

SUMMARY OF COMMENTS / RECOMMENDATIONS

PROPONENT: Eastern Interlake Regional Recycling CO-OP Ltd.
PROPOSAL NAME: Recycling and Waste to Energy Plant
CLASS OF DEVELOPMENT: CLASS 2
TYPE OF DEVELOPMENT: Energy Production
CLIENT FILE NO: 4483.00

OVERVIEW:

A proposal was filed by Mr. Phil Rebeck, Chairperson, on behalf of Eastern Interlake Regional Recycling CO-OP Ltd. for the construction and operation of a plant to recycle and gasify municipal and commercial solid wastes, tires, papers and plastics, and limited other wastes. The gas produced by the gasification process will be used to power electrical generators to supply electricity to the facility, with any surplus electricity being sold to Manitoba Hydro. Reclaimed components of the solid waste stream will be recycled. The development will be located in Parcel 'B' Plan 12395 WLTO in fraction 18-14-5 EPM in the Rural Municipality of St. Andrews. The Proposal is to operate 24 hours/day 365 days/year for energy production and 10 hours/day 310 days/year for receiving and processing of waste.

It is anticipated that approximately 27,000 tonnes of waste per year will be processed with approximately 5,000 tonnes being reclaimed and recycled and 22,000 tonnes converted to energy.

Specific processes include incoming waste handling and storage, waste separation, shredding, gasification, and power generation.

The Department provided the Technical Advisory Committee with information on the Proposal and made public notification in the Selkirk Journal. The following summarizes the responses:

RELEVANT COMMENTS FROM THE PUBLIC

One citizen submitted comments opposing the Development because:

- potential for toxic emissions

Disposition: Means to address potential toxic emissions are in the Environment Licence.

RELEVANT COMMENTS FROM THE TECHNICAL ADVISORY COMMITTEE:

1. **Manitoba Culture, Heritage & Citizenship – Historical Resources Branch** – has no concerns.

No response necessary.

Eastern Interlake Regional Recycling Co-operative
Summary of Comments

Disposition: No action needed.

2. **Manitoba Industry, Trade and Mines – Mines Branch** – has no concerns.

No response necessary.

Disposition: No action needed.

3. **Manitoba Conservation – Environmental Management Division – Water Quality Management Section** – had the following comments:

- a) Further clarification is needed on the engineering design specifications of the retention ponds to service as both water treatment and fire suppression.

The proponent replies that sanitary wastes will be discharged to a septic tank. Wash water and other non-sanitary wastewater will be passed through a grit and oil/grease trap. If volumes are sufficiently small, discharge will be to the septic tank. Alternate means are also considered. The fire pond will not contain site run-off except perhaps for the initial fill. Ground water may be used. Site run-off will be collected in drainage ditches and discharged off-site in a drainage ditch.

- b) What liquid volumes will be generated from flush washing of the tipping area and other areas?

The proponent replies that sanitary wastes will be discharged to a septic tank. Wash water and other non-sanitary wastewater will be passed through a grit and oil/grease trap. If volumes are sufficiently small, discharge will be to the septic tank. Alternate means are also considered. The fire pond will not contain site run-off except perhaps for the initial fill. Ground water may be used. Site run-off will be collected in drainage ditches and discharged off-site in a drainage ditch. The moisture content of MSW going through the shredder is reduced by approximately 50%. Therefore, they do not expect to see significant volumes of waste water that will require treatment and discharge.

- c) What magnitude of liquid volume will be generated from the frozen garbage?

The proponent replies that the moisture content of MSW going through the shredder is reduced by approximately 50%. Therefore, they do not expect to see significant volumes of waste water that will require treatment and discharge.

- d) What are minimal volumes needed for fire suppression?

The proponent did not answer this question.

- e) What are the characteristics of leachate and its impact on the retention pond to be used for fire suppression?

