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Ron Haley  
President  
Novus Environmental Inc.  
Research Park Centre  
150 Research Lane, Suite 105  
Guelph, Ontario  
Canada N1G 4T2

**Reference: Proposed FarmTech Ethanol Facility Environmental Assessment Review**

Dear Mr. Haley

Further to our discussions I have completed my review of the documentation provided concerning the proposed FarmTech Ethanol Facility environmental assessment (EA). I trust the information below satisfies your needs at this time. If you have any questions, or if there are any issues I have raised that require clarification please do not hesitate to contact me at your convenience.

Yours truly,

**ECOMETRIX INCORPORATED**

A handwritten signature in black ink, appearing to read "Brian Fraser". The signature is fluid and cursive, with a long horizontal stroke extending to the right.

Brian Fraser, Principal  
Senior Aquatic Scientist

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### **Objective of the Review**

The objective of this review is to assess and report on the information provided in the FarmTech Ethanol Facility screening level environmental assessment report prepared by AMEC Earth and Environmental (Screening Report FarmTech Ethanol Facility (CEAR No. 08-01-42395) [AMEC, 2011]), as well as other associated documents, specifically as it pertains to surface water and fisheries resources (fish and fish habitat). The focus of my review is to ensure that the existing environment on and around the proposed project site has been characterized sufficiently and that all potential effects have been assessed in an appropriate manner.

### **Scope of the Review**

As indicated above, my review pertains to surface water and fisheries resources. To this end, I have reviewed the main screening level EA report (AMEC, 2011) and the comments provided are largely based on this review. I have also reviewed several other supporting documents (reports and correspondence) dating back to 2008 to provide the main screening level EA report some context. These other documents include (in chronological order):

- Memo (internal) from CLOCA re FarmTech Ethanol Facility Preliminary Servicing Report (dated May 20, 2008);
- Memo (internal) from CLOCA re FarmTech Ethanol Facility EIS (dated June 3, 2008);
- Letter from CLOCA to The City of Oshawa re the application to amend the official plan and zoning by-law in relation to the proposed FarmTech facility (dated September 17, 2008);
- Letter from AECOM to The City of Oshawa re peer review of the FarmTech Ethanol Facility EIS (dated February 24, 2009);
- Report – Stormwater, Process Discharge Water and Domestic Wastewater FarmTech Ethanol Facility prepared by J.L. Richards and Associated Limited (revised October 2009) (JLR, 2009);
- Report – FarmTech Ethanol Facility Screening Level Environmental Assessment Report: Response to Central Lake Ontario Conservation Authority prepared by Jacques Whitford and J.L. Richards and Associated Limited (dated December 3, 2009) (JW and JLR, 2009);
- Letter from AECOM to The City of Oshawa re peer review of the FarmTech Ethanol Facility EIS (dated March 12, 2010);
- Letter from CLOCA to J.L. Richards and Associated Limited re CLOCA review of FarmTech Ethanol Facility Screening Level Environmental Assessment Report: Response to Central Lake Ontario Conservation Authority prepared by Jacques Whitford and J.L. Richards and Associated Limited (dated December 3, 2009);
- Letter from CLOCA to J.L. Richards and Associated Limited re Stormwater, Process Discharge Water and Domestic Wastewater FarmTech Ethanol

**Reference: Proposed FarmTech Ethanol Facility EA Review**

Facility prepared by J.L. Richards and Associated Limited (dated July 29, 2010);

- Letter from CLOCA to J.L. Richards and Associated Limited re FarmTech Ethanol Facility Screening Level Environmental Assessment Report (dated November 18, 2010);
- Letter from CLOCA to J.L. Richards and Associated Limited re FarmTech Ethanol Facility Screening Level Environmental Assessment Report (dated January 24, 2011); and
- Report - FarmTech Ethanol Facility Screening Level Environmental Assessment Report: Supplementary Report prepared by Stantec and J.L. Richards and Associated Limited (dated May 2011) (Stantec and JLR, 2011).

