

Environmental Assessment Branch  
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Please see below our joint comments on the *Environmental Assessment for a Replacement Effluent Treatment Facility Project by Northern Pulp Nova Scotia Corporation*.

We are an environmental engineer and a biologist from Pictou, NS, so this project is of significant importance for us both personally and professionally. We frequently visit the Northumberland Straight area of Pictou with our families for recreation and also have many friends and family who live in Pictou; so being assured that the new effluent treatment plan by Northern Pulp will not jeopardize the environmental conditions of the area is extremely important for us.

After reviewing the environmental assessment (EA) submitted by Northern Pulp Nova Scotia Corporation it is our mutual opinion that much of the supporting information submitted as part of this Class I EA is incomplete. This is presumably due to the project timeline and that significant components of the proposed project required a redesign which only commenced in late 2018. The redesign of the effluent discharge system was required in order to avoid ice scour in the originally proposed Pictou Road effluent discharge area. The project team should be commended for making this change to avoid potential environmental impacts resulting from damage to the proposed effluent diffusers, however, **the scope of the environmental assessment should not be reduced (or finalized after EA approval) given the need for a project redesign.**

In many cases field work that was completed for the original design was used for the redesigned project. There is a significant difference between the original project scope and the redesigned project as presented in the EA; namely the introduction of a 15.5km pipeline and an entirely new location for discharging the treated effluent into the marine environment. Critical information is missing from the submitted EA including any biological assessments along the routing of the on land pipeline (which passes through the watershed for the Town of Pictou's municipal groundwater supply) and no marine habitat surveys were completed in the area now proposed for treated effluent discharge.

Additional, the EA relies heavily on the 1992 Pulp and Paper Effluent Regulations (PPER) which are part of the Fisheries Act. The report states that "*The effluent is anticipated to meet compliance with federal PPER.*" It should be noted that the EA provides no evidence to support this statement. No calculations of maximum total suspended solids (TSS) or biochemical oxygen demand (BOD) (which is how the PPER regulates effluent) are provided.

A status report on the PPER was published by Environment & Climate Change Canada (ECCC) in 2012 (<http://publications.gc.ca/site/eng/420919/publication.html>) which found that a review of environmental effects monitoring (EEM) data from active pulp mills indicates that "*...some effluents appear to continue to cause effects on fish and/or fish habitat.*" Further, a consultation document on the proposed modernization of the PPER prepared by ECCC in 2017 (<https://www.nben.ca/en/marine-fisheries-aquaculture?download=5045:proposed-modernization-of-the-pulp-and-paper-effluent-regulations-consultation-document-environment-and-climate-change-canada-september-2017>) noted that "*effluents from 70% of pulp and paper mills are impacting fish and/or fish habitat and the impacts at 55% of these mills are indicative of a higher risk to the environment.*" This is despite the fact that "*Effluent samples from these mills were compliant with BOD and SS limits 99.9 percent of*

*the time, and were non-acutely lethal to fish 97.6% of the time.*” As indicated in the consolation document ECCC are currently working to modernize the PPER and are aiming to publish proposed amendments to the PPER for comment in 2019. Clearly Northern Pulp Nova Scotia Corporation are only required to adhere to current regulations, however, the work being conducted by ECCC should be considered when assessing the potential for cumulative environmental effects of the proposed project. ECCC’s findings indicate that compliance with the 1992 PPER itself does not guarantee that there will be no adverse effects to the marine environment. NSE should exercise a precautionary approach when determining the potential for adverse environmental impacts of the proposed project.

Lastly, we are concerned that a Class 1 EA was deemed appropriate for this project. On NSE’s website it is noted that *“Class 2 undertakings are typically larger in scale and are considered to have the potential to cause significant environmental impacts and concern to the public. These types of developments include, but are not limited to, solid waste incinerators, petrochemical facilities and pulp plants”* From existing mill operations the proposed project involves an entirely new effluent treatment system, a new process to burn waste sludge (from the new effluent treatment plant) in the mill’s power boiler, a new 11.4 km on land pipeline, a new 4.1 km marine pipeline (involving marine trenching and possible construction of a small jetty for installation) and an entirely new marine discharge location. Given this **it is our opinion that a Class II EA should be required.** While initially it was agreed that a Class I EA was sufficient by NSE, the scope of the proposed project has changed significantly (as noted above) since that time.

