

# SUMMARY REPORT

## STAGE 2

**PROPONENT:**

The City of Brandon

**PROPOSAL NAME:**

Maple Leaf Meats Hog Processing Facility Wastewater Treatment Facility

**CLASS OF DEVELOPMENT:**

Two

**TYPE OF DEVELOPMENT:**

Wastewater Treatment Facility

**CLIENT FILE NO.:**

4307.00

**OVERVIEW:**

An Environment Act Proposal, dated July 29, 1998, was submitted to the Department on August 5, 1998, by Maple Leaf Meats Inc. and the City of Brandon as joint proponents on the project. The main Environment Act Proposal was supplemented with:

- a "Maple Leaf Meats Wastewater Treatment Facility Pre-Design Report" dated July, 1998, and prepared by Reid Crowther & Partners Ltd., being Appendix 3 of the Proposal; and
- an "Assessment of the Effects of the Maple Leaf Wastewater Treatment Facility Effluent on the Assiniboine River" dated June, 1998, and prepared by Reid Crowther & Partners Ltd. and North/South Consultants Inc., in consultation with Trillium Engineering and Hydrographics Inc., being Appendix 10 of the Proposal.

Subsequent to the submission of the Proposal, it was agreed between Maple Leaf Meats Inc. and the City of Brandon that the City of Brandon would be the sole proponent of the Proposal.

The proponent proposed to construct and operate a wastewater treatment facility (WWTF) to treating the liquid sanitary and process wastewater streams generated by a 1-shift operation of the hog processing facility being constructed by Maple Leaf Meats. Also, proposed was to use the 1-shift operation of the hog processing plant and the WWTF, in conjunction with an Assiniboine River Monitoring Study, to better understand the water quality impacts of a 2-shift operation of the hog processing plant so as to determine the additional design requirements needed to protect the Assiniboine River under the future 2-shift operation of the hog processing plant.

Upon the completion of the environmental assessment process, the Proponent was issued a stage 1 construction Licence No. 2367 S1 on October 16, 1998.

Due to some changes made to the design of the initially proposed wastewater treatment facility, and in support of the next stage of the licensing process, the proponent submitted an updated Environmental Assessment Report to the Department on May 10, 1999, together with additional information comprised of

a Preliminary Commissioning report, and a Socio-economic Impact Assessment report.

The proponent requests that a commissioning and operating licence be granted pursuant to Sections 11(1) and 13(1) of The Environment Act to authorize the proposed commissioning and operation activities. The proponent envisions a one year start-up and commissioning period to bring the WWTF up to its optimum operating mode, during which licence requirements are requested to be less restrictive than those as may be required for the operational phase which would follow the commissioning phase.

The revised Proposal and additional information was advertised in the Brandon Sun and the Portage Daily on May 29, 1999, as well as in the Portage Herald on June 1, 1999, with an additional advertisement placed in the Brandon Sun on June 5, 1999. Copies of the updated Proposal and additional information were placed in Public Registries at: the Environment Library (Main) in Winnipeg; the Centennial Public Library in Winnipeg; the Manitoba Eco-Network; the Western Manitoba Regional Library in Brandon; and the Portage Plains Regional Library in Portage la Prairie. The closing date for the receipt of public comments was specified as June 25, 1999.

Copies of the Proposal were also sent to the members of the interdepartmental Technical Advisory Committee (TAC) for their review and comment by no later than June 25, 1999.

### **PUBLIC CONSULTATION:**

Pursuant to their Stage 1 Licence, the proponent prepared and submitted a proposed Assiniboine River Monitoring Study Workplan, as required by the Licence. The proposed workplan was reviewed with the City of Portage la Prairie and was presented for discussion to the Long Plain First Nation at a public awareness meeting held at the Long Plain Community Hall on January 8, 1999. Comments received through the public consultation process and through the review of the interdepartmental Technical Advisory Committee resulted in some revisions to the proposed workplan. The overall Assiniboine River Monitoring Study was approved by the Director on June 29, 1999.

In support of their quest for a commissioning and operating licence, the proponent and Maple Leaf Meats Inc. held a public meeting in Brandon on June 2, 1999, to bring the public up-to-date on the hog processing plant and the wastewater treatment facility proposals and to answer any questions concerning these proposals.

