitoba lacustrine clays in the Winnipeg and surrounding regions had suggested values approximately two times more permeable (see Section 2.3.1).

Several presenters questioned the reliability of the Hydrologic Evaluation of Landfill Performance Model (HELP) which was used to predict the time of travel (TOT) estimates in the EIA. It was of concern that the model adequately account for

expandable/contractible and heavily fractured clay, typical of the Rosser area. Participants observed that the HELP model predicts the TOT of water, not leachate, and there was subsequent disagreement between the proponent and participants whether leachate migration would be slowed or accelerated because of its chemical composition, rate of diffusion and/or the natural fracturing of the surrounding clay body (see Section 2.3.1).

Some participants were concerned that till had been included in the calculation of low permeability overburden when highly variable site specific values for hydraulic conductivity in the till have been published (see Section 2.3.1).

4.2.1.2 Ground Water Issues

The proponent's examination of the extensive Upper Fort Garry Member aquifer system was questioned. The aquifer is an important water source for many residents in the region and since it would be the primary pathway for contaminant transport, it was argued that a detailed study of the bedrock groundwater system was necessary to evaluate the true risk to human health. Presenters noted that contaminants traveled through the overburden at the Rockwood Propellant Plant near Stony Mountain, MB, 10 kilometers from the BFI site, creating one of Manitoba's most significant ground water contamination problems.

Participants expressed concern about the method used to determine the vertical groundwater gradients and the hydraulic connection between the overburden and the bedrock aquifer. The number and depth of piezometer sites were questioned as well as the relatively short period of observation at the site (see Section 2.3.2).

A Provincial government well is situated one mile south of the BFI site and historic data from that site were used to illustrate that the water level in the bedrock aquifer has fluctuated over short periods of time. Well data shows that there has been a predominantly downward flow and that it has persisted over substantial periods of time. It was suggested that downward flow is the more typical representation, contrary to BFI's upward gradient findings at the proposed site in late 1993 or early 1994 when water levels were higher than usual.

Concerns were also raised about the possibility of increasing the number of groundwater users on the aquifer and how future pumping trends would influence the groundwater gradient beneath the proposed landfill. The question was raised whether or not it was possible to invoke a development restriction around the BFI site to prevent a reversal in flow or a downward gradient from occurring.

Representatives from the Department of Environment and Manitoba Natural Resources, Water Resources Branch were questioned about the TAC review of BFI's hydrogeological analysis in the EIA. Concern was expressed about the widely differing conclusions reached by the proponent and the City delegation from the same data, and the suggestion was made that there should be a provision for initiating independent analysis in situations such as this (see Section 1.3 and 2.2).

4.2.2 Monitoring Systems

The Panel was informed by the proponent that the drainage material for the leachate collection and removal system is not specified in the EIA because the level of detail is not required at this stage of the drawings. During examination the BFI team indicated that coarse, granular sand or crushed stone would be chosen to prevent drains from clogging and ensure long-term performance. Some presenters asserted that sand could not provide a permeability rate of one centimeter per second (gallon/day/ft²) and that it was important to know what the proponent plans to use because all of the modeling calculations of leachate generation rates and leachate heads in the cell floor are tied to the performance of this drainage layer (see Section 2.3.1).

There was concern respecting the effectiveness of the leachate pumping and detection system and the pump and treat system was criticized because it would be expensive to operate in perpetuity and inevitably clog. It was also of concern that the leak detection system is only installed under the sumps (see Section 2.3.1).

It was shown that once a breach occurs, pump and treat systems are of little help to clean-up efforts. It was suggested that the only remedy is excavation, since the leachate will have diffused into the natural fractures in the clay body surrounding the landfill.

Although the proponents' time of travel (TOT) predictions for leachate migration indicate that it would take 210 years for leachate to reach the aquifer, other research was reported suggesting that a TOT of 38 years is possible.

The number and spacing of proposed vertical leachate monitoring wells were felt to be inadequate. It was demonstrated that leachate plumes are characteristically narrow in width and shallow in depth and that it would take many vertical sample points and boreholes over a large area to detect a thin plume. The frequency of that local wells would be sampled was thought to be insufficient (see Section 2.3.2).

Concerns were raised about venting methane and other components of biogas which are typically generated within landfills as waste biodegrades. Depending upon the amount of moisture that enters through the landfill cover, it can take up to 50 years until the organic component of the waste is gone. BFI plans to vent biogas into the atmosphere at the IWMF until there are consistent volumes of gas in sufficient quantity to make recovery economically feasible. It was argued that biogas can be a significant problem both in terms of volume and chemical composition and that there is a growing trend towards compulsory biogas collection at other North American landfills, such as in Lachenaie, PQ (see Section 2.3.2).

Participants wanted BFI's assurance that there was a high level of security in the self-auditing record system that they propose to use in conjunction with the environmental monitoring programs. It is of concern that no one tamper with the records that will be inspected by the Department of Environment (see Section 2.3.2).

