



## Environmental Assessment (EA):

### Atlantec BioEnergy Facility, Cornwall, Queens County, PE

#### Responses to Comments Received from the PEI Department of Environment, Labour, and Justice (PEIDELJ) Technical Review Committee (TRC)

#	Comments	Stantec Response / Disposition
<b>PEIDELJ TRC (January 4, 2013)</b>		
1.	The capacity of the Town's existing WWTP is stated to be 17,000 m <sup>3</sup> /day. Is this correct?	Section 4.2 of the report has been corrected to state the following:  "The lagoon can treat a maximum of 1,700 m <sup>3</sup> /day of wastewater."
2.	The storage of sludge material will have to be managed during the Winter when it cannot be applied to the ground. What is the plan for this material? Where will all solid materials associated with the process be stored (beets prior to processing and any solids generated after processing prior to field application)?	Section 2.4.3 – Processing has been updated to include the following:  "There is no sludge generated in the process. The solids from the mobile washer and beet pulp will be stockpiled in agricultural fields next to harvested and stockpiled sugar beets and/or stored on site in pulp storage. These materials will only be produced during the phase of processing that will be conducted from mid-November to mid-February."  "The residual biomass from the anaerobic digester (year round process) will be stored in bags at the facility. This material is nutrient rich and will be sold as soil amendment or applied to the fields in the spring prior to planting of sugar beets."
3.	As a portion of this facility is considered a WWTP, the recommended setbacks as stated in the Atlantic Canada Guidelines manual are recommended (150 m from residential, 40 m from commercial). These setbacks should be reviewed and compared to the actual distances available at this site. If the setbacks cannot be adhered to then the community will have to supply written confirmation recognizing and accepting the variance.	The setback distances in the Atlantic Canada guidelines manual (Environment Canada 2006) have been reviewed. The location of the facility does not meet the suggested separation distances of 150 m from the nearest residence, 30 m from the nearest property line, and 30 m from commercial/industrial developments. A variance will need to be prepared and submitted to the Town of Cornwall for review and approval.
4.	Please provide a brief background summary in the document explaining how PEIDELJ approved and consulted with the proponent to allow the process to get to this point.	The following summary has been included in Section 3.2.1 – Regulatory Consultation.  "In February 2012 Atlantec submitted a formal request to the PEIDELJ seeking approval to begin the initial stages of their research and development program prior to submission of an Environmental Impact Statement. The request provided project specific details for the initial stages of the program. In early March of 2012, PEIDELJ granted approval for Atlantec to complete the washing and initial

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		processing of the sugar beets into “thick juice” for further processing at a later date. In May of 2012 an additional request was submitted to PEIDELJ to conduct the fermentation process. This additional request included an environmental evaluation of the fermentation process prepared by Stantec. Approval was granted on the basis that no distillation, water treatment and/or discharge to the municipal system would be permitted prior to completion of the Environmental Impact Assessment.”
5.	What are the estimated quantities of biogas to be produced in a standard processing cycle (Section 2.4)?	The estimated quantities of biogas can be found in Table 2.2 of the EIS.
6.	Please explain the key points of consideration related to the H <sub>2</sub> S content of the biogas and the determination by the proponent to produce electricity or flare it.	The decision to flare the biogas is based on the estimated small quantities of gas to be produced from this research and development facility. The biogas will be flared until such time that the genset is installed. The mitigation related to biogas is provided in Section 2.4.3.
7.	The scope of the EMP should be detailed in the document (Section 2.6).	Section 2.6 – Environmental Management Plan has been updated to include the following:  “The EMP will include contingency plans for situations that could potentially arise during operation and maintenance activities. Examples of contingency plans include those for fires, explosions, hazardous material spills, and accidents resulting from equipment failure. The EMP will also outline the applicable training for employees of the facility, forms for accident reporting, emergency drills, and the roles and responsibilities of the Emergency Team.”
8.	Decommissioning and Abandonment - In 50 years, regulations of the day will be followed to decommission and/or abandon the facility, therefore a “Decommissioning and Abandonment Plan” drafted in 2013 could be irrelevant. However, some attempt at a rough outline should be included to identify the main items to be addressed ( <i>i.e.</i> , outside tanks, equipment inside, building, <i>etc.</i> ) and how they might be dealt with (Section 2.7).	Section 2.7 of the EIS will be updated to include the following:  “It is likely that the facility would either be sold as a business or all the equipment would be sold off as is and the building would remain for a future tenant.”
9.	What protective measures will be implemented within the building or on the equipment ( <i>i.e.</i> , pressure relief valve) to reduce the risk of any explosions? If none are proposed, why not (Section 2.8.2)?	Safety is a most important consideration during the design phase. Pressure measuring devices will be in place to monitor pressure at various stages of processing. Activities that include potential for pressure to build up would include protective measures, such as pressure relief valves, where warranted.  A document (Atlantec BioEnergy Corporation Fire Code Report) has been submitted to the Fire Marshall for review.