As of June 26, 1999, a total of 13 public responses were received by the Director in response to the advertised proposal. These submissions came from:

- S. Degryse;
- V. Cassidy;
- E. Murray;
- Stephen Polson;
- Sandy Polson;
- A. Sanburn;
- M. Ward;
- E. Frost;
- P. Clark;
- J. Andruski; (including a petition signed by 106 persons);
- Anonymous (including a petition signed by 41 persons);
- The Organization, a Provincial Coalition for responsible resource management; and
- A. Chambers.

Generally, the issues raised related to general objections and concerns regarding:

- the impact of pollution, toxins and disease producing organisms released into the Assiniboine River on recreational, aquatic and wildlife use;

- health related concerns for the downstream users of the Assiniboine River as a drinking water supply;
- the availability of a constant supply of potable water to the Portage la Prairie residents and industry users;
- the protection of Lake Manitoba as a result diversions via the Assiniboine River Floodway;
- the overall handling of the environmental assessment and licencing process; and
- technical matters relating to almost every aspect of the Proposal, its environmental impacts, and issues which the author(s) regard as not having been properly or at all addressed.

Including all the signatures on the submitted petitions, about 111 persons in total requested that a public hearing be held by the Clean Environment Commission on the Proposal, or in conjunction with the Maple Leaf Meats Proposal.

#### Disposition of Comments from the Public:

All the submissions were acknowledged, and copies of all technical related comments were provided to the proponent on June 28, 1999, and copies of all the public responses were sent to the public registries on July 7, 1999. The proponent's responses were received on July 8, 1999, and copies of these responses were sent to the public registries on July 15, 1999, with copies of the relevant responses directed to the authors of technical comments.

### **COMMENTS FROM THE TECHNICAL ADVISORY COMMITTEE:**

**Historic Resources** commented that they have no concerns with regard to this project's potential to impact heritage resources.

**Natural Resources** commented:

Re: ML-WWTF update:

- Low water levels in the Assiniboine River could have serious implications to the effluent dilution or assimilative capacity of the river.
- The significant water supply demand by the Maple Leaf plant raises the question as to whether the water supply system will be adequate to supply an uninterrupted flow to the hog processing plant. A reduced water supply could mean a more concentrated effluent going into and leaving the wastewater treatment facility.
- The coincidental occurrence of flow rates below the 7Q10 figures, high nutrient concentrations, high concentrations in the effluents from the City of Brandon, Simplot and Maple Leaf could pose a serious threat to fish downstream of Brandon.
- There are questions regarding how increased chlorophyll concentrations, combined with lower flows and higher nutrient concentrations generated in the Shellmouth Reservoir will affect the nutrient loading of the Assiniboine River.
- The information provided still does not provide a clear assessment of what the likely impacts of the Maple Leaf plant effluent will be on the Assiniboine River, and to wildlife and wildlife habitats downstream from the effluent discharge point. There may be some potential benefit to directing the effluent releases into the natural marsh area which is present at the site for further filtering.
- Consideration should be given to having a contingency plan to ensure that the lagoon liners are protected from high groundwater levels that occur during a wet season combined with a major flood on the Assiniboine River.
- The effects of the future land spreading of the waste sludge on underlying aquifers should be considered.

Re: Assiniboine River Monitoring Study - Water Quality Component:

- There are still concerns with respect to the dissolved oxygen and unionized ammonia

concentrations in the immediate downstream reaches of the Assiniboine River, which raises concerns regarding possible effects on fish and the aquatic system.

- There is little mention of potential impacts during low flow periods.
- There should be a greater in-depth assessment of the Maple Leaf WWTF effluent, alone and in combination with other waste streams on the oxygen and ammonia loadings on the Assiniboine River.
- The continuing monitoring suggested in the report should be implemented.

Re: A Fish Assessment of the Assiniboine River Near Brandon:

The fish sampling program raises concerns because:

- no fishing is done during the night; and
- sampling is done only in the fall.

The fish assessment may not represent:

- an adequate study of fish habitats and habitat use; and
- an unbiased estimate of the fish fauna;

both in terms of species representation and distribution and perhaps in species abundance, downstream of Brandon.