4.2.3 Aviation Concerns

There were concerns that birds, attracted to the proposed BFI landfill site, could pose a risk to aircraft utilizing runway 18/36 at Winnipeg International Airport. The site is 11 km (7 mi) from the airport, exceeding the 8 km (5 mi) limit recently denoted by Transport Canada in the April 27, 1995 Aeronautical Information Circular 4/95 entitled Amendment to the Waste Disposal Clause in the Airport Zoning Regulations. The amendment states that pursuant to subsection 5.9(2) of the Aeronautics Act, persons wishing to establish a waste disposal site in an area where such a use of land is prohibited by the "Waste Disposal" provision of the Airport Zoning Regulations (relative to Clause 6 in the Winnipeg Airport Zoning Regulation) is exempted from application of the

prohibition if the waste disposal site is more than 8 km (5 mi) from the airport reference point.

BFI has retained the services of a consultant to look at whether the proposed development will have any consequence on air safety. The study of fall migratory patterns is not yet complete but is expected in January, 1996.

While it was established that the CEC has no authority respecting this matter of federal jurisdiction, participants suggested that the decision and recommendations of Transport Canada's designated bird hazard specialist factor into the provincial decision-making process (see Section 2.3.4).

4.3 WASTE STREAM

Many participants were curious about where the waste for the facility would originate. It was of concern that waste would be trucked from the south part of the City of Winnipeg, within close proximity of the Brady landfill, across town to the new landfill. BFI indicated that they have offered to negotiate a 'waste swapping' agreement with the City of Winnipeg to minimize these economic and environmental haul costs, but that negotiations had been unsuccessful to date.

While the Department of Environment indicated that there are no regulations in Manitoba governing the importation of solid waste, there was general consensus amongst participants that accepting waste from other Canadian or American jurisdictions should be restricted at the BFI facility. While the Municipal Council of Rosser feels that this matter has been addressed sufficiently in the Development Agreement, local stakeholders asked to be involved in the decision-making process if and when specific cases were being considered (see Section 2.3.4).

Concerns were raised about hazardous waste disposal at the Rosser site. BFI established that it is corporate policy not to accept hazardous waste, however, presenters demonstrated that loopholes in the provincial Dangerous Goods Handling and Transportation Act regulations enable the disposal of small quantities of lab chemicals, for example, which could contain radioactive material. The precision of BFI's scale house Geiger counters to detect radio active waste, was debated (see Section 2.3.4).

Disposal of infectious waste was of concern. While BFI indicates that they will not accept infectious waste at the IWWMF, a case was made that institutional policy, and provincial regulations governing the disposal of hospital and institutional waste (including blood and flushing fluids), are lacking (see Section 2.3.4).

BFI indicated that approximately three years ago a by-law was adopted by the City of Winnipeg to better manage the disposal of 'sharps' in municipal landfills, but that a subsequent by-law covering infectious waste had not been passed. The Department of Environment indicated that a new strategy to manage biomedical waste was being developed, and that changes may be imminent.

4.4 SOCIO-ECONOMIC IMPACTS

4.4.1 Corporate Commitment and Accountability

BFI's commitment to the local community was scrutinized. It was noted that large international corporations do not always give local management the authority to act upon problems that may be of concern to local municipalities or other stakeholders. In response, BFI indicated that they are prepared to make financial assurances to the Department of Environment so that funds are available if they do not respond to a situation in an appropriate and timely manner. It was suggested that this matter could be discussed with the Director of Approvals, as a condition of the license, to ensure that BFI acts responsibly.

There was some discussion about the type of financial assurances that BFI had made to those directly affected by the development. BFI indicated that two offers had been made to the Rural Municipality of Rosser but that they had been declined and deferred to the Department of Environment. These concern an irrevocable letter of credit, to a maximum of \$1 million, that would give the Department of Environment the assurance to act if it is felt that BFI is not acting quickly or responsibly. BFI has also offered to put money away for the closure and post closure of the site. The terms and conditions for both agreements would be established by Manitoba Environment.

Counsel for the Rural Municipality of Rosser requested that the CEC assist the Department of Environment by providing recommendations relative to the proposed development which will ensure a proper environmental license and address i) BFI

liability coverage for environmental impairment (sudden or chronic and pre or post closure) and ii) protection coverage against BFI failing to cover cost of a site closure as conditions of the license per 12.2 of the Rosser Development Agreement. It was confirmed by Department officials that financial security for decommissioning and default situations have been part of the conditions of other licenses issued by the Department.

A delegation representing the residents of the Rural Municipality of West St. Paul requested that 'neighbours at risk' be included in the development agreement in five key areas which included 1) adequate berming and landscaping; 2) the protection of groundwater and access to clean water at no cost; 3) compensation for real estate values that may be negatively impacted; 4) yearly inspections at the landfill by Provincial authorities and Municipal Officials from Rosser and West St. Paul; and 5) compensation for residents of West St. Paul for risks incurred.

BFI indicated that all neighbours of the IWWMF deserve the same care and consideration and that BFI will provide the same protections for [the West St. Paul aquifer and well water] as for the residents of Rosser through the proposed facility design and monitoring.