The proponent replies that sanitary wastes will be discharged to a septic tank. Wash water and other non-sanitary wastewater will be passed through a grit and oil/grease trap. If volumes are sufficiently small, discharge will be to the septic tank. Alternate means are also considered. The fire pond will not contain site run-off except perhaps for the initial fill. Ground water may be used. Site run-off will be collected in drainage ditches and discharged off-site in a drainage ditch..

- f) Are there plans to retest the quality of the retention pond water prior to each usage?

Eastern Interlake Regional Recycling Co-operative
Summary of Comments

The proponent replies that sanitary wastes will be discharged to a septic tank. Wash water and other non-sanitary wastewater will be passed through a grit and oil/grease trap. If volumes are sufficiently small, discharge will be to the septic tank. Alternate means are also considered. The fire pond will not contain site run-off except perhaps for the initial fill. Ground water may be used. Site run-off will be collected in drainage ditches and discharged off-site in a drainage ditch..

- g) Clarify the status of the current waste disposal ground in the operational plan in terms of operational and monitoring procedures?

The proponent replies that the member municipalities will provide either the waste volume or the revenue anticipated from that volume. They will fully utilize the facility once it is constructed. The proponent replies that it is not involved with the member municipalities landfills or the monitoring procedures therein.

The proponent's replies were sent to the TAC member for further review. No further responses from the TAC member were forthcoming.

Disposition: Item a) There was not a submission for a water treatment pond. The Environment Licence addresses the direction of contaminants to the fire pond and off the site. As the fire pond will contain only non-contaminated water, the issue of contamination of underlying aquifers is not applicable. Clauses 41;74.
Item b) The proponent did not provide exact volumes. The Environment Licence regulates the discharge of any contaminated waters. Clauses 41;74;75;76.
Item c) The proponent did not provide exact volumes. The Environment Licence regulates the discharge of any contaminated waters. Clauses 41;74;75;76.
Item d) This information will be a requirement of the ERP required in the Environment Licence. Clause 85.
Item e) The proponent did not provide leachate characteristics. The Environment Licence regulates the discharge of any contaminated waters. Clauses 41;74;75;76. The Licence addresses the need for further analysis if needed. Clause 3;4;5.
Item f) The fire pond can only contain uncontaminated water. Testing should not be necessary. Clause 41;74.
Item g) There is no 'current waste disposal ground'. The proponent has addressed the member municipalities responsibilities with their WDGs. It is beyond the bounds of this Licence to address these issues. The proponent is required to address operational difficulties at the proposed facility which may tie into the other WDGs. Clause 84.

4. **Manitoba Conservation – Environmental Management Division – Air Quality Management Section** – recommend testing air emissions for the following contaminants: dioxins and furans; heavy metals including mercury; particulates; NO_x ; SO₂ ;HCl; PAH's. The odour nuisance clause should be in the Licence. They also had the following comments:

- a) Under the Canada Wide Standards development, this process is classified as an incinerator and would be subject to emission limits for mercury and dioxin/furans.

The proponent replies that some consider the process of "gasification" to be dissimilar to "combustion" or "incineration".

- b) What materials are targeted for recycling, and are there existing recycling programs in the member RMs.

The proponent replies that aluminum, ferrous metals, and clean newsprint and cardboard are to be collected and recycled.

Eastern Interlake Regional Recycling Co-operative
Summary of Comments

- c) What material is suitable for use as fuel.

The proponent replies that paper products of all types, plastics, tires, food and kitchen wastes, green wastes and biomass of all types are suitable materials for fuel.

- d) Municipal solid waste is usually not considered a renewable resource.

The proponent replies that others have considered MSW a renewable resource as there will always be a certain volume of waste generated by people and commerce in the normal course of daily life.

- e) What is the composition of the gas from the gasifier ie: heavy metals, organic compounds, sulphur dioxide, acid gases and particulates?

The proponent replies that the only data which they could find on emissions from internal combustion engines was those engines using natural gas as a fuel. This has been provided.

- f) How long will the flare be operated during startup and shutdown and is there a more efficient means of combustion available?.

