

**Environment  
Environnement**

**APPROVAL**

**Province of Nova Scotia**  
***Environment Act, S.N.S. 1994-95, c.1***

**APPROVAL HOLDER:**        **Northern Pulp Nova Scotia Corporation**

**APPROVAL NO:**            **2011-076657-A01**

**EFFECTIVE DATE:**        **March 9, 2015**

**EXPIRY DATE:**            **January 30, 2020**

**Pursuant to Part V of the *Environment Act*, S.N.S. 1994-95, c.1 as amended from time to time, approval is granted to the Approval Holder subject to the Terms and Conditions attached to and forming part of this Approval, for the following activity:**

**Operation of a Bleached Kraft Pulp Mill and associated works, at or near 260 Granton Abercrombie Road, Abercrombie Point, Abercrombie, and operation of an Effluent Treatment System and associated works at or near 340 and 580 Simpson Lane, Pictou Landing, Pictou County, PID(s) 00864538 and 00801191, respectively, in the Province of Nova Scotia.**

Administrator \_\_\_\_\_ Date Signed \_\_\_\_\_

The Minister has delegated his powers and responsibilities under the *Act* with respect to this Approval to the Administrator, as defined by this Approval. Therefore any information or notifications required to be provided to the Minister under this Approval can be provided to the Administrator unless otherwise advised in writing.

**TERMS AND CONDITIONS OF APPROVAL**  
**Nova Scotia Environment**

**Project:**                               **Northern Pulp Nova Scotia Corporation**  
  **Bleached Kraft Pulp Mill**  
  **260 Granton Abercrombie Road**  
  **Abercrombie Point, Abercrombie, and**  
  **Effluent Treatment System**  
  **340 and 580 Simpson Lane**  
  **Pictou Landing**  
  **Pictou County**

**Approval No:**                       **2011-076657-A01**

**File No:**                               **92100-30/PIC-06**

**PIDs:**                                 **00864538, 00801191**

**Reference Documents:**

Application dated October 27, 2014, and supporting documentation as outlined in the file.

**1. Definitions**

- a) “Act” means the *Environment Act* S.N.S. 1994-1995, c.1, as amended from time to time and includes all regulations made pursuant to the *Act*.
- b) “Administrator” means a person appointed by the Minister for the purpose of this Act, and includes an acting administrator.
- c) “Adverse Effect” means an effect that impairs or damages the environment or changes the environment in a manner that negatively affects aspects of human health.
- d) “Aerated Stabilization Basin” means the portion of the effluent treatment system which contains artificial aeration to promote the biological oxidation of wastewaters.
- e) “Approval” means an Approval issued pursuant to the *Act* with respect to an activity.
- f) “Approval Holder” means Northern Pulp Nova Scotia Corporation.
- g) “Associated works” means any building, structure, processing facility, pollution abatement system or stockpiles associated with the Facility.

- h) “Biomass” means a renewable energy source comprised of biological material derived from living or recently living organisms, and for the purpose of this Approval, is limited to natural, untreated and uncoated wood and wood waste in the form of whole chips, chip fines, sawdust and bark. It also includes wood debris from the multiclones of the power boiler and the radiclone rejects and knots from pulping and does not include solid wastes from the effluent treatment system.
- i) “BOD<sub>5</sub>” means biochemical oxygen demand defined as the amount of dissolved oxygen consumed by aerobic biological organisms in a body of effluent to break down organic material present, over a five (5) day period at 20 °C.
- j) “Brown Stock Washer” means an installation that removes spent cooking liquor from raw pulp to maximize chemical recovery and minimize carryover of cooking liquor into the bleaching plant.
- k) “Black Liquor” means a combination of spent “cooking liquor” (water solution of sodium sulfate and sodium hydroxide) and pulp wash water containing dissolved wood compounds which is the byproduct of cooking the wood chips at an elevated temperature and pressure.
  - l) “COD” means chemical oxygen demand defined as an indirect measurement of the amount of organic pollutants in effluent.
- m) “Concentrated Non-Condensable gases” (CNCG) means for the purpose of this Approval, a group of concentrated non-condensable process gases that are high in concentrations of TRS and are collected from the digester and evaporator areas of the process, and incinerated in the recovery boiler. Generally, concentrated non-condensable gases are high in concentration but low in volume.
- n) “Condensate Steam Stripper” means a multi-stage distillation unit that uses steam to remove organics and TRS compounds from process condensate streams.
- o) “Controlled Shutdown” means a systematic continuous shutdown of equipment over a scheduled period of up to six (6) hours, which eventually results in no production of pulp.
- p) “Dangerous Goods” has the meaning assigned thereto in the *Dangerous Goods Management Regulations (Nova Scotia)*, current edition.