4.4.2 Educational Material

The BFI MobiusTM Curriculum: Understanding the Waste Cycle, a Grade 4-6 teachers kit, was noted to be well organized, attractive and convenient. However, it was criticized for emphasizing incineration and landfilling instead of the three R's of waste management (e.g. reduce, reuse and recycle). BFI was asked if the kit is regularly reviewed and updated and a suggestion was made that it be reviewed by an education professional respecting its suitability to Manitoba.

5.0 WASTE MANAGEMENT PLANNING & POLICY ISSUES

When asked about the relative effect of other nuisance grounds on the Upper Fort Garry Member aquifer system, the Department of Natural Resources indicated that there have been relatively few studies on this matter to date. There was also interest in whether the City of Winnipeg Brady landfill was contaminating the non-potable, saline aquifer beneath it.

The fate of existing municipal nuisance grounds was discussed if and when a second major regional landfill site was operational. Several participants suggested that these sites should become part of a network of transfer stations and recycling centres.

One participant noted that Manitoba's regulations for siting landfills lack some of the expectations demanded in other jurisdictions. Citing the State of Delaware as an example, it was pointed out that BFI's IWMMF proposal addresses concerns that are not yet required by law in our province.

6.0 OBSERVATIONS

The following Observations contain general comments to government which do not form part of the Panels specific recommendations respecting the licence application submitted by BFI Waste Systems Inc. for the development of an Integrated Waste Management Facility (IWMF) in the Rural Municipality of Rosser. These Observations are presented as matters of interest and concern which the Panel believes warrant consideration.

6.1 Process Concerns

There continues to be considerable interest in the process of environmental review for proposals received by Manitoba Environment.

During August of 1995, the Commission convened a public hearing respecting solid waste management in the Capital Region of Manitoba and subsequently issued a report respecting this issue to the Minister of Environment. Concern was expressed during the BFI hearing that there had been very little time allowed for the consideration of this report, or the recommendations it contained, before the commencement of the BFI hearing.

The fairness and appropriateness of scheduling a hearing during a time of civic elections was also raised by several participants.

The issue of proprietary information was raised in connection with certain documents identified in the Environmental Impact Assessment filed by the BFI Waste Systems Inc. that were not made available for public review. The panel observes that only under very exceptional circumstances should the CEC proprietary information guideline be considered. It is important that the material received and used during a hearing be open to full public scrutiny.

Concerns were also expressed regarding the time available to consider the information submitted by BFI Waste Systems Inc. in response to government and public review of the EIA. The filing of the Addendum to the EIA shortly before the hearing convened offered limited time for public review and comment. The Commission observes the importance of providing adequate review time for all documentation related to a proposal, and would

encourage Manitoba Environment to consider this matter during future environmental assessment exercises.

The desire and need for participant funding to enable full participation in the environmental assessment and review process was raised by several participants as has been the case at other CEC hearings.

6.2 Planning Concerns

Coordinated planning for solid waste management in Manitoba appears sporadic at best and is deserving of attention. The continued use of abandoned gravel pits for waste disposal in some localities is of great concern. These sites offer little if any protection to groundwater and this land use practice needs to be terminated in the near future.

The lack of planning for effective solid waste management in and around the City of Winnipeg was identified as an ongoing concern.

The provincial strategy to address the management of biomedical waste should be implemented in the near future.

The government is encouraged to review its position with respect to the importation of solid waste into the Province to ensure that it compliments Manitoba's targets respecting waste minimization.

6.3 Aquifer Management

The management of provincial aquifers was seen to be of importance to the Panel and deserving of more investigation and monitoring. It is important to have an improved knowledge of aquifers in general, and to develop an understanding of the dynamics of the flow, quality and quantity, and the changes that occur to these parameters over time. The preservation of aquifer quality was an important issue for those participating in the hearing.

The Panel notes that concern was expressed over the protection of the potable aquifer under the proposed IWWMF site. However, it was unclear if Manitoba's saline aquifers receive similar concern and protection. The question remains as to what the provincial

policy is respecting the protection of aquifers, including the question as to whether saline aquifers are seen to be a future resource deserving protection.

Use of the aquifer underlying the proposed IWMF site could increase with any future licences for water removal under the Water Rights Act. The Panel recognizes that additional demand could change the hydrogeological pressure of the aquifer under the site from upward to downward increasing the possibility for downward migration of leachate if a leak in the liner system occurred. This should be considered when reviewing future licensing applications involving large volumes of water near the proposed IWMF site.