The proponent replies that the flare will normally be operated during start-up/shut-down mode of the reactor (45 minutes per event / less than 5% of the time annually). It will also be activated if Manitoba Hydro has a grid failure. This may occur once or twice per year. The proponent knows of no more efficient means for VOC and particulate destruction in the gas stream.

- g) The characteristics of the ash produced will have to be determined.

The proponent replies that ash management will be specified in the Licence.

- h) Will the dust removed from processing areas be cleaned before discharge?

The proponent replies that the prime source of dust will be the shredder which will have a cyclone and bag house to remove solids from the air stream.

- i) If excess wastewater is used in the water-cooled heat exchangers, would they not foul?

The proponent replies that the water cooled heat exchangers are a closed loop system integrated with a refrigeration system. The system will use waste water with tars and oils removed as re-injection water into the reactor vessel to aid in carbon conversion. Therefore, there is no issue with fouling of the heat exchangers

- j) If the RDF fuel storage site is open on one side, how are odours and litter controlled? Is the access road to the facility paved?

The proponent replies that there is no open wall to the outside from the RDF storage area therefore there will be no litter. Because of the low moisture content of the RDF and the quick turnaround time of storage there should not be any odour beyond acceptable levels to the employees. All internal roadways will be paved.

- k) What type of machines are the “mechanical cleaners”?

The proponent replies that the cleaners are rotating wire brushes and scrapers.

Eastern Interlake Regional Recycling Co-operative
Summary of Comments

- l) What pollution control equipment is in place after the gas generators to remove pollutants such as sulphur dioxide, hydrogen chloride, heavy metals, dioxins/furans, etc.?

The mechanical cleaners/coolers and ESPs. All contaminants are cleaned from the gas and end up in the tar or wastewater. All tars, oil, char and particulates are recycled back into the reactor. Heavy metals, if present, are in the ash. Dioxins and furans cannot form due to the low temperatures and low O₂ levels. If sulphur is present in high percentages, lime can be added to the incoming feed material.

The proponents replies were sent to the TAC member for further review. Additional TAC comments were received and responded to and are incorporated in the above statements.

Disposition: The recommendations of this TAC member have been included in the Environment Licence.

Item a) No action needed.

Item b) The proponent addressed these comments. No action needed.

Item c) The proponent addressed these comments. No action needed.

Item d) No action needed.

Item e) There is no air emission data that reflects the proposed operation. The Environment Licence regulates the timely determination of air emissions. Clauses 7;39;40;48;49;50;51;52;53;54;55;56;57;58;59.

Item f) The proponent provided a response. The Environment Licence regulates operation of the thermal oxidizer. Clauses 31;32;33;34;35;36;37;38.

Item g) The Environment Licence regulates characterization of the ash. Clauses 43;44;45.

Item h) The Environment Licence regulates disposal of collected particulates. Clause 62.

Item i) The proponent provided a response. No action needed.

Item j) The proponent provided a response. No action needed.

Item k) The proponent provided a response. No action needed.

Item l) The proponent provided a response. The Environment Licence requires a determination and treatment of air emissions. Clauses 7;39;40;48;49;50;51;52;53;54;55;56;57;58;59;60;61;62.

5. **Environment Canada – Environmental Protection** – under Principal 6 of the Canada-Manitoba Harmonization Agreement on Environmental Assessment wish to participate in the review of this proposal. They comment as follows:

- a) There is a potential for the emission of dioxins and furans. Appropriate technology to achieve emission limits of 0.1 ng/m³ should be adopted.

The proponent did not reply to this TAC member. However, in reply to other members they stated: . Dioxins and furans cannot form due to the low temperatures and low O₂ levels.

- b) There is no information regarding emissions of zinc and particulates or impact assessment information.

The proponent did not reply to this TAC member.

Disposition: Item a) There is no air emission data that reflects the proposed operation. The Environment Licence regulates the timely determination of air emissions. Clauses 7;39;40;48;49;50;51;52;53;54;55;56;57;58;59.