**Detailed Comments (on AMEC, 2011)**

Page 25, Section 2.5.2.11 – The text discusses the storage of additives and chemicals used in production, and specifically that spill containment will be provided. It would be helpful if more detail was provided as to the proximity of the storage areas to potentially sensitive receptors and what type of containment (e.g., volumes) is envisioned. Even at this stage of the project development process it would be useful to have this information in hand so that a more meaningful assessment of potential losses to the environment could be made. For example, if an on-site storage tank ruptures will sufficient containment be provided to contain the equivalent of half of a tank volume, a full tank volume or perhaps two tank volumes? Later in the report the effects assessment characterizes the potential of on an on-site chemical release to have significant effects on the aquatic environment as minimal. More information is needed to support or substantiate the proponent's position.

Pages 37 and 38, Section 4.2 Aquatic Environment (Subsections 4.2.1 Aquatic Habitats and 4.2.2 Aquatic Fauna) – It would be more appropriate to provide specific information regarding the aquatic environment in close proximity to the site. The general information provided for Harmony Creek and Lake Ontario helps to provide some context; however, as it pertains to the site and project is it relevant for example that Lake Ontario has a maximum depth of 245 m? With respect to Harmony Creek, would it be more accurate to characterize the fish community, especially within the areas of interest as comprising both warm-water and cool-water resident species, with several cold-water species using the areas as a migration route to more upstream areas that provide spawning and nursery habitat? If there are important habitats in Harmony Creek within the study area these should be noted – if not, it would be useful to note that there are not as it further substantiates the idea that the project will not have significant effects on the aquatic environment. With respect to Lake Ontario, the description of the nearshore habitat should be more detailed as this is the primary aquatic habitat that will interact with the proposed facility through the stormwater management facility discharge. Are

**Reference: Proposed FarmTech Ethanol Facility EA Review**

there important habitat features along this area of shoreline? Examples of fish species that reside or frequent this area should be provided. For example, there are round whitefish spawning areas in this general vicinity and sandy beaches provide nursery for this species. Is there any indication that the Lake Ontario nearshore area in the vicinity of the proposed facility is used as nursery habitat by round whitefish? Again, given that the stormwater management facility discharge is in some respects the most direct interaction between the project and the aquatic environment the level of detail provided in the existing environment section needs to be greater and more site-specific. Without this level of detail, it is difficult to evaluate whether the facility might pose a significant risk to aquatic receptors.

Page 40, Section 4.2.5 Water Quality – To what is the proponent referring in the second paragraph where it is indicated that the samples obtained from all stations did not exceed the 13 mg/L interim limit for phosphorous set by Environment Canada? Clarification is needed and an appropriate reference should be provided. In the third paragraph where existing copper concentrations in Farewell and Black creeks are mentioned it is probably not appropriate to suggest that mining is a potential copper source. It is understood that the text here is likely generic in nature but for the purposes of clarity only those things that are relevant to existing conditions in the watershed(s) in question should be referenced. Again, without more relevant site specific data, it is difficult to ascertain the potential for significant impacts.

Section 5.0, Table 5-1 – It is stated that “malfunctions and accidents” as having “minimal” effects on water quality and aquatic species and habitat due to the low likelihood that an accidental release would reach the aquatic environment. However, the report does not provide any information regarding the type and nature of chemicals that could go to ground as the result of an accidental release. Information regarding what chemicals (e.g., ethanol, petroleum hydrocarbons and others as appropriate) might be released in an accidental release scenario and their potential toxicity is needed to assess the significance of the release scenario.

Section 5.0, Table 5.2 – Same comment regarding malfunctions and accidents as above.

Section 5.0, Table 5.3 – Same comment regarding malfunctions and accidents as above.

Section 5.1 (Evaluation of Potential Project Effects) – No aspects of the project as it pertains to potential effects on the aquatic environment are discussed. Tables 5-1 through 5-3 indicate the predicted effects as “minimal” to “low”, but insufficient but insufficient information is provided to substantiate this claim. There are three aspects of the development that I believe require further consideration as it pertains to the effects assessment.