7.0 RECOMMENDATIONS

- References*

1. An Environment Act license may be issued to BFI Waste Systems Inc. for the construction and operation of an Integrated Waste Management Facility (IWMF) in the Rural Municipality of Rosser, subject to the following conditions.
- Sections 2.2.1;
4.1.3 & 4.1.4*

2. Improvements and modifications to the cell liner system and the compacted clay layer will be made to provide a 100% increase in the level of groundwater protection as from what is currently proposed. BFI will undertake predictive modeling, as specified by Manitoba Environment, to determine the nature and the extent of the risk of pollution to the groundwater aquifer and down gradient users.
- Sections 4.1.1
& 4.1.3*

3. Liner test protocols shall be specified by Manitoba Environment and certification of liner integrity will be required. Restrictions to the seasonality of liner installation shall be specified in the licence.
- Section 4.1.5*

4. The retention ponds will be designed to accommodate run off on the basis of a 100 year rainfall event.
- Section 2.2.2
4.2.1.2 & 4.2.2*

5. Monitoring wells shall be located, as specified by Manitoba Environment, so as to ensure that any movement of leachate and any contamination to the ground water aquifer, as a result of the operation of the landfill, can be detected as soon as possible, and appropriate action taken. Piezometers shall be installed to monitor the pressure gradient.
- Sections 2.2.2;
4.2.1.2 & 4.2.2*

6. The number of wells required to determine the water quality and pressure gradient should be greater than that identified in the currently submitted proposal. The number and location of all monitoring wells shall be specified by Manitoba Environment. Private wells, down gradient from the facility, will be identified by Manitoba Environment, and shall be included in the monitoring program conducted by BFI Waste Systems Inc.

7. All monitoring program results respecting the testing of wells shall be reported to Manitoba Environment, adjacent municipal governments, and the Community Liaison Committee (see Recommendation #19) on a regular basis, as specified in the licence.
8. An air monitoring program will be initiated prior to the operation of the landfill to ensure that baseline data is available for comparison purposes when the facility is in operation. A monitoring program is to be established to ensure that the *Manitoba Air Quality Standards* are met during the operation of the facility. Biogas recovery activities shall be a future requirement of the licence.
9. Prior to the operation of the facility, an agreement satisfactory to Manitoba Environment shall be secured between BFI Waste Systems Inc. and an appropriate facility for the acceptance and adequate treatment of all leachate generated at the Integrated Waste Management Facility. The existence of such an agreement will continue to be a requirement during the operational life of the facility.
10. Future plans for the recirculation of leachate through landfill cells shall require specific approval from Manitoba Environment. Such approval shall require a formal application for licencing under the Environment Act.
11. A detailed plan for the Materials Recovery Facility (MRF) shall be submitted to Manitoba Environment for approved prior to the construction of such a facility on site. The Materials Recovery Facility shall be in full operation on the site no later than December, 1999.

- Section 2.2.4
4.3
12. BFI Waste Systems Inc. shall not refuse any solid wastes generated within the Province of Manitoba for treatment at the Rosser IWMF.
- Section 2.2.4
& 4.1.5
13. Devices shall be installed and operated to reduce mud adherence to vehicles departing the IWMF site, including bumps and wheel washers.
- Section 4.1.6
14. BFI Waste Systems Inc. will have in place an understanding with Manitoba Highways respecting the development and maintenance of access and egress lanes from the site, as well as any traffic control signage or devices that may be required. The understanding may include arrangements respecting the use of the IWMF weigh scales as an alternate to the Manitoba Highways scale.
- Section 4.1.5
15. Access roads from Highway #6 to the site will be hard surfaced to control dust. An on site dust control program for the IWMF shall be developed by BFI Waste Systems Inc. and submitted to Manitoba Environment for approved.
- Section 4.4.2
16. BFI Waste Systems Inc. shall submit the MOBIUS™ Curriculum: Understanding the Waste Cycle to Manitoba Education for review and assessment as to its appropriateness for use in conjunction with the Manitoba curriculum.
- Section 2.2.4
& 4.2.3
17. BFI Waste Systems Inc., in consultation with the Transport Canada, shall review and respond to the report on bird-aircraft interaction currently being prepared by LGL Consultants Ltd. Any relevant matters, including appropriate mitigation plans, shall be incorporated as amendments to the facility licence.
- Section 2.1
18. All native prairie grass currently present on the proposed BFI Integrated Waste Management Facility site shall be preserved.

*Section 2.2.4
& 4.4.1*

19. A Community Liaison Committee shall be established which will include but not be limited to representatives from BFI Waste Systems Inc., the Rural Municipality of Rosser, adjacent Municipalities, and Manitoba Environment. This committee shall be in operation within six months of the issuing of the licence, and shall meet at least biannually for the first five years of the facility's operation. A Manitoba Environment representative shall initially function as committee chair.

20. Prior to facility operation, BFI Waste Systems Inc. shall file an emergency response plan which is satisfactory to Manitoba Environment. This plan shall include input from relevant municipal and provincial agencies.

Section 4.4.1

21. A bond or other financial security shall be provided by BFI Waste Systems Inc. to ensure adequate remedial work can be undertaken at the facility site and provide for the eventual decommissioning and perpetual care of the site. The amount of financial security is to be specified by Manitoba Environment, and the appropriateness of the amount of financial security provided by BFI Waste Systems will be reviewed at five year intervals.

*Section 2.1;
4.1.5 & 4.4.1*

22. Landscaping of berms, including the planting of trees, shrubbery, etc., shall occur within 24 months of berm construction. All landscape planning and design shall include input from the Community Liaison Committee.