Eastern Interlake Regional Recycling Co-operative
Summary of Comments

Item b) There is no air emission data that reflects the proposed operation. The Environment Licence regulates the timely determination of air emissions. Clauses 7;39;40;48;49;50;51;52;53;54;55;56;57;58;59.

6. **Environment Canada – Canadian Environment Review Agency** – state that the application of the *Canadian Environmental Assessment Act* with respect to this project will not be required.

No response necessary.

Disposition: No action needed.

7. **Manitoba Conservation – Policy Coordination Branch** – initially had no concerns. They did review the proposal at a later date and subsequently suggested that some of the cover over the sand and gravel and bedrock aquifers may not offer adequate low permeability protection to those aquifers. They recommend that test holes be drilled to confirm the geology of this site and if required, as a minimum, a layer of re-compacted clay of adequate thickness and hydraulic conductivity should be installed in critical areas. In addition, the on-site production well should have an adequately engineered well head to protect the aquifers from any potential contamination.

The proponent did not reply.

Disposition: The concerns of this TAC member have been incorporated in the Environment Licence. Clauses 66;67;68;69;70;71;72;73

8. **Manitoba Intergovernmental Affairs – Community Economic Development Services** – state that the facility will require a conditional use approval from the R.M. of St. Andrews. They have no concerns.

No response necessary.

Disposition: No action needed.

9. **Manitoba Conservation – Energy Programs and Policy** – recommend that the application for an Environmental Licence for the recycling and waste to energy plant be approved. EP&P contacted Thermogenics directly with comments and forwarded these and the responses to the Approvals Branch. The relevant comments and responses are as follows:

- a) How will the project be financed. Are there any other systems which can be examined?

Financing is through the EIRRC. There are no other operating systems other than a prototype in Albuquerque, New Mexico.

- b) Can an independent third party conduct trial tests, technical evaluations and commission the system?

It would be a good idea to have some firm with expertise in this field to check the system before it is put into production..

- c) Do the mechanical coolers use refrigeration systems or are they cooled by evaporative cooling from the cooling tower?

The coolers(cleaners) use refrigeration which in turn are cooled by the cooling tower.

- d) Do the heavy tars foul the precipitator?

Eastern Interlake Regional Recycling Co-operative
Summary of Comments

The heavy tars are removed in the mechanical cleaner

- e) How does the system deal with heavy metals like mercury and cadmium and chlorides and dioxins and furans?

Most of the solid waste is from households so there is very little if any heavy metals and the chlorides would mix with water and form dilute HCl which can be neutralized.

- f) What happens to wastewater?

It is sprayed on feedstock, filtered and used in the cooling system or sent to an approved wastewater treatment facility.

Disposition: Item a) No action needed.
Item b) No action needed.
Item c) No action needed.
Item d) No action needed.
Item e) There is no air emission data that reflects the proposed operation. The Environment Licence regulates the timely determination of air emissions. Clauses 7;39;40;48;49;50;51;52;53;54;55;56;57;58;59.
Item f) The proponent provided a response. The Environment Licence regulates the discharge of any contaminated waters. Clauses 41;74;75;76. The Licence addresses the need for further analysis if needed. Clause 3;4;5.

10. **Manitoba Conservation – Environmental Operations Division – Eastern-Interlake Region** – has the following comments:

- a) Neither documentation nor references are provided for statements regarding the nature of the “Producer Gas”.

The proponent replies that they consider typical producer gas to be H₂O; H₂; CO₂; O₂; CO; CH₄; C_xH_y; and N₂; particulates <10 ppm of PM₁₀; sulphur <100 ppm; Chlorine < 25 ppm.

- b) The ash sampling protocol should be specified in detail or a specific protocol should be identified.

The proponent replies that ash sampling protocol would be EPA 6010 for RCRA metals and EPA 8270 for TCLP or the Canadian equivalents.

- c) Clarification is needed for the drainage and fire protection ponds. If one pond is to be used for both purposes, there may be a need to treat for organics in order to prevent putrefaction in the reservoir.