**Reference: Proposed FarmTech Ethanol Facility EA Review**

1. Release from the stormwater management facility – In the documentation that I reviewed I did not note any attempt to define the mixing zone of the stormwater plume in Lake Ontario. The volume of stormwater expected to be released under normal operations is relatively small (450 m<sup>3</sup>/d or 5.2 L/s), but the quality of the process water is reported to be in the order of 100-times the Provincial Water Quality Objectives (PWQO) for some parameters. Since PWQOs are designed to be protective of aquatic species, a large mixing zone may be required to achieve the PWQO and provide suitable water quality for aquatic receptors for these parameters. Has there been any consideration of what might or might not be acceptable as a mixing zone given surrounding land and water uses and the presence (or absence) of sensitive receptors? Some attempt to define the mixing zone should be made and then assessed relative to surrounding land and water uses and the presence (or absence) of sensitive receptors. If it turns out that there are effects identified then an assessment of the significance of the effects is required.
2. Predicted process water quality – Based on predicted process water quality (JLR, 2009) a number of parameters will exceed PWQOs in the stormwater effluent. In some cases (e.g., copper, total phosphorus) the exceedence will be in the order of 100-times the PWQO level. Such high concentrations may cause significant adverse effects in the mixing zone. For example, stormwater effluent with total phosphorus levels could result in excess algal growth (*Cladophora*) in the nearshore environment. This is seen in nearby shoreline areas in the vicinity of the site. As another example, the predicted copper concentration in the process water is 0.395 mg/L and a discharge limit of 0.5 mg/L has been suggested. This is a relatively high level and is in line with the maximum copper concentration that can be measured in a single grab sample in a mine effluent under Environment Canada's *Metal Mining Effluent Regulations*. It is necessary to define the stormwater plume mixing zone and then assess this relative to surrounding land and water uses and the presence (or absence) of sensitive receptors.
3. The air emissions pathway – The air emissions pathway (as part of normal operations or as fugitive dust) does not seem to be acknowledged as a potential contaminant pathway as it pertains to the aquatic environment. As I understand it the pathway is essentially dismissed as insignificant as air quality compliance standards are met at the property boundary. I have seen numerous similar examples where compliance standards were met and it was therefore assumed that air-derived loadings to the surrounding environment were negligible when in fact significant adverse effects were seen over time. Given that there is a sensitive aquatic receiving environment in close proximity to the proposed facility, it would be more appropriate to conduct a more quantitative assessment of air-derived loading rates in Second Marsh to assess potential water quality and sediment quality effects.

**Reference: Proposed FarmTech Ethanol Facility EA Review**

Page 125, Section 5.4.1 Climate Fluctuations – The Government of Canada (and others) provides information that describes the predicted climate change impacts for the country on the region-by-regions basis. It is recommended that the proponent use this information to describe any predicted changes that might be relevant to the region in which the project is to be implemented and subsequently assess whether any of the aspects of the project or the design of the project will be affected by these changes.

**Overall Conclusions**

My primary concern with the assessment as completed has to do with the fact that no attempt has been made to assess the potential mixing zone of the stormwater effluent in Lake Ontario. I do believe the onus is on the proponent to demonstrate that there are no potential [significant] impacts to aquatic receptors within the mixing zone. Predicted process effluent quality suggests that a number of parameters will exceed PWQO levels, some by two orders of magnitude. Definition of the spatial extent of mixing will help to determine the spatial extent of potential effects. A determination of significance could then follow that attempts to put these effects (if any) into some context from a land and water use and/or sensitive receptor perspective.

In addition, I believe it would appropriate to conduct a more quantitative assessment of air-derived loading rates into Second Marsh to assess water quality and sediment quality effects over the life of the operation of the facility. There is great sensitivity to the well-being of the Marsh in the local community and with the local governments and given the proximity of the proposed facility to the marsh such an analysis is needed to understand if this concern is warranted.