APPENDIX A

Terms of Reference for Clean Environment Commission Hearing on the Proposed Browning Ferris Industries (BFI) Integrated Waste Management Facility

Background

Browning Ferris Industries (BFI) filed a proposal pursuant to The Environment Act dated July 29, 1994. The proposal was to develop an integrated waste management facility in the R.M. of Rosser, North of the City of Winnipeg. The facility would include components for landfilling of residual (non-recyclable) waste, materials recovery and recycling, and community information and public "4Rs" education. The environmental review of the proposal is being administered by Manitoba Environment.

The proposal was advertised in the Winnipeg Free Press on August 27, 1995 and in the Stonewall Argus on August 29, 1995. Comments on the proposal were received from the public and government department agencies.

An Environmental Impact Assessment (EIA) was filed with the department in July, 1995. Notice of the EIA was advertised in the Winnipeg Free Press with comments being accepted until September 22, 1995.

The Clean Environment Commission has been requested to convene a public hearing on the proposal.

Mandate of the Hearing

The Clean Environment Commission shall conduct a public hearing to consider the integrated waste management facility proposal and to receive concerns respecting the proposal. Following the hearings, the Clean Environment Commission shall provide a report to the Minister of Environment pursuant to Sub-section 7(3) of The Environment Act. The Commission may at any time request that the Minister of Environment review or clarify these Terms of Reference.

Scope of the Review

The Clean Environment Commission is to consider the Proposal and public concerns and provide a recommendation on:

- whether an Environment Act Licence should be issued respecting the BFI Integrated Waste Management Facility

continued...2

Should the Commission recommend the issuance of a Licence, then appropriate recommendations should be included in the report respecting:

- the potential environmental impacts of the emissions and discharges from the BFI Integrated Waste Management Facility Proposal on the following:
 - (i) biophysical environment;
 - (ii) human health;
 - (iii) present and currently planned land and water uses including terrestrial and aquatic ecosystems;during the construction, operation, maintenance, and the final decommissioning and post commissioning of the proposed BFI Integrated Waste Management Facility;
- the socio-economic impacts directly related to the environmental impacts of the BFI Integrated Waste Management Facility;
- the measures proposed to mitigate adverse environmental impacts resulting from the BFI Integrated Waste Management Facility Proposal and, where appropriate, to manage any residual effects;
- the proposed plans and procedures for the transportation, handling and disposal of dangerous goods and hazardous materials, and for response to environmental accidents and emergencies; and
- any proposed mechanisms for monitoring of the environmental impacts of the BFI Integrated Waste Management Facility Proposal once constructed and any subsequent research that may be considered necessary.

The Clean Environment Commission recommendations shall incorporate, consider and directly reflect, where appropriate, the Principles and Guidelines of Sustainable Development as contained in Towards a Sustainable Development Strategy for Manitobans.

APPENDIX B

Principles of Sustainable Development

Fundamental Guidelines for Sustainable Development

Principles:

1. **Integration of Environmental and Economic Decisions**
This principle required that we ensure economic decisions adequately reflect environmental impacts including human health. Environmental initiatives shall adequately take into account economic consequences.
2. **Stewardship**
This principle required that we manage the environment and economy for the benefit of present and future generations.

Stewardship requires the recognition that we are caretakers of the environment and economy for the benefit of present and future generations of Manitobans. A balance must be struck between today's decisions and tomorrow's impacts.
3. **Shared Responsibility**
This principle requires that all Manitobans acknowledge responsibility for sustaining the environment and economy, with each being accountable for decisions and actions, in a spirit of partnership and open cooperation.
4. **Prevention**
This principle requires that we anticipate, prevent or mitigate significant adverse environmental (including human health) and economic impacts of policy, programs, and decisions.
5. **Conservation**
This principle requires that we maintain essential ecological processes, biological diversity and life-support systems of our environment; harvest renewable resources on a sustained yield basis; and make wise and efficient use of our renewable and non-renewable resources.
6. **Recycling**
This principle requires that we endeavor to reduce, reuse, and recover the products of our society.
7. **Enhancement**
This principle requires that we enhance the long-term productive capability, quality and capacity of our natural ecosystems.
8. **Rehabilitation and Reclamation**
This principle requires that we endeavor to restore damaged or degraded environments to beneficial uses.

Rehabilitation and reclamation require ameliorating damage caused in the past. Future policies, programs and developments should take into consideration the need for rehabilitation and reclamation.
9. **Scientific and Technological Innovation**
This principle requires that we research, develop, test and implement technologies essential to further environmental quality including human health and economic growth.

(continued)

10. **Global Responsibility**

This principle requires that we think globally when we act locally.

Global responsibility requires that we recognize there are no boundaries to our environment, and that there is ecological interdependence among provinces and nations. There is a need to work cooperatively within Canada, and internationally, to accelerate the merger of environment and economics in decision making and to develop comprehensive and equitable solutions to problems.