Based on the comments above and below, in particular the lack of land based and marine biological assessments and indications from ECCC that active pulp mills complying with the federal PPER are actually impacting fish and/or fish habitat **we would implore NSE to not approve this project at this time.**

Please see the table below with more specific comments.

Respectfully,

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Section	Comment
2.3 para. 7, 8	<p>The report indicates that “...it was not possible to conduct field work in the new pipeline corridor or marine environment in order to inform this EA Registration”</p> <p>The rationale for not completing these biological assessments is that an alternative pipeline route and discharge location was identified in fall 2018 due to the presence of ice scour found in the originally proposed treated effluent discharge location. Presumably the timing of this discovery would have not allowed for biological field investigations in 2018.</p> <p>The report indicates that “Follow up field work as appropriate for the work proposed will be completed in parallel to the EA Registration review...”. The full extent of biological impacts cannot be assessed without proper field work first being undertaken.</p> <p>The scope of the assessment should not be lessened due to construction time constraints and design delays based on site conditions. As per the proposed project schedule, the project will not be completed prior to legislated closing of the BHETF anyways. NSE should require full biological assessments, which could be conducted in spring / summer 2019, prior to approval.</p>
5.2.2.9 Table 5.2-1	<p>Table 5.2-1 (also presented in Table 5.6-1) provides information on the anticipated daily maximum treated effluent water quality as reprinted from the Receiving Waters Study (Appendix E). The Receiving Waters Study indicates that this data was provided by KSH (the design consultant for the effluent treatment system). No supporting documentation was provided from KSH as part of the EA submission. How was the treated effluent water quality data presented in Table 5.2-1 and Table 5.6-1 calculated? What level of accuracy is the data?</p>
5.3.2.5	<p>Given the majority of the pipeline will be buried under 1m of fill or asphalt how will inspection of pipeline condition be conducted? The report indicates visual inspections be conducted.</p>
5.4	<p>The proposed project schedule indicates that the new effluent treatment facility would not be completed prior to the legislative closure of boat harbor effluent treatment facility (BHEFT) as per the Boat Harbor Act. The NS provincial government has stated publically that an extension will not be provided for the BHEFT. Is the proposed project even viable?</p>
5.4 Table 5.4-1	<p>The report indicates that the assessments listed below are not yet completed:</p> <ul style="list-style-type: none"> <li>• Avian / turtle follow-up field studies,</li> <li>• MEKS field surveys,</li> <li>• Vegetation, wetland and watercourse follow-up field studies,</li> <li>• Marine seismic, geotechnical and habitat surveys</li> </ul> <p>The potential environmental impacts of the proposed project cannot be fully assessed with this work not yet completed, in particular the marine habitat surveys. NSE should require these assessments be completed prior to granting approval.</p>

5.7.2.7, 7 <sup>th</sup> bullet	The report indicates that <i>“Scheduling of project activities will be coordinated through consultation with local fish harvesters, Northumberland Ferries and other stakeholders and best-efforts will be made to schedule activities to minimize interference”</i> As per table 4.5.1 the proposed schedule for the construction of the marine pipeline is April / May 2020 - Oct. 2020 which entirely overlaps with lobster fishing season as well as the Northumberland Ferries operational season. The proposed project would likely be very disruptive to Lobster fishing as well as to Northumberland Ferries.
8.7.2.5	The report indicates that no field assessments for wetlands in the pipeline footprint area were completed due to the pipeline redesign required in fall 2018. Functional assessment information is only provided for WL-1 and WL-2 within the effluent treatment facility (ETF) footprint. Some of the wetlands in the pipeline footprint area would likely be considered wetlands of special significance by NSE given their location within a source water protection area or their type being salt marsh. The assessment of potential impact to wetlands cannot be determined without proper field assessment and functional assessment work being completed. This work should be completed prior to NSE making a decision on the proposed project.
8.12.2.3 , para. 5	To describe benthic invertebrate habitat the report references a marine habitat survey completed by AMEC in 2015 for a different project. Does the AMEC habitat assessment cover the full extent of the marine project footprint area for the proposed project? It appears that no marine habitat survey was completed specifically for the proposed project. A new marine habitat survey should be completed prior to NSE making a decision on the proposed project.
8.12.3.3 para. 10	<p>The report states that <i>“Effluent quality will necessarily comply with all federal and provincial permit conditions and regulatory requirements such as PPER.”</i></p> <p>Has a calculation been completed to confirm effluent will comply with the PPER? The PPER sets maximum daily and monthly limits on BOD and TSS based on the mill’s reference production rate. What is the reference production rate for the mill? This information along with the concentrations of BOD and TSS in the treated effluent and flow rates (both provided in the EA report) could be used to calculate compliance with the PPER. This information does not appear to be provided.</p>
8.12.3.3 para. 10	<p>The report states that <i>“It was determined in the receiving water study (Stantec 2018; Appendix E) that water quality at the end of the mixing zone for the three-port diffuser will reach ambient conditions within less than 2 m from the diffuser in terms of total nitrogen, total phosphorous, TSS, DO, pH, and salinity. Colour will return to baseline conditions within 5 m of the diffuser. Temperature will be within 0.1 °C of background at the end of the 100-m mixing zone.”</i></p> <p>It is noted that given the project redesign initiated in fall 2018 no background water samples were collected from Caribou Harbour, therefore, background water quality data from the previous discharge location at Pictou Road (6km from the current proposed discharge site) was used. How can it be concluded that water quality will return to ambient conditions within 100m of the diffuser when no background water quality samples were collected in this area? Also no background information was collected for AOX, COD, or BOD. NSE should require the collection of background water samples from the proposed effluent discharge location before approving this project.</p>