The proponent replies that sanitary wastes will be discharged to a septic tank. Wash water and other non-sanitary wastewater will be passed through a grit and oil/grease trap. If volumes are sufficiently small, discharge will be to the septic tank. Alternate means are also considered. The fire pond will not contain site run-off except perhaps for the initial fill. Ground water may be used. Site run-off will be collected in drainage ditches and discharged off-site in a drainage ditch.

- d) A formal contingency plan should be prepared and submitted for waste management among the Co-op members should a longer term shutdown occur.

The proponent replies that in the case of a long term shutdown, the waste would be retained at the waste transfer stations in the individual RMs. The contracted carrier would be

Eastern Interlake Regional Recycling Co-operative
Summary of Comments

instructed to haul the waste to a landfill organized by the EIRRC (St. Clements; City of Winnipeg; BFI).

- e) Provisions for odour control should be specified in greater detail.

The proponent replies that with maximum storage of processed RDF of 72 hours and no storage of MSW on site, there should be negligible odour produced. If odour were to be generated in spite of these situations, commercial odour mitigation products (sprays) or filtering of exhaust air will be utilized.

- f) Consideration should be given to addressing construction and demolition wastes in the proposal.

The proponent replies that C&D wastes are to be sorted at the WTS. If such wastes are delivered to the facility, they are sorted out and landfilled or shredded and utilized as fuel.

- g) The implementation of radiation detectors for incoming wastes was identified by residents of the area.

The proponent replies that they are prepared to install radiation monitoring devices at the entrance to the facility and if necessary at the end of the sorting conveyor line.

- h) Placement of waste collection bins outside the secured area for after hours disposal of waste was identified by area residents.

The proponent replies that this is noted by the EIRRC. It can be accommodated or the adjacent Selkirk landfill may be utilized as a WTS.

The proponent's replies were sent to the TAC member for further review. Additional TAC comments, where submitted, are incorporated in the above statements.

- Disposition: Item a) The proponent responded with theoretical assumptions. There is no air emission data that reflects the proposed operation. The Environment Licence regulates the timely determination of air emissions. Clauses 7;39;40;48;49;50;51;52;53;54;55;56;57;58;59.
Item b) The Environment Licence regulates characterization of the ash. Clauses 43;44;45.
Item c) There was not a submission for a water treatment pond. The Environment Licence addresses the direction of contaminants to the fire pond and off the site. Clauses 41;74.
Item d) The proponent responded with a plan. The Environment Licence requires a formal plan. Clause 84
Item e) The Environment Licence regulates odour emissions and storage of materials. Clauses 8;9;10;11;12;13;14;15;18;22;23;24;25;26;30;31;32;59;60;61;62;63;78.
Item f) The proponent responded. No action needed.
Item g) The Environment Licence addresses the receipt of radioactive material. Clauses 9;10;16;17.
Item h) The Environment Licence addresses this issue. Clause 23.

11. **Manitoba Conservation – Environmental Operations Division – Winnipeg Region** – has the following comments:

- a) The emission data submitted for the internal combustion engines is not likely to be applicable to this proposal.

The proponent replies that an engine quality gas will be produced by the reactors and the cleaning and cooling process. There is no basis, in the proponent's opinion, for the statement

Eastern Interlake Regional Recycling Co-operative
Summary of Comments

that the gas will not be clean as stated in the proposal. Nitrogen oxides will be lower than levels using natural gas.

- b) The proponent does not indicate how they derived their estimated hours of monthly operation for the thermal oxidiser flare. There is no indication that the correct EPA guideline was used to formulate estimated emissions.

The proponent replies the estimated hours of operation is based on the predicted availability of the system, which determines the amount of down-time and thus stops and starts. It is also a factor is the availability of the engines which predicts the number of situations where the gasifier is producing excess gas and must "throttle back" to meet a lower engine load requirement. We relied on our supplier of thermaloxidizers/flare systems to give us the proper EPA factors to calculate emissions.

- c) The proponent does not indicate how VOC's, PIC's, acid gases, etc., will be controlled.