- q) “Department” means Nova Scotia Environment. For the purpose of this Approval, located at the following address:

Nova Scotia Environment  
Compliance Division  
Northern Region, Pictou Office,  
RR#3,  
New Glasgow, Nova Scotia, B2H 5C6  
Phone: (902) 396-4194  
Fax: (902) 396-4765

- r) “Dilute Non-Condensable Gas” (DNCG) means for the purpose of this Approval, a group of dilute non-condensable process gases that are lower in concentrations of Total Reduced Sulphur, methanol and terpenes than CNCG and originate from the digester area, brownstock washers, filtrate tanks, knotters, liquor storage tanks and black liquor oxidation systems within the Facility. Generally, dilute non-condensable gases are low in concentration but high in volume.
- s) “Domestic Solid Waste” means municipal type solid waste that originates in the Facility through office and cafeteria operations and includes waste types that are commonly accepted at municipal solid waste management facilities. Domestic solid waste does not include waste originating from industrial processes.
- t) “Effluent Treatment System” means the facility also known as Boat Harbour Effluent Treatment Facility as depicted in Appendix B, containing two (2) settling basins, an aerated stabilization basin, the former stabilization lagoon (known as Boat Harbour) as well as dams and related appurtenances.
- u) “Exceedance” means a breach of a regulatory requirement outlined in the *Act*, the Regulations made pursuant to the *Act* and/ or this Approval.
- v) “Facility” means the property, any building, structure, processing facility, pollution abatement system or stockpiles necessary in the operation and manufacture of Kraft Pulp, as produced by the digester, located at 260 Granton Abercrombie Branch Road, Abercrombie Point, Abercrombie, PID 00864538, as well as the Effluent Treatment System (known as Boat Harbour effluent treatment facility) located at 340 and 580 Simpson Lane, Pictou Landing, PID 00801191 and ambient air monitoring stations located at Green Hill, PID 00844233 and Pictou Landing, PID 65006785, Pictou County.
- w) “Industrial Landfill” means the area designed to receive the industrial solid wastes from the Facility associated with wood processing, pulping, pulp drying, recausticizing, utilities and the effluent treatment system, located at 260 Granton Abercrombie Branch Road, PID 00864538.

- x) “Inspector” means any person who is appointed as an inspector by the Minister and includes any municipal or town police officer and any member of the Royal Canadian Mounted Police.
- y) “Malfunction” means any sudden, infrequent, and not reasonably preventable failure of air pollution control equipment, process equipment, or a process to operate in a normal or usual manner. Failures that are caused in part by poor maintenance or careless operation are not malfunctions.
- z) “Minister” means the Minister of Environment.
- aa) “Non-Condensable Gas” means gases that cannot be liquefied, and for the purposes of this Approval, are comprised mainly of total reduced sulphur (TRS) compounds along with entrained levels of turpentine, methanol and other organic compounds. Non-condensable gases are divided into two categories: concentrated non-condensable gases (CNCG) and dilute non-condensable gases (DNCG).
- ab) “NSE” means Nova Scotia Environment.
- ac) “Observer” means a visible emission reader who has been trained to read the opacity of emissions utilizing USEPA Method 9 - "Visual Determination of the Opacity of Emissions from Stationary Sources" or an alternative method deemed acceptable to the Department.
- ad) “Opacity” means the degree to which visible emissions obstruct the passage of light.
- ae) “Point ‘A’” means the location identified as Point ‘A’ on diagram located in Appendix B, at the end of the effluent transmission pipe.
- af) “Point ‘C’” means the location identified as Point ‘C’ on diagram located in Appendix B, at the outlet of the aerated stabilization basin. This is the location where compliance with the Federal Pulp and Paper Effluent Regulations is measured.
- ag) “Point ‘D’” means the location identified as Point ‘D’ on diagram located in Appendix B, at the outlet of the former stabilization lagoon.
- ah) “Pre-test plan” means a summary of the sampling protocols and testing to be employed by the Approval Holder during air emission source testing.
- ai) “Reference Production Rate” means the daily production of finished product of a mill as defined by the Federal Pulp and Paper Effluent Regulations (SOR/92-269), as amended from time to time.