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10.	It has been determined by the PEIDELJ that First Nations consultation will not be required as part of this EIA as the building footprint already exists. The EIS should be updated to reflect this.	Section 3.2.3 has been updated as follows:  “It has been determined by the PEIDELJ that First Nations consultation for the Project is not required as the building already exists, as per correspondence with PEIDELJ on January 4, 2013.”
11.	Is there any such ethanol production facility currently in operation? If so, please provide contact information.	While sugar beets are currently being processed for to produce ethanol by other facilities, to our knowledge the specific process described in the EIS is not being conducted elsewhere.
12.	What are the anticipated effluent characteristics leaving the plant after R/O and disinfection (COD/TSS/BOD)? Are these effluent characteristics available from other facilities?	The anticipated effluent characteristics leaving the plant following treatment are described in Section 5.2.2.2.2 – Water Resources. The full treatment process has not yet been installed (or operated) at the facility; therefore, actual data on the effluent are not yet available. Based on the proposed design, it is anticipated that the effluent quality will easily meet the Cornwall Business Park Guidelines for wastewater. As previously stated, there are no other facilities producing ethanol using the proposed process as described in the EIS.
13.	If a process upset were to occur in the R&D facility, ethanol process effluent could be diverted from the collection system to emergency storage. Will the facility have the capability to store effluent onsite as part of an emergency response plan?	Section 2.8.3 – Equipment Failure has been updated as follows:  “As the focus of the facility is research and development, the production of ethanol will be primarily conducted as a batch process. With the exception of the distillation unit, all other components of the system have the ability to be shut down immediately, with the respective material remaining where it is. Distillation is a continuous process; however, if the supply to the distillation unit is cut off, the process can be halted. At full throughput, the proposed unit would take approximately half a day to run off product. The ethanol, and residual water and yeast would then be stored in their respective tanks until such time that processing resumes. A Day Tank has been added to the process design to store effluent for sampling purposes prior to release to the drain (TOCWSC).”
14.	Consideration should be given on how the facility will detect and manage upsets from the processing WWTP facility. Will the facility have an on-line analyser to monitor waste treatment effluent quality and provide early warning of an upset? Alternatively, the COD could be measured in each batch prior to discharge. Also, has consideration been given to the installation of an EQ tank to allow the buffering of effluent leaving the facility and possible testing prior to release to the community.	COD will be measured in each batch prior to discharge; a rough estimate of BOD can be calculated using the COD. Section 2.5 – Emissions and Byproducts of the report has been updated as follows:  “A day tank will be installed to hold water prior to release to the TOCWSC (after UV and ozone disinfection). The water will be tested for COD and a rough estimate of BOD will be calculated using the COD. The water will be released once it has been determined that the guidelines are being met.”

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15.	Of the 208,000 L of beet juice that has currently been produced and is stored on-site, what is the BOD/COD/TSS?	The beet juice currently stored onsite is raw material used for ethanol production and will not be discharged from the facility. While the quality of the beet juice is high and fit for purpose, the specific values of BOD/COD/TSS of the beet juice have not been determined.
16.	Of the 32,000 L of process water and 126,000 L of fermentation wash water stored on site, what is the BOD/COD/TSS?	<p>The measured values for BOD/COD/TSS for the process water are provided in Table 2.2 of the EIS. Some of the numbers have been estimated for the fermentation wash water; however, at this time processing has not reached the stage where the wash water from the fermentation part of the process can be fully analyzed.</p> <p>The reference to the 126,000 L of fermentation wash water stored on site has been removed from the EIS as there has been no production of fermentation wash water at this point in the process.</p>
17.	What is the general organic and inorganic breakdown of the biosolids which will be land applied ( <i>i.e.</i> , metals, nitrate, <i>etc.</i> )? (Section 4.3). The dry solids coming off the DAF and R/O will total 620 kg/day. What is the anticipated %TS and associated volume of sludge that will be added to Farmers Fields. Are there any provisions for control or containment of odours?	<p>Samples of the beet pulp were analyzed in accordance with the guidelines for biosolids to be land applied as outlined in the Environment Canada Document "Atlantic Canada Wastewater Guidelines Manual for Collection, Treatment, and Disposal." The results are presented in Table 5.3 of the EIS. Nitrates are not included in the guidelines and therefore, were not requested for analysis. The biosolids produced during processing, because of their nature are likely to be classified as "Exceptional Quality" based on the guidelines.</p> <p>The soil amendment material from the DAF and reverse osmosis units are anticipated to be approximately 25% TS (or higher). Measured values are not available at this time as this part of the process has not been installed.</p> <p>Odours are not expected to be substantive from the solids that will be applied to agricultural land, based on experience (R. Coles pers. comm.). In the event that an odour is detected that might be of concern, it will be dealt with as per the contingency plan outlined in the Environmental Management Plan.</p>
18.	Are there are plans to use digester gas for boiler energy?	As per Section 2.4.3 – Processing, the biogas will be flared until such time that a genset is installed.
19.	Typically the proponent for a facility like this would be responsible for discharge water quality monitoring. The Town of Cornwall will be permitted to do periodic sampling on wastewater quality (if they choose to).	The monitoring process will be outlined in the approval to operate issued by PEIDELJ. Access to the R&D facility will be made available to the Town of Cornwall to do the periodic checks.

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20.	Sanitary sewage from the R&D facility should be kept separate from production process wastewater. This would enable the management of sludge from the facility with less restrictions provided that it meets EQ Class A quality. Please confirm.	Section 2.5 - Emissions and By-products, will be updated as follows:  "The sanitary sewage produced by employees at the facility will be minimal and separate from the process water until after the process water has been treated and proven to meet the applicable discharge guidelines. No sanitary sewage will be treated in the wastewater treatment equipment at the facility."
21.	This facility is likely to be a level II or III facility (to be determined through the Registration & Classification process) because of the components involved in the WWTP (anaerobic digester); therefore a certified Wastewater Operator will be required to run the system.	Noted. A trained operator will be onsite, as required, based on the classification of the facility to be provided by PEIDELJ.
22.	Regarding the reuse of effluent for plant water after R/O, UV and Ozone disinfection. Could this water be used for wash water?	As the facility is being designed for research and development activities, alternative uses for the water will likely be considered in the future. In addition to wash water, using the water for irrigation of the crops will also be considered.