<p>9.2.4.2 Para. 3</p>	<p>The report indicates that <i>“Due to uncertainty regarding effluent composition and approximate concentrations of substances present in the future treated effluent (which will not be verified until the project is operational), the identified candidate COPCs in effluent are considered preliminary at this time.”</i> How can cumulative human health and environmental effects be determined to be non-significant given that the chemical composition of the treated effluent is not fully known?</p>
<p>10.4.3.1</p>	<p>The mitigation measures provided for an accidental release of treated effluent from the pipeline or the effluent treatment facility are construction specifications and a proposed maintenance and inspection program. If a leak is encountered the mill should be required to stop operations (cease effluent flow). Further, what is the risk to groundwater if a leak occurs in the land-based pipeline? This is not discussed in the report and is of particular concern given that the pipeline crosses through the watershed for the Town of Pictou’s municipal well water supply.</p>
<p>10.4.4.1</p>	<p>As a mitigation measure for potential damage to the treated effluent diffuser the report states that <i>“Given the strong currents of the Caribou Channel at the outfall location significant diffusion is still likely to take place without the diffuser nozzle(s) in place;”</i> While the Receiving Waters Study (Appendix E) indicates that effluent would predominantly be transported with offshore current there are several scenarios where far-field modeling results indicate effluent intrusion into Caribou Harbour. Given the proposed treated effluent discharge area is known to have ice present what is the likelihood of diffuser damage and what are the cumulative effects of treated effluent intrusion into Caribou Harbor?</p> <p>The report indicates that <i>“Upon detection of any marine outfall pipe damage or diffuser fouling, repairs would be promptly performed;”</i> the mill should be required to stop operations (cease effluent flow) in this scenario.</p>
<p>12.2 Ground water VEC</p>	<p>The report indicates that interactions between the project and groundwater are not anticipated. The rationale for not including groundwater as a valued ecosystem component (VEC) is that <i>“...it is unlikely that groundwater from the PFA (project footprint area) would affect residential water supplies.”</i> Is groundwater for municipal use considered in this section? It appears only private residential wells were considered. The potential for impacts on the town of Pictou’s municipal well water should be considered.</p>

12.3.8.1  
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The report states that “...any potential environmental effects on water quality during the operation and maintenance phase will be highly localized.” and “that water quality at the end of the mixing zone for the three-port diffuser will reach ambient conditions within less than 2 m from the diffuser in terms of total nitrogen, total phosphorous, DO, pH, temperature, and salinity. Colour will return to baseline conditions within 5 m of the diffuser.”

What is the cumulative effect of absorbable organic halides (AOX) which include Dioxins? As per the Receiving Water Study background concentrations of AOX is n/a (assumed to be negligible). The treated effluent contains a concentration of 7.8 mg/L of AOX with a concentration of 0.05 mg/L at the end of the mixing zone 100m from the diffuser. Given the high volume of treated effluent discharge at 62,000,000 L / day and the 50 year projected lifespan of the project what are the long term impacts of AOX presence above existing conditions? This is of particular importance given that AOX are known to be persistent and accumulate in the environment. (<https://webarchive.nationalarchives.gov.uk/20110313212212/http://www.environment-agency.gov.uk/business/topics/pollution/39123.aspx>)