

TERMS OF REFERENCE FOR THE PREPARATION OF A FOCUS REPORT

**Regarding the Replacement Effluent Treatment Facility Project
Proposed by Northern Pulp Nova Scotia Corporation**

NOVA SCOTIA ENVIRONMENT

April 23, 2019

INTRODUCTION

The Replacement Effluent Treatment Facility Project (the Project or undertaking) proposed by Northern Pulp Nova Scotia Corporation (NPNS) was registered on February 7, 2019 for environmental assessment (EA) as a Class 1 undertaking pursuant to Part IV of the *Environment Act* and the Environmental Assessment Regulations.

On March 29, 2019, the Minister of Environment released a decision concerning this review. The Minister has determined that the EA Registration Document (EARD) is insufficient to make a decision on the Project, and a Focus Report is required in accordance with clause 13(1)c of the Environmental Assessment Regulations, pursuant to Part IV of the *Environment Act*.

NPNS is required to submit the Focus Report within one year of receipt of the Terms of Reference. Upon submission of the Focus Report by NPNS, Nova Scotia Environment (NSE) has 14 days to publish a notice advising the public where the Focus Report can be accessed for review and comment.

A 30-day public consultation period of the Focus Report follows. At the conclusion of the 30-day public consultation period, NSE has 25 days to review comments, and provide a recommendation to the Minister.

The Minister of Environment will have the following decision options, following the review of the Focus Report:

- a. the undertaking is approved subject to specified terms and conditions and any other approvals required by statute or regulation;
- b. an Environmental-Assessment Report is required; or
- c. the undertaking is rejected.

During the preparation of the Focus Report, it is strongly recommended that NPNS continues to engage with relevant stakeholders and the Mi'kmaq including Pictou Landing First Nation, and to share relevant studies and reports.

Within the Focus Report, all impact assessment, mitigation and impact conclusions outlined in the Environmental Assessment Registration Document must be updated based upon the information requirements outlined below. The Addendum to this document includes additional questions for consideration and response. Consultation with NSE in the development of the Focus Report is required.

TERMS OF REFERENCE

The following items must be included in the Focus Report submission:

1. PUBLIC, MI'KMAQ AND GOVERNMENT ENGAGEMENT

1.1 Provide a response (via a concordance table) to questions and comments raised by the public, Mi'kmaq and government departments, and incorporate these comments in the Focus Report where applicable. Comments may be summarized prior to providing the response.

1.2 Provide a plan to share future reports and/or studies relevant to this Project with the public and the Mi'kmaq such as the Pictou Landing First Nation, including but not limited to the future Environmental Effects Monitoring results for the new effluent treatment facility.

2. PROJECT DESCRIPTION

2.1 Provide the following information regarding the on-land portion of the effluent pipeline:

- a re-alignment route for the effluent pipeline, given Department of Transportation and Infrastructure Renewal does not permit the pipeline to be placed in the shoulder of Highway 106;
- maps and/or drawings of the new pipeline location;
- a list of properties (ie., Premises Identification number or PID) that will intersect with the new pipeline alignment.

2.2 Conduct geotechnical surveys and provide the survey results to confirm viability of the marine portion of the pipeline route. The surveys must determine the potential impacts of ice scour on the pipeline.

2.3 Submit data regarding the complete physical and chemical characterization of NPNS' raw wastewater (ie., influent at Point A for the Project), to support the assessment of the appropriateness of the proposed treatment technology. The influent characterization results must be compared against the proposed treatment technology specifications.

2.4 Submit a complete physical and chemical characterisation of NPNS's expected effluent following treatment by the proposed technology. To assess the efficacy of the proposed treatment technology, the following must be included:

- Data from laboratory trials on NPNS's raw wastewater that were conducted at Veolia/AnoxKaldnes in Lund, Sweden in May 2018;
- Modelling results using the raw wastewater parameters and quality;
- A comparison of the effluent characterization results from the laboratory trials and modelling work, against appropriate regulations and/or guidelines.

2.5 Provide any proposed changes to the pipeline construction methodology and other associated pipeline construction work, related to the potential changes to the marine portion of the pipeline route (e.g., infilling, trenching, temporary access roads, excavation, blasting, disposal at sea, and others where applicable).

3. FACILITY DESIGN, CONSTRUCTION & OPERATION AND MAINTENANCE

3.1 Submit treatment technology specifications (e.g., optimal performance range of the technology) and an assessment of the efficacy of the proposed treatment technology for use at the NPNS facility, to the satisfaction of NSE. For example, peak effluent temperature is proposed to be above the generally accepted range of temperatures to achieve optimal biological treatment. Explain how the proposed higher than optimal treatment temperature would affect the treatment performance.