Fundamental Guidelines:

1. **Efficient Use of Resources**

We shall encourage and support development and application of systems for proper resource pricing, demand management, and resource allocation together with incentives and disincentives to encourage efficient use of resources and full environmental costing of decisions and developments.

2. **Public Participation**

We shall establish appropriate forums which encourage and provide opportunity for consultation and meaningful participation in decision-making processes by all Manitobans. We shall endeavor to ensure due process, prior notification and appropriate and timely redress for those affected by policies, programs, decisions and developments.

3. **Understanding and Respect**

We shall be aware that we share a common physical, social and economic environment in Manitoba. Understanding and respect for differing social and economic views, values, traditions and aspirations is necessary for equitable management of these common resources. Consideration must be given to the aspirations, needs, and views of various regions and groups in Manitoba.

4. **Access to Adequate Information**

We shall encourage and support the improvement and refinement of our environmental and economic information base and promotion of the opportunity for equal and timely access to information by all Manitobans.

5. **Integrated Decision-Making and Planning**

We shall encourage and support decision-making and planning processes that are open, cross-sectoral, incorporate time horizons, relevant to long-term implications and efficient and timely.

6. **Substitution**

We shall encourage and promote the development and use of substitutes for scarce resources where they are both environmentally sound and economically viable.

APPENDIX C

LIST OF REGISTERED PRESENTERS

Appleyard, Gordon
Rural Municipality of Rockwood

Barrette, Jean-Pierre
Canadian Union of Public Employees

Beachell, Allan
Rural Municipality of Rosser

Becker, Dennis
Browning Ferris Waste Systems Inc.

Bugera, Brad
Private Representation

Carroll, W. D.
City of Winnipeg

Carter, Nick
Private Representation

Chambers, Alice
Private Representation

Dalmy, Ron
Private Representation

Dowhanik, Shelley
Browning Ferris Waste Systems Inc.

Dratowany, Alex
Private Representation

Fleming, Don
Rural Municipality of Headingley

Fleming, Elizabeth
Committee of the Council of
Women of Winnipeg

Garlich, Carolyn
Committee of the Council of
Women of Winnipeg

Gawthrop, Mark
Private Representation

Gillespie, Colin
Browning Ferris Waste Systems Inc.

Gobert, Art
Private Representation

Goudy, Art
Private Representation

Grenkow, Gordon
Private Representation

Hoeschen, Richard
Rural Municipality of Rosser

Holtman, Henry
Rosser Citizens Advisory Group

Kinaschuk, Gene
Private Representation

Koroluk, Glen
Recycling Council of Manitoba

Kraemer, Gord
Rural Municipality of West St. Paul

Kuluk, Tony
City of Winnipeg

Lee, Fred
City of Winnipeg

Linge, Horst
Private Representation

McKernan, Mike
TetrES Consultants Inc.

Miller, Peter
Private Representation

Moist, Paul
Canadian Union of Public Employees

Morrisson, John
Rockwood Agricultural Society

Nicol, John
Rural Municipality of Springfield

Oster, David
Rural Municipality of West St. Paul

Patterson, Tom
Private Representation

Potter, Robert
Rural Municipality of Stonewall

Rossnagel, Roy
Private Representation

Ryan, Keith
Private Representation

Sedley, John
Sedley Associates Ltd.

Sigurdson, Kim
Browning Ferris Waste Systems Inc.

Sinclair, John
Private Representation

Stratuliak, Don
Private Representation

Hillary Versavel
Private Representation

Watson, Cameron
City of Winnipeg

Wingrove, Tom
City of Winnipeg

Woodbury, Allan
City of Winnipeg

Yoshino, Steve
City of Winnipeg

APPENDIX D
LIST OF EXHIBITS

- | # | DESCRIPTION |
|-------|---|
| 1. | <i>Letter</i> , dated August 15, 1995, from Hon. J. Glen Cummings, Minister of Environment, Province of Manitoba, to Dale Stewart, Chairman, Manitoba Clean Environment Commission. |
| 2. | <i>Terms of Reference for Clean Environment Commission Hearings on the proposed Browning Ferris Industries (BFI) Integrated Waste Management Facility.</i> |
| 3. | <i>City of Winnipeg Motion to Adjourn.</i> Submitted by M. Samphir, City of Winnipeg. |
| 3(A). | <i>Correspondence</i> , various, submitted by M. Samphir, City of Winnipeg |
| 3(B). | <i>Statutes, Texts and Case Law</i> , various, submitted by M. Samphir, City of Winnipeg. |
| 4. | <i>Comparison of Recent Regulatory and Public Review Periods for Environmental Assessments.</i> Submitted by C. Gillespie, BFI Waste Systems. |
| 5. | <i>BFI Communications with the City of Winnipeg Regarding Proposed Integrated Waste Management Facility (February 1992 - August 1995).</i> Submitted by C. Gillespie, BFI Waste Systems. |
| 6. | <i>Motion #2.</i> Submitted by M. Samphir, City of Winnipeg. |
| 7. | <i>Summary of Proposal - Proposed Browning Ferris Industries (BFI) Integrated Waste Management Facility: File No. 3851</i> , (with attachments). Submitted by John Jonasson, Manitoba Environment. |
| 8. | TetrES Consultants Inc. <i>Environmental Impact Assessment: Integrated Waste Management Facility, Rural Municipality of Rosser. Report to BFI Waste Systems.</i> Submitted by C. Gillespie, BFI Waste Systems. |
| 9. | TetrES Consultants Inc. <i>Environmental Impact Assessment: Integrated Waste Management Facility, Rural Municipality of Rosser. ADDENDUM. Report to BFI Waste Systems.</i> Submitted by C. Gillespie, BFI Waste Systems. |
| 10. | <i>Letter</i> , dated October 11, 1995, from John Sedley, Sedley Associates Inc., to J. M. McKernan, TetrES Consultants Inc. (with attachments). Submitted by C. Gillespie, BFI Waste Systems. |
| 11. | <i>Clean Environment Commission Hearings Regarding Integrated Waste Management Facility Proposed by BFI Waste Services, Grosse Isle, Manitoba, October 16, 1995. WITNESS STATEMENTS.</i> Submitted by C. Gillespie BFI Waste Systems. |
| 12. | <i>Clean Environment Commission : BFI Waste Services Integrated Waste Management Facility. ANNOTATED OVERHEAD PRESENTATION, October 16, 1995.</i> Submitted by C. Gillespie, BFI Waste Systems. |