The proponent replies that control of VOC's and other atmospheric pollutants is by means of the thermal oxidizer/flare system and the fact the gasification system is a sealed, air tight system. Any leak would be cause for a shutdown of the system and repair of the leak before restart. Acid gases are not likely to oddur given the outlet temperature of the system.

- d) No data is supplied on the destruction and removal efficiency and capacity of the thermal oxidiser.

The proponent replies the estimated hours of operation is based on the predicted availability of the system, which determines the amount of down-time and thus stops and starts. It is also a factor is the availability of the engines which predicts the number of situations where the gasifier is producing excess gas and must "throttle back" to meet a lower engine load requirement. We relied on our supplier of thermaloxidizers/flare systems to give us the proper EPA factors to calculate emissions.

- e) How will the operation of the thermal oxidiser be controlled as process conditions vary?

The proponent replies that the estimated hours of operation is based on the predicted availability of the system, which determines the amount of down-time and thus stops and starts. It is also a factor is the availability of the engines which predicts the number of situations where the gasifier is producing excess gas and must "throttle back" to meet a lower engine load requirement. We relied on our supplier of thermaloxidizers/flare systems to give us the proper EPA factors to calculate emissions.

- f) The cyclone attached to the shredder will not capture fine PM and the lighter VOC's that are released. Is the cyclone vented to atmosphere?

The proponent attached correspondence from the anticipated supplier of the Verticle Mill Shredder. The proponent replies that the energy generated in the shredding operation kills bacteria in the waste and there is no odour in the waste or generated within the 72 hours maximum storage proposed. All particles greater than 100 mesh are captured and mixed with the RDF. There is no reason to believe that VOCs will be produced by the shredder. The cyclone is vented to the atmosphere. There is no reason to expect any particulate emission to travel more than 100 feet from the point of discharge, nor will there be visible emissions from the cyclone.

- g) How is the direction of gas flow in the thermal reactor controlled? Can backflow exhaust through the shredder?

Eastern Interlake Regional Recycling Co-operative
Summary of Comments

The proponent replies that within the gas cleaning system there are one-way valves to prevent backflow. The shredder cyclone is not connected to the reactor.

- h) What mechanical cleaners are used to clean the gas?

The proponent replies that the mechanical cleaners consist of rotating verticle wire brushes that remove the solid particles, and because of the cooling, the tars and oils are also removed and recycled to the reactor.

- i) Are all the RDF augers air tight?

The proponent replies that all augers are airtight.

- j) A conventional ESP is unlikely to be efficient at removing condensables and acid gases. Any sticky matter will be a problem for such units. A WESP or upstream scrubber should be considered?

The proponent replies that the ESP's are of a proprietary design using high voltage low amperage charged field technology. This design has proven to be very effective in removing fine particulates and aerosols from the cooled gas stream, which is below the dew point. The solids and liquids are separated from the water condensate by a traditional stripping process and recycled back to the thermal reactor.

- k) Process flow diagrams should be provided to indicate all stacks, vents, and emergency relief valves or other potential sources of air emissions.

The proponent replies that a process flow diagram has been previously supplied.

- l) Are there any emission controls for the internal combustion engines?

The proponent replies that the internal engines or gas turbines have not been selected. As there is a range of emission control equipment available, they are prepared to meet current emission standards.

- m) The proposal does not contain a protocol for fugitive emission/leak detection from any part of the process.

The proponent replies that the proposal does not show the complete detail of instrumentation and controls which would alert the Operator to a leak in the system which would reduce system pressure. Since the system operates at less than 10 psig such leaks are manageable and often can be corrected in a very short period of time while the system is placed in an "idling" mode of operation. There will be CO monitors located in the power production area of the building.

- n) Provision should be made for the sampling of producer gas diverted back to the gas fired boilers.

The proponent replies that there is no boiler on the system proposed.