- aj) “Reconditioned oil” means used oil that has been recycled to remove insoluble contaminants and water which results in an oil that is usable as fuel.
- ak) “Recaust Area” means the area of the Facility where the recausticizing process takes place.
- al) “Recausticizing Process” means the process for producing cooking liquor for the digester from recycled inorganic chemicals generated in the recovery boiler and the lime kiln.
- am) “Recovery Boiler” means an enclosed combustion device in which concentrated spent liquor is burned to recover sodium and sulfides, dispose of unwanted dissolved wood components and generate steam.
- an) “Recovery Boiler Precipitator System” means, for the purpose of this Approval, a new dry-bottom dual chamber electrostatic precipitator to remove particulate matter from the flue gases of a conventional kraft chemical recovery boiler. The system includes all work necessary to replace the current wet bottom electrostatic precipitator while maintaining the existing MODO wet scrubber in service.
- ao) “Scheduled Total Mill Shutdown” means the period of time in which the Facility is not operating due to regularly scheduled maintenance.
- ap) “Shutdown” means the cessation of operation of an affected piece of equipment for any purpose.
- aq) “Site” means the lands owned and/or occupied by Northern Pulp Nova Scotia Corporation where the kraft pulp mill and effluent treatment system and associated works are located.
- ar) “Startup” means the setting in operation of an affected piece of equipment for any purpose.
- as) “Stripper Off Gases” (SOG) means for the purpose of this Approval, the gases that are produced by the condensate steam stripper which are incinerated in the lime kiln.
- at) “Source Testing Event” for Particulate Matter means a phase of performance testing activities that involves the site set-up and the actual testing. For each source the test consists of a preliminary survey, and at least three repetitions of appropriate source testing methodologies.
- au) “Total Reduced Sulfur” (TRS) means any compound of sulfur in a reduced state discharged from a Kraft Pulp Mill consisting primarily of hydrogen sulfide, methyl mercaptan, dimethyl sulfide and dimethyl disulfide.

- av) “Waste Dangerous Goods” means dangerous goods that are no longer in use for their original purpose or materials which have become waste dangerous goods through handling including dangerous goods intended for treatment, disposal or recycling, but does not include dangerous goods returned directly to the manufacturer or supplier of the dangerous goods for reprocessing, repacking or resale and does not include consumer paint products as defined in the *Solid Waste Resource Management Regulations*.

## **2. Scope of Approval**

- a) This Approval relates to the Approval Holder and their applications and supporting documentation, as listed in the reference documents in the file, to operate the Facility, situated at or near PID(s) # 00864538 and 00801191 situated at 260 Granton Abercrombie Road, Abercrombie Point, Abercrombie, and 340 and 580 Simpson Road, Pictou Landing, Pictou County.
- b) The Facility and Site shall not exceed the area as outlined in the application and supporting documentation.
- c) The Approval Holder shall operate the Facility in accordance with the terms and conditions of this Approval.

## **3. General Terms and Conditions**

- a) The Approval Holder shall operate and reclaim the Facility in accordance with provisions of the most recent version of:
  - i) *Environment Act* S.N.S. 1994-1995, c.1, as amended from time to time; and
  - ii) Regulations pursuant to the above *Act*.
- b) No authority is granted by this Approval to enable the Approval Holder to construct or operate the Facility on lands which are not in the control or ownership of the Approval Holder. It is the responsibility of the Approval Holder to ensure that such a contravention does not occur. The Approval Holder shall provide, to the Department, proof of such control or ownership upon expiry of any relevant lease or agreement. Failure to retain said authorization will result in this Approval being null and void.
- c) If there is a discrepancy between the reference documents and the terms and conditions of this Approval, the terms and conditions of this Approval shall apply.
- d) The Minister may modify, amend or add conditions to this Approval at anytime pursuant to Section 58 (2) of the Act.