3.2 Provide effluent flow data to support the proposed peak treatment capacity of 85,000 m³ maximum flow of effluent per day. At a minimum, data from 2017 and 2018 is required. Provide flow data for Point A, clarify source of the effluent flow volumes given in the EARD, and provide other relevant data and information to support the proposed treatment system design. If the 85,000 m³ cannot be justified based on historical data, identify water reduction projects, or re-evaluate the treatment system design and update the receiving water study accordingly.

3.3 Effluent discharge parameters must be updated (where necessary) based upon the results of the effluent characterization in Section 2.4 and relevant additional studies. Refer also to Addendum item 2.0

3.4 Provide the following information regarding the spill basin:

- Submit information to assess the sizing and appropriateness of the design of the spill basin. The EARD indicates a retention time of 10-13 hours at a design capacity of 35,000 m³. The basis of this design has not been provided. If flows exceed 85,000m³ per day on a consistent basis (e.g., during summer months), confirm that there will be sufficient recovery time in the treatment system to empty the basin before the additional volume is required;
- Explain where the overflow will be directed in the event of unforeseen scenarios (e.g., power outage).

3.5 Provide the following information regarding the effluent pipeline:

- Provide viable options including the selected option for leak detection technologies and inspection methodologies, with specific consideration to any portion of the pipeline located in the Town of Pictou's water supply protection area;
- Provide viable options including the selected option for the enhanced pipeline protection, such as trench lining and justify how the chosen option is an adequate option for secondary containment. Be sure to address any potential changes in flow regimes, especially within the Town of Pictou's water supply protection area, due to the installation

of the pipeline and secondary containment. If different options are provided for different areas of the proposed re-aligned pipeline route, the locations for each option must be identified.

3.6 Clarify where the potential releases of waste dangerous goods at the Project site will be directed for treatment and/or disposal. It is important to note that the new treatment facility is not proposed to treat waste dangerous goods based on the information provided in the EARD and requirements of NSE.

4. MARINE WATER AND MARINE SEDIMENT

4.1 Conduct baseline studies for the marine environment (such as marine water quality and marine sediment) in the vicinity of proposed marine outfall location.

4.2 Update the receiving water study to model for all potential contaminants of concern in the receiving environment (based on the results of the effluent characterization and/or other relevant studies such as Human Health Risk Assessment). Baseline water quality data for Caribou harbour must be applied to this study. Refer also to Addendum 3.0.

4.3 Provide results of sediment transport modelling work to understand the impacts of potential accumulation of sediment within near field and far field model areas. This should include chemical and physical characterization of the solids proposed to be discharged by NPNS as well as a discussion of how these solids will interact with the marine sediments and what the potential impact will be on the marine environment as a result.

5. FRESH WATER RESOURCES

5.1 Complete a wetland baseline survey along the proposed re-aligned effluent pipeline route (if wetlands are expected to be altered).

5.2 Provide monitoring methodologies for areas with significant risk of pipeline leaks or spills (e.g., two areas where the pipeline crosses the Source Water Protection Delineated Boundary for the Town of Pictou wellfields; below water table; important wetlands; watercourse crossings; etc.).

6. AIR QUALITY

6.1 Provide a revised inventory of all potential air contaminants to be emitted from the proposed project, including but not limited to, speciated volatile organic compounds, semi-volatile organic compounds, reduced sulphur compounds, polyaromatic hydrocarbons and metals.

6.2 Update the air dispersion modelling for the pulp mill facility for all potential air contaminants of concern related to the Project.

6.3 Complete an updated ambient air monitoring plan for the Project site based on the air dispersion modelling results. This plan must include the potential air contaminants to be monitored and proposed air monitoring location(s).

7. FISH AND FISH HABITAT

7.1 Conduct fish and fish habitat baseline surveys for the freshwater environment, to the satisfaction of Fisheries and Oceans Canada.

7.2 Conduct fish habitat baseline surveys for the marine environment, to the satisfaction of Fisheries and Oceans Canada.

7.3 Conduct additional impact assessment of treated effluent on representative key marine fish species important for commercial, recreational and Aboriginal fisheries. This must be based upon updated information, additional studies and/or an understanding of expected movement of contaminants. Assessment methodology must first be agreed upon by NSE in consultation with relevant federal departments.