Disposition:

Copies of all the comments were provided to the proponent. The proponent's responses were received on July 13, 1999, and copies of these responses were forwarded to the public registries, with a copy of the relevant responses directed to Natural Resources for their information and additional comment, if necessary.

**Manitoba Health** commented:

- Monitoring programs should include:
  - an analysis of existing air monitoring station data after 1 to 2 years of plant operation;
  - periodic sampling and groundwater monitoring;
  - river monitoring, including nutrients, bacteria and protozoa.
- Land application of any sludge or manure should not include any untreated human sewage.
- The operating licence should be granted only for a 1-shift operation in order for formal evaluation of the monitoring program to occur before starting up a 2-shift operation.

Disposition:

Copies of all the comments were provided to the proponent. The proponent's responses were received on July 13, 1999, and copies of these responses were forwarded to the public registries, with a copy of the relevant responses directed to Manitoba Health for their information and additional comment, if necessary.

**Water Quality Management** commented:

- Whereas the proponent identifies that exceedances of the water quality objectives may occur under some Assiniboine River flow regimes during the commissioning of the wastewater treatment facility, the proponent should identify those river flow rates under which the exceedances would occur and what effluent ammonia loadings would be needed to ensure that exceedances of ammonia water quality objectives would not occur.
- It is indicated that BOD and TSS levels of 30 mg/L would be achieved once the plant is fully

operational. The proponent should identify what levels will be achieved during the commissioning period and what their impacts will be.

- The proponent should clarify why page 63 of the proponent's Environmental Assessment report identifies the average ammonia output to be 20 kg/day while the preliminary commissioning report identifies this output to be 11 kg/day.
- Consistency of effluent quality should be demonstrated not assumed during the future river study segments.
- Consideration should be given in the Assiniboine River monitoring study to assessing ammonia and nitrates as well as oxygen in the groundwater sampling. Also, since the flow station on the Souris is approximately 15-20 km upstream of the Souris outlet into the Assiniboine River, and this portion of the Souris River may also receive groundwater flows, the overall flow from the Souris River to the Assiniboine River may have to be upgraded.
- More discharge velocity work may be needed closer to the discharge points to gain a better understanding of differential flows on the mixing zone behavior.
- It is unclear why field methods for testing ammonia differ from the Feb. 9th river study versus the method used in the hydraulic upgrade river study.

Disposition:

Copies of all the comments were provided to the proponent. The proponent's responses were received on July 13, 1999, and copies of these responses were forwarded to the public registries, with a copy of the relevant responses directed to Water Quality Management for their information and additional comment, if necessary.

**Environment Canada** commented that:

Re: Maple Leaf Meats Wastewater Treatment Facility:

- They have serious concerns regarding the current projected combined levels of un-ionized ammonia into the river from the Maple Leaf Meats wastewater treatment facility, Simplot and the City of Brandon's municipal wastewater treatment facility. Some margin of safety should be built into the allowable limits.
- Complete mixing is not instantaneous, therefore there will be levels of un-ionized ammonia in the mixing zone considerably higher than those specified in Manitoba's Surface Water Quality Objectives.
- Extensive monitoring should be conducted to determine the actual plume of the mixing zone before the commencement of discharge from the Maple Leaf Meats wastewater treatment facility.
- It is our understanding that treated effluent from Ayerst's dedicated lagoon is discharged into the Assiniboine River from mid-August to early September. There does not appear to be a consideration of the potential cumulative impact of this discharge to the overall projected levels of un-ionized ammonia in the river for this period of time.
- Experienced operators will be a very important aspect in limiting the potential adverse impacts due to process upsets.
- Fish do not exhibit any avoidance behavior to levels of un-ionized ammonia which may be deleterious to them. This could result in result in a violation of the General Prohibition of the Federal Fisheries Act.

Re: Water Quality Component of the Assiniboine River Monitoring Study:

- Whereas 5 mg/L of dissolved oxygen is the generally accepted minimum in streams and rivers, the dissolved oxygen in the substrate would be expected to be at least 3 mg/L lower than in the water column, meaning that the reported low levels of dissolved oxygen may have significant detrimental effects on fish and other aquatic biota such as benthic invertebrates.