- e) This Approval is not transferable without the written consent of the Minister.
- f)
  - (i) If the Minister or Administrator determines that there has been non-compliance with any or all of the terms and conditions contained in this Approval, the Minister or Administrator may cancel or suspend the Approval pursuant to subsections 58A (1) and 58A (2) of the *Act*, until such time as the Minister is satisfied that all terms and conditions have been met.
  - (ii) Despite a cancellation or suspension of this Approval, the Approval Holder remains subject to the penalty provisions of the *Act* and regulations.
- g) The Approval Holder shall notify the Department prior to any proposed extensions or modifications of the Facility, including the active area, process changes or waste disposal practices which are not granted under this Approval. An amendment to this Approval may be required before implementing any change. Extensions or modifications to the Facility may be subject to the Environmental Assessment Regulations.
- h) Pursuant to Section 60 of the *Act*, the Approval Holder shall submit to the Minister any new and relevant information respecting any adverse effect that actually results, or may result, from any activity to which the Approval relates and that comes to the attention of the Approval Holder after the issuance of the Approval.
- i) The Approval Holder shall immediately notify the Department of any incidents of non-compliance with this Approval.
- j) The Approval Holder shall bear all expenses incurred in carrying out the environmental monitoring required under the terms and conditions of this Approval.
- k) Unless specified otherwise in this Approval, all samples required to be collected by this Approval shall be collected, preserved and analyzed, by qualified personnel, in accordance with recognized industry standards and procedures.
- l) Unless written approval is received otherwise from the Minister, all samples required by this Approval shall be analyzed by a laboratory that meets the requirements of the Department's "Policy on Acceptable Certification of Laboratories" as amended from time to time.
- m) The Approval Holder shall submit any monitoring results or reports required by this Approval to the Department. Unless specified otherwise in this Approval, all



monitoring results shall be submitted within 30 days following the month of monitoring.

- n) The Approval Holder shall ensure that this Approval, or a copy, is kept on Site at all times and that personnel directly involved in the Facility operation are made fully aware of the terms and conditions which pertain to this Approval.
- o) All equipment shall be installed, operated, maintained and calibrated as specified by the manufacturer's instructions.
- p) The Approval Holder shall prepare and implement an environmental management plan, consistent with good industrial practice. The plan shall include but not be limited to:
  - Statement of Goals
  - Liquid Effluent minimization (including liquor spill recovery)
  - Air emission minimization
  - Solid Waste Reduction and Reuse
  - Incident and exceedance investigation and reporting
  - Storm water management
  - Hazardous Goods management
  - Site demobilization (end of economic life)
  - Reporting and Compliance
  - The plans must consider of all modes of operation including Start-Up, Shut Down (including maintenance shuts), Normal Operation, Severe weather etc.
- q) The Approval Holder shall develop and incorporate maintenance practices and procedures consistent with current industrial practice, to ensure equipment operates reliably.
- r) The Approval Holder shall incorporate procedures, techniques and systems to enable continuous improvement in operations.
- s) The Approval Holder shall incorporate training and development for staff to ensure operational competency. This training should include environment awareness and Approval compliance practices.

#### **4. Facility Production/ Maintenance**

- a) The Facility is restricted to a maximum production of 310,000 air dried bleached metric tonnes of pulp per year

- b) Notwithstanding Condition 4(a), the Approval Holder may request a Letter of Authorization to increase the maximum production rate or increase absolute levels of emissions, provided the Approval Holder submits to the Department, one year in advance of the planned implementation of the increase, modeling to determine the impact of the proposed increase on all emissions (air and water) from the Facility.
- c) The Approval Holder shall report the annual production rate outlined in Condition 4 (a) within 30 days of the end of the calendar year.
- d) The Approval Holder shall record and maintain daily production rates.
- e) The Approval Holder shall notify the Department a minimum of sixty days prior to a scheduled total mill shutdown. Any changes to the schedule after notification has been submitted shall be provided to the Department with the reason for the schedule change.
- f) The Approval Holder shall provide a list of planned maintenance/ repair/ equipment replacement or addition projects proposed to be completed during the scheduled total mill shutdown as part of the notification required in Condition 4(e).
- g) In the event of an unscheduled shutdown, the Approval Holder shall immediately notify the Department, to report the cause of the shutdown. Maintenance activities performed during this period shall be reported within 30 days following the unscheduled shutdown.
- h) The Approval Holder shall ensure any waste dangerous goods generated during maintenance activities, including but not limited to tank bottom sludges, boiler chemical cleaning wastes, etc., shall be disposed of at a facility approved to treat the particular waste. Disposal or discharge of these wastes to the Effluent Treatment System is strictly prohibited.
- i) The Approval Holder shall provide a list of all maintenance/repair/equipment replacement or addition projects which were completed during the scheduled total mill shutdown together with the location of disposal of all wastes generated, within 30 days of the end of the scheduled shutdown period.
- j) The Approval Holder shall provide to the Department, no later than September 10, 2015, a report outlining the projected life expectancy of all equipment which could potentially impact environmental performance of the Facility in the event of malfunction or failure. This report shall be prepared by a third party with expertise in the subject areas.