- o) Ash should be classified as hazardous or non-hazardous; sampling protocol and frequency established; what volume and mass are expected to be generated; how will it be handled, transported and disposed of; what are details of the disposal facility; other end uses must be approved by Department on a case by case basis.

The proponent replies that ash sampling protocol would be EPA 6010 for RCRA metals and EPA 8270 for TCLP or the Canadian equivalents. Frequency of classification is quarterly for

Eastern Interlake Regional Recycling Co-operative
Summary of Comments

the first year and semi-annually thereafter. It is anticipated that ash production will be 8-10% of the RDF mass. Anticipating that the ash is non-hazardous, it can be disposed of in an active landfill cell, used as daily cover or used as construction material. Ash will be stored and transported in closed containers. If ash is not disposed of in an active landfill, the proponent will submit a proposal to the Department.

The TAC member replies that the ash should be classified according to the DGH&T Act and associated Regulations 282/87 and 172/85. It is recommended that frequency of sampling be 1/month for the first six months of full operation and semi-annually thereafter.

Non-hazardous ash may be disposed of in the active cell of a landfill. It should not be used as day-cover unless demonstrated that it will not be at risk as a fugitive emission. Any other disposal should be at the approval of the Department.

- p) Is there a commitment in writing from Manitoba Hydro to purchase power?

The proponent replies that Manitoba Hydro is prepared to negotiate a contract to purchase power.

- q) Detailed design for the drainage and fire protection ponds should be provided. The potential discharge route should be identified. Prior to discharge, the quality of the liquid should be determined. Each discharge should be subjected to Departmental approval.

The proponent replies that sanitary wastes will be discharged to a septic tank. Wash water and other non-sanitary wastewater will be passed through a grit and oil/grease trap. If volumes are sufficiently small, discharge will be to the septic tank. Alternate means are also considered. The fire pond will not contain site run-off except perhaps for the initial fill. Ground water may be used. Site run-off will be collected in drainage ditches and discharged off-site in a drainage ditch.

Detailed designs have not been submitted.

The TAC member replies that the site drainage plan must show that the fire protection pond is adequately bermed and isolated.

- r) Solid waste/RDF storage should not exceed 72 hour period that has been proposed.

The proponent has agreed to this.

The TAC member replies that this should be a requirement of the Licence.

- s) Condensate from the gas cooling process is likely an odourous substance. Approved disposal/treatment should be in place prior to commencing operation.

The proponent replies that the gas cooling liquid is recirculated on a continuous basis to the incoming feed auger through an air-tight system of augers and pumps. There will be no odour generation.

The TAC member replies that odour remains a concern.

The proponents replies were sent to the TAC member for further review. Additional TAC comments, where submitted, are incorporated in the above statements.

Eastern Interlake Regional Recycling Co-operative
Summary of Comments

Disposition: Item a) The proponent responded with theoretical assumptions. There is no air emission data that reflects the proposed operation. The Environment Licence regulates the timely determination of air emissions. Clauses 7;39;40;48;49;50;51;52;53;54;55;56;57;58;59.
Item b,d,e) The proponent provided a response. The Environment Licence regulates operation of the thermal oxidizer. Clauses 31;32;33;34;35;36;37;38. The Environment Licence requires . determination of emissions and operation of controls. Clauses 48-62.
Item c) There is no air emission data that reflects the proposed operation. The Environment Licence regulates the timely determination of air emissions. Clauses 7;39;40;48;49;50;51;52;53;54;55;56;57;58;59.
Item d) See b.
Item e) See b.
Item f) The proponent responded. The Environment Licence regulates the timely determination of air emissions. Clauses 7;39;40;48;49;50;51;52;53;54;55;56;57;58;59.
Item g) The proponent responded. No action needed.
Item h) The proponent responded. No action needed.
Item i) The proponent responded. No action needed.
Item j) The proponent responded. No action needed.
Item k) The Environment Licence requires the information. Clause 6;7.
Item l) There is no air emission data that reflects the proposed operation. The Environment Licence regulates the timely determination of air emissions. Clauses 7;39;40;48;49;50;51;52;53;54;55;56;57;58;59.
Item m) The Environment Licence regulates the control of emissions. Clause 60.
Item n) The proponent responded. No action needed.
Item o) The Environment Licence regulates characterization of the ash. Clauses 43;44;45.
Item p) The proponent responded. No action needed.
Item q) The Environment Licence addresses the concerns. Clauses 6;7;41;74;75.
Item r) The Environment Licence addresses the concerns. Clauses 8;12;13;14;15;24;25;26;80.
Item s) The proponent replied. The Environment Licence regulates odour emissions. Clause 59.