A correct understanding of the nutrient species ration during the winter is essential in understanding the availability of the nutrients during other seasons, particularly in the spring.

- We note that phosphorus was not in the list of selected parameters for the February 1999 study. A water quality study that does not include an evaluation of phosphorus species and their bio-availability is incomplete.
- An assessment of phosphorus in the Assiniboine River prior to startup of the Maple Leaf Meats wastewater treatment facility is necessary for evaluating the impact of the effluent on the river.

Re: Sludge Management Plan:

- The plan should be carried out in a disciplined manner with strict monitoring of critical parameters and the individuals involved in implementing the program.
- It may be necessary to set up each disposal site well in advance of the application work.
- People providing the monitoring service should be operating at arms length from both the City of Brandon and Maple Leaf Meats, and have a thorough knowledge of sludge injection principles and be given the independence to direct each application.
- The report does not state whether there can be more than one application on a given piece of land, nor what criteria would be used to justify more than one application on a given piece of land.

Re: Fish Habitat Assessment of the Assiniboine River near Brandon:

- The potential impact on fish habitat due to nutrient loadings may require an extended spatial scale of study.
- Reaches 1 and 2 do not appear to be representative of the river due to the impact of the weir for the Manitoba Hydro Generating Station. References reaches further upstream of Brandon should be examined in future studies.
- During periods of low flow, the downstream side of islands in the river may become backwater zones involving incomplete mixing and degradation of fish habitat.
- While not all the known species of fish in the Assiniboine River were sampled in the study, the expected habitat uses for species not collected in the present study could be documented for future reference.
- A more thorough sampling and analysis of fish habitat is recommended in future surveys.
- More work needs to be done on quantifying and identifying algae, since increased attached algae is one potential impact on fish habitat.
- The results of the present study should be put into the context of seasonal and historical flow regimes in the Assiniboine River because habitat availability changes dramatically with river discharge rates.

Disposition:

Copies of all the comments were provided to the proponent. The proponent's responses were received on July 13, 1999, and copies of these responses were forwarded to the public registries, with a copy of the relevant responses directed to Environment Canada for their information and additional comment, if necessary.

**DISPOSITION OF PUBLIC HEARING REQUESTS:**

On July 9, 1999, the Director informed all the parties who had requested a public hearing on the Proposal that he had decided not to recommend to the Minister that he cause the Clean Environment Commission to hold a public hearing, for the following reasons:

1. Specific river impacts are uncertain due to insufficient river information; a public hearing will not

- resolve this issue. The river monitoring program is now underway;
2. The City of Brandon is required to monitor the river to determine specific impacts and to take appropriate mitigation as required;
  3. Approval of only a one shift operation will be given at this time;
  4. River water is treated at Portage la Prairie prior to distribution for potable use;
  5. Issues of disease control and worker protection are addressed by other departments; and
  6. The staged licencing process is allowed pursuant to The Manitoba Environment Act.

The Minister received four appeals respecting the Director's decision not to recommend to the Minister that he cause the Clean Environment Commission to hold a public hearing on the Proposal. Upon the Minister's consideration of each appeal, the Minister notified each appellant on August 10, 1999, advising them that their appeal has been dismissed on the grounds that the Director's reasons for his decision were justifiable.

### **RECOMMENDATION:**

A draft Stage 2 Licence, restricted to the commissioning phase only, is enclosed for the Director's consideration. It is recommended that the Licence, if approved, be assigned to the Approvals Branch for ongoing compliance evaluation and enforcement responsibilities, with the Park-West Region made responsible for surveillance and monitoring responsibilities.

This Stage 2 Licence, if approved, should be followed up in the future with a Stage 3 Operating Licence after the Assiniboine River Monitoring Study has yielded additional background and impact information and improved modelling coefficients to more accurately assess the impacts of the 1-shift operation of the Maple Leaf Meats hog processing plant as well as more accurately predict the impacts of a 2-shift operation of the hog processing plant. The timing of such a Stage 3 Operating Licence should preferably be when the City of Brandon's municipal wastewater treatment facility is fully upgraded and is re-licensed for discharge directly into the Assiniboine River.

### **PREPARED BY:**

C. Moche, P. Eng.  
Municipal and Industrial Approvals  
August 12, 1999