## 5. Water Use Reduction

- a) The Approval Holder shall operate and maintain a continuous flow meter to measure daily flow into the Facility (i.e. total volume of water withdrawn from the environment to service the Facility on a daily basis).
- b) Daily flow measurements shall be recorded from the flow meter required in Condition 5(a).
- c) The Approval Holder shall submit water intake data which represents the volume of water withdrawn from the environment to service the Facility for the following three years: 2012, 2013 and 2014, by no later than March 1, 2015. This data shall be in the form of daily volumes, with corresponding daily production rates, tabulated on a monthly basis.
- d) The Approval Holder shall achieve a maximum daily water consumption rate of 63,000 cubic metres per day by January 30, 2020.
- e) The Approval Holder shall achieve the following milestones:
  - i) a maximum rate of water consumption of 85,000 cubic metres per day by no later than January 30<sup>th</sup>, 2017;
  - ii) a maximum rate of water consumption of 75,000 cubic metres per day by no later than January 30<sup>th</sup>, 2018;
  - iii) Remaining reductions necessary to achieve the maximum rate of daily water consumption outlined in Condition 5(d) by no later than January 30<sup>th</sup>, 2020.

A list of projects planned for each above mentioned reduction milestones, together with the anticipated quantity of water which will be reduced by each project, shall be submitted no later than 1 year (12 months) prior to the deadline for completion of the reduction. Following review of the list of projects, the Department may require submission of the detailed engineering plan for the reduction.

- f) The Approval Holder shall undertake a maximum sustainable yield study of the Middle River watershed. This study shall use the Nova Scotia Guide to Surface Water Withdrawal Approvals as a guidance unless a Letter of Authorization is obtained from the Department, stating an alternative methodology may be used.

- g) The study required under Condition 5(f) shall be completed to the satisfaction of the Department and may inform additional water use reductions and/or alternative management strategies for water withdrawal, as determined by the Department. This study shall be submitted no later than December 15, 2015.
- h) The Approval Holder shall ensure water use reduction projects do not negatively impact the quality of the effluent discharged from Effluent Treatment System through modeling of the predicted impacts to final effluent quality for each reduction milestone. This shall include impacts to both chemical and physical parameters. Modeling for all reduction stages shall be submitted with the list of planned projects required under Condition 5(e) no later than October 30, 2015. Modeling shall be verified and validated to the satisfaction of the Department.
- i) Should the modeling required under Condition 5(h) predict a final wastewater effluent quality that will not meet the requirements of Table 6, Appendix A, without modification or addition to the Effluent Treatment System, as configured as of the date of this Approval, the Approval Holder shall apply for an amendment to this Approval. Application for amendment shall require submission of a plan for alternative effluent management and/or treatment.
- j) The alternative effluent management and/or treatment required under Condition 5(i) shall be designed to meet the requirements of Table 6A.

## **6. Effluent Generation/Collection/Transmission**

### **Effluent Generation**

- a) The Approval Holder shall achieve a maximum daily effluent flow of 67,500 cubic metres per day by January 30, 2020.
- b) The Approval Holder shall achieve the following milestones:
  - i) a maximum flow rate of 85,000 cubic metres per day by no later than January 30<sup>th</sup>, 2017.
  - ii) a maximum flow rate of 75,000 metres per day by no later than January 30<sup>th</sup>, 2018.
  - iii) Remaining reductions required to achieve a maximum daily effluent flow rate of 67,500 metres per day by no later than January 30, 2020.

A list of projects planned for each above mentioned reduction milestones, as well as the final maximum daily effluent flow outlined in Condition 6(a), together with the anticipated quantity of wastewater flow which will be reduced by each project, shall

be submitted no later than 1 year (12 months) prior to the deadline for completion of the reduction. Following review of the list of projects, the Department may require submission of the detailed engineering plan for the reduction.