7.4 Submit an updated Environmental Effects Monitoring (EEM) program based on the results of various relevant baseline studies and an updated receiving water study. Refer also to Addendum item 4.0

7.5 Clarify what contingency measures will be in place to mitigate potential impacts (e.g., thermal shock to fish) due to potential large and rapid fluctuations in water temperature in the winter at the diffuser location during low production or maintenance shut down periods.

8. FLORA AND FAUNA

8.1 Complete a plant baseline survey along the proposed re-aligned effluent pipeline route.

8.2 Complete a migratory bird survey along the re-aligned pipeline route.

8.3 Complete a bird baseline survey for common nighthawk (*Chordeiles minor*), double crested cormorants (*Phalacrocorax auratus*), owls, and raptors and raptor nests, for the entire project area which includes the re-aligned pipeline route.

8.4 Complete a herptile survey for the Project area which includes the re-aligned pipeline route.

9. HUMAN HEALTH

9.1 Complete baseline studies for fish and shellfish tissue (via chemical analysis) of representative key marine species important for commercial, recreational and Aboriginal fisheries in the vicinity of the proposed effluent pipeline and diffuser location.

9.2 Commence a Human Health Risk Assessment (HHRA) to assess potential project-related impacts on human health. The risk assessment must consider human consumption of fish and other seafood, consumption of potentially contaminated drinking water, exposure to recreational water and sediment, outdoor air inhalation, and any other potential exposure pathways. The analysis must inform the identification of contaminants of concern and updating of the receiving water study.

10. ARCHAEOLOGY

10.1 Complete an Archaeological Resource Impact Assessment for the marine environment related to the Project.

10.2 Complete shovel testing for areas in the terrestrial environment that are identified to have elevated or medium potential of archaeological resources, to confirm the presence or absence of these resources.

11. INDIGENOUS PEOPLE'S USE OF LAND AND RESOURCES

11.1 Complete a Mi'kmaq Ecological Knowledge Study (MEKS) for the Project.

ADDENDUM: Items Raised by Reviewers Requiring Clarification

The following items must be addressed with NSE and included in the Focus Report where appropriate:

1.0 Provide information regarding whether and when new technology and equipment will be installed at the NPNS pulp mill to improve the effluent quality, including but not limited to the following:

- Will O₂ delignification be installed at the NPNS pulp mill?
- What other technology and equipment will be installed at the NPNS pulp mill?
- How will each proposed new technology and/or equipment improve the effluent quality?

2.0 With respect to the effluent discharge parameters:

- Explain why the total nitrogen parameter has changed to 6 mg/L (daily maximum) from the 3 mg/L (proposed in the August 11, 2017 receiving water study);
- Provide data to support assertions that chemical oxygen demand (COD) can be reduced to the proposed limit.

3.0 With respect to the updating of the Receiving Water Study:

- Provide a response to questions and comments on the receiving water study (not already outlined in this document) from Environment and Climate Change Canada's EARD review submission dated March 18, 2019, and update the receiving water study as applicable;
- Explain how the initial mixing and dispersal of the plume was taken into account when simulating far-field extent and concentrations of effluent in Section 3 of Appendix E1 of EARD. It appears that the far-field model simulations were run before the near-field model. One could expect that the behaviour of the plume further afield depends a large extent on how it behaved at the diffuser, i.e. how quickly it mixed and spread and rose to the surface;
- Confirm dilution ratios and distances required to achieve background level for water quality parameters in Appendix E1 of the EARD, as the dilution ratios and distances may be overestimated;
- Explain if the salinity and temperature differential between the effluent and the receiving waters has been accounted for in the model. When the buoyancy differential between the effluent and receiving waters are greater in winter, it results in a faster rising plume. This can potentially affect the visibility of the effluent in the receiving environment. Has this been accounted for in the model? Also provide results for winter conditions;
- Explain if re-entrainment of effluent and sediment at the diffuser location was accounted for in the one-hour period surrounding slack tide. Support this explanation with model results using a smaller time step (30 minutes) if necessary.

4.0 It is important to note that the following field study and monitoring are likely to be required as part of an EEM program regulated under the Pulp and Paper Effluent Regulations for the Project if it is approved:

- Field delineation of treated effluent plume to confirm the prediction from the receiving water study;
- Monitoring of marine water quality and marine sediment quality;
- Sublethal toxicity testing and chemistry testing of the treated effluent; and
- Biological monitoring studies including benthic invertebrate community study, fish population study, and dioxin and furan levels in fish as applicable.