12. **Manitoba Agriculture – Soils and Crops - Soil Resource Section** – did not respond.

No response necessary.

Disposition: No action needed.

13. **Manitoba Highways and Transportation - Highway Planning and Design** – did not respond.

No response necessary.

Disposition: No action needed.

14. **Manitoba Health - Public Health - Environmental Unit** – did not respond.

No response necessary

Disposition: No action needed.

15. **Manitoba Labour - Workplace Safety and Health Division** – did not respond.

No response necessary.

Disposition: No action needed.

OTHER COMMENTS:

1. **The City of Winnipeg** – has the following comments:

- a) Is there a need for this facility given the abundance of existing landfill capacity in the region?

The proponent replies that the EIRRC is a co-operative entity incorporated by the Member Municipalities, responsible for waste within their respective jurisdictions, who wish to demonstrate an alternative to landfilling that is a sustainable and environmentally sound solution to municipal wastes. As such a permitted abundance of landfill capacity within the region should not diminish the importance of the EIRRC's goal.

- b) From an environmental impact perspective, including greenhouse gas emissions, how does the proposed system compare to a system utilizing recycling, composting, existing landfills and transfer stations?

The proponent replies that from an environmental impact perspective, including greenhouse gas emissions. The EIRRC Facility is superior to a system utilizing recycling, composting. Existing landfills and transfer stations because: the Facility can increase the recycling diversion of the existing recycling programs of the Member Municipalities; the Facility can thermally convert the organics to a useful producer gas within minutes instead of requiring an extended period of time, normally six months to a year, to biologically converting them into humus; the Facility does not landfill active material which decompose into methane gases and are released into the air or accumulate leachates, which require a specialized collection process; and finally the transfer stations will be very similar in both cases, albeit the Facility will likely have an increased service schedule.

In specific, regarding landfill gases, as most landfills in Manitoba do not have a methane gas collection and remediation process, this becomes a significant contributor to the greenhouse gas effect. 25,000 tonnes of waste generated by the Member Municipalities for the next 20 years would amount to a landfill capacity of 500,000 tonnes or 5,000,000 kilograms. The methane released from the EIRRC wastes alone would be 85,000 m³/year and could be as high as 200,000 m³/year during the most active gas producing time between 2-5 years where it can be as high as 0.04m³/kg/yr.

Methane can also be a subsurface hazard with a potential for explosion if the methane volume reached between 5-15% by volume of air. As well, methane is considered 24 times more dangerous to the atmosphere for global warming than carbon dioxide.

The proponent's replies were sent to the TAC member for further review. Additional TAC comments, where submitted, are incorporated in the above statements.

Disposition: Item a) Proponent replied. No action needed.
Item b) Proponent replied. No action needed.

PUBLIC HEARING:

Public hearings were not requested nor convened.

RECOMMENDATIONS:

A Licence considering the above relevant concerns as well as those of the Approvals Branch be prepared and issued. It is a significant consideration for the licencing of this Development that much of

Eastern Interlake Regional Recycling Co-operative
Summary of Comments

the information which has been requested by TAC members and the Approvals Branch was and is not available and has not been submitted. This Licence contains conditions which are intended to provide the means and time for the proponent to gather and submit additional information, and also provides the Department with the means to regulate the Development in an environmentally responsible fashion. Responsibility for enforcement of the Licence may be transferred to the Region upon the completion of the final assessment of the emissions from the Development.

PREPARED BY:

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