13. *Letter*, dated October 17, 1995, from J.M. McKernan, TetrES Consultants Inc., to Dale Stewart, Clean Environment Commission (with attachments). Submitted by C. Gillespie, BFI Waste Systems.
- 13(A). Golder Associates. December 1994. *Geotechnical Investigation and Stability Analysis Proposed Landfill Development R.M. of Rosser, Range 2 East, Township 12, Manitoba*. Submitted by C. Gillespie, BFI Waste Systems.
- 13(B). Golder Associates. March 1995. *Preliminary Geotechnical Assessment of Proposed Landfill Site Rural Municipality of Rosser, township 12, range 2 East, Manitoba*. Submitted by C. Gillespie, BFI Waste Systems.
- 13(C). Golder Associates. June 1995. *Design and Development of Proposed Waste Management Facility R.M. of Rosser, Manitoba*. Submitted by C. Gillespie, BFI Waste Systems.
- 13(D). Golder Associates. September 1995. *Micro-gravity Geophysical Survey Results Proposed Waste Management Facility R.M. of Rosser, Manitoba*. Submitted by C. Gillespie, BFI Waste Systems.
- 13(E). Golder Associates. October 1995. *Assessment of Vertical Fracturing and In Situ Hydraulic Conductivity Proposed Waste Management Facility R.M. of Rosser, Manitoba*. Submitted by C. Gillespie, BFI Waste Systems.
- 13(F). Wardrop Engineering Inc. April 1995. *Hydrogeological Assessment of Proposed Landfill Site Rural Municipality of Rosser, Manitoba*. Submitted by C. Gillespie, BFI Waste Systems.
14. TetrES Consultants Inc. *Environmental Impact Assessment: Integrated Waste Management Facility, Rural Municipality of Rosser. TECHNICAL APPENDICES. Report to BFI Waste Systems*. Submitted by C. Gillespie, BFI Waste Systems.
15. The Provincial Council of Women of Manitoba and the Council of Women of Winnipeg. *Brief to the Clean Environment Commission Concerning the Proposed Browning Ferris Industries (BFI) Integrated Waste Management Facility. 16 October, 1995*. Submitted by Carolyn Garlich and Elizabeth Fleming, Provincial Council of Women of Manitoba and the Council of Women of Winnipeg.
16. *Letter*, dated October 11, 1995, from Dale Stewart, Clean Environment Commission, to W.D. Carroll, City of Winnipeg.
17. The Rural Municipality of Rosser and Browning Ferris Industries Ltd. *Integrated Waste Management Facility Agreement*. Submitted by Richard Hoeschen, Rural Municipality of Rosser.
18. Alice Chambers. *Presentation to the Clean Environment Commission Hearing Re: The Proposed Browning Ferris Industries (BFI) Integrated Waste Management Site. October 18, 1995* (with attachments). Submitted by Alice Chambers.
19. Rosser Citizen's Advisory Group. *Clean Environment Commission on the Proposed BFI Integrated Waste Management Facility*. Submitted by Henry Holtmann, Rosser Citizen's Advisory Group.
20. Ron Dalmyn. *Brief* (untitled), submitted by Ron Dalmyn.

21. The Rural Municipality of West St. Paul. *Brief* (untitled) submitted by David Oster and Gord Kramener, Rural Municipality of West St. Paul.
22. Rural Municipality of Headingley. *Brief* (untitled), submitted by Don Fleming, Rural Municipality of Headingley.
23. John D. Sinclair. *Brief to the Clean Environment Commission Hearings Concerning the Proposed Browning Ferris Industries (BFI) Integrated Waste Management Facility. November 6, 1995 (with attachment)*. Submitted by John D. Sinclair.
24. *Presentation by the Canadian Union of Public Employees, Local 500, to Manitoba Clean Environment Commission Public Hearing Proposed Browning Ferris Industries (BFI) Integrated Waste Management Facility*. Submitted by Paul Moist, Canadian Union of Public Employees.
25. Jean-Pierre Barrette. *Documentation Supplied to the Manitoba Clean Environment Commission on BFI's Proposal for an Integrated Waste Management Facility in Rosser, Manitoba*. Submitted by Jean-Pierre Barrette.
26. Jean-Pierre Barrette. *Project D'Aggrandissement Du Site D'Enfouissement Sanitaire De Browning Ferris Industries Usine De Triange Lachenaie: Memoire presente au Bureau D'Audiences Publiques Sur L'Environnement. Mars 1995*. Submitted by Jean-Pierre Barrette.
27. Bureau D'Audiences Publiques Sur L'Environnement. *Projet D'Aggrandissement D'un Lieu D'Enfouissement Sanitaire a Lachenaie*. Submitted by Jean-Pierre Barrette.
28. Harold Crooks. *Giants of Garbage*. Submitted by Paul Moist, Canadian Union of Public Employees, Local 500.
29. *Intervener Presentations Regarding Integrated Waste Management Facility Proposed by BFI Waste Services. November 7, 1995*. Submitted by W. D. Carroll, City of Winnipeg.
30. *Intervenors Report Regarding Integrated Waste Management Facility Proposed by BFI Waste Services. November 7, 1995*. Submitted by W. D. Carroll, City of Winnipeg.
31. DS-Lea Consultants Ltd. *Waste Generation Comparison Study: The City of Winnipeg*. Submitted by W.D. Carroll, City of Winnipeg.
32. Stonewall Argus. *Newspaper Clipping* (undated), submitted by Tom Patterson.
33. Town of Stonewall. *Presentation to the Clean Environment Commission Public Hearing on the Proposal of Browning Ferris Waste Systems Inc. for the Development of an Integrated Waste Management Facility in the RM of Rosser*. Submitted by Robert Potter, Town of Stonewall.
34. Rural Municipality of Rockwood. *Brief* (untitled), submitted by Gordon Appleyard, Rural Municipality of Rockwood.
35. Peter Miller. *A Brief to the Clean Environment Commission on the BFI Rosser Landfill Proposal. November, 1995*. Submitted by Peter Miller.
36. Tracy, Bob, Amie, and Brad Bugera. *Brief* (untitled), submitted by Brad Bugera.

37. Gene and Faith Kinaschuk. *Brief* (untitled), submitted by Gene Kinaschuk.
38. Rockwood Agricultural Society. *Brief* (untitled), submitted by John H. Morrison, Rockwood Agricultural Society.
39. John H. Morrison. *Brief* (untitled), submitted by John H. Morrison.
40. Gordon Grenkow. *Brief* (untitled), submitted by Gordon Grenkow, Grenkow Dairy Farm Ltd.
41. *Manitoba Eco-Network Inc. Presentation to the Clean Environment Commission Hearings on the Proposed Browning-Ferris Industries Landfill in the Rural Municipality of Rosser*. Submitted by Nick Carter, Manitoba Eco-Network.
42. Rural Municipality of Rosser. *Brief* (untitled), submitted by Allan Beachell, Rural Municipality of Rosser.
43. Horst Lingies. *Brief* (untitled), submitted by Horst Linge.
44. Manitoba Recycling Council. *Brief* (untitled), submitted by Glen Koroluk, Manitoba Recycling Council.
45. BFI Waste Systems. *Closing Statement to Manitoba Clean Environment Commission: Proposed Integrated Waste Management Facility*. Submitted by Kim Sigurdson, BFI Waste Systems.



Towne Square P.O.
Box 21420
284 Reimer Avenue
Steinbach, Manitoba
R0A 2T3 CANADA

File: 3851.00

(204) 326-2395
(204) 326-2472 (FAX)

CORRECTION NOTICE

**REPORT ON PUBLIC HEARINGS
BROWNING FERRIS INDUSTRIES (BFI) WASTE SYSTEMS INC.
INTEGRATED WASTE MANAGEMENT FACILITY
RURAL MUNICIPALITY OF ROSSER**

December, 1995

PAGE: 31

RECOMMENDATION: 15

Access roads from Highway #6 to the site will be hard surfaced to control dust. An on site dust control program for the IWMF shall be developed by BFI Waste Systems Inc. and submitted to Manitoba Environment for approval.

SHOULD READ:

Access roads from Highway #7 to the site will be hard surfaced to control dust. An on site dust control program for the IWMF shall be developed by BFI Waste Systems Inc. and submitted to Manitoba Environment for approval.

DATED AND ISSUED THIS 12th DAY OF MARCH, 1996.

Manitoba Clean Environment Commission
Box 21420 - 284 Reimer Avenue
Steinbach, Manitoba
R0A 2T3

Telephone: 204-326-2395 or 1-800-597-3556

Facsimile: 204-326-2472