- c) The Approval Holder shall submit a plan, which meets the satisfaction of the Department, to segregate and divert storm water from the effluent treatment system by the end of the Approval term. This plan shall be submitted by no later than July 30<sup>th</sup>, 2017.
- d) The Approval Holder shall provide COD analysis for samples collected at Point A of the Effluent Treatment System between January 1, 2010 to December 31, 2014 to the Department by no later than March 31, 2015.
- e) The Approval Holder shall undertake a study to identify all sources of COD contributing to the effluent treatment system and develop a plan, together with an implementation schedule, to achieve the following reductions in COD concentrations at Point A:
  - i) a 10% reduction by January 30, 2017;
  - ii) a total of 20% reduction by January 30, 2018;
  - iii) a total of 50% reduction by January 30, 2020.
- f) The study and implementation plan required under Condition 6(e) shall be submitted no later than January 30, 2016 and meet with the satisfaction of the Department.
- g) The Approval Holder shall develop a plan for additional reductions to achieve a maximum influent COD of 11,890 kg/day at Point C. This plan shall be submitted by no later than December 1, 2019.
- h) The Approval Holder shall ensure water use reduction projects do not negatively impact the quality of the effluent discharged from Effluent Treatment System through modeling of the predicted impacts to final effluent quality for each reduction milestone. This shall include impacts to both chemical and physical parameters. Modeling for all reduction stages shall be submitted with the list of planned projects required under Condition 6(b) and 6(c) no later than October 30, 2015. Modeling shall be verified and validated to the satisfaction of the Department.
- i) Should the modeling required under Condition 6(h) predict a final wastewater effluent quality that will not meet the requirements of Table 6, Appendix A, without modification or addition to Effluent Treatment System, as configured as of the date of this Approval, the Approval Holder shall apply for an amendment to this

Approval. Application for amendment shall require submission of a plan for an alternative effluent management and/or treatment.

- j) The alternative effluent management and/or treatment required under Condition 6(i) shall be designed to meet the requirements of Table 6A, Appendix A. Please note, reduction and prevention of liquor losses entering the effluent system (i.e. effluent pipeline and treatment system) to reduce COD is not considered to be alternative management or treatment of effluent.

### **Effluent Transmission Pipeline**

- k) The Approval Holder shall undertake a visual internal inspection in accordance with TAPPI Standard TIP-0402-28, Best Practice for Inspecting Used Fibre-Reinforced Plastic (FRP) Equipment, as amended from time to time, to determine the current conditions and integrity of the FRP pipeline components. The results of this inspection shall be submitted to the Department no later than September 15, 2015.
- l) The Approval Holder shall undertake the inspection outlined in Condition 6(k) a minimum of once every 5 years unless the results of the inspection conducted under Condition 6 (k) indicate a more frequent schedule is required.
- m) The Approval Holder shall conduct an external inspection of the entire effluent pipeline, on an annual basis, for erosion, scouring, seepage, siltation, effluent plumes. The procedures utilized and the results of these inspections shall be submitted with the annual report for the Facility.

## **7. Effluent Treatment System**

### **Effluent Treatment**

- a) The effluent treatment system, as defined by this Approval, has been classified as a **Class III wastewater treatment System**. The day-to-day operations of the effluent treatment System shall be supervised directly by a certified operator who holds an equivalent certification under the *Water and Wastewater Facilities and Public Drinking Water Supplies Regulations*.

- b) Should modeling determine alternative treatment or management is required, the Approval Holder shall conduct a receiving water study to determine the assimilative capacity of the receiving water body for all parameters indicated in Table 6A, Appendix A. This shall be submitted to the Department with the plan required under Condition 6(i). This information may inform new discharge limits for Table 6A.

### **Effluent Monitoring & Reporting**

- c) Effluent discharged from the final aeration basin, identified as Point C, shall be monitored continuously for flow, pH and conductivity, recorded daily. Effluent discharged at Point C shall be monitored 5 days per week for dissolved oxygen. This data shall be tabulated monthly.
- d) The Approval Holder shall monitor flow at Point A, the end of the effluent transmission pipe, on a continuous basis. This data shall be recorded daily and tabulated monthly.
- e) The Approval Holder shall operate and maintain real time flow monitoring equipment at the end of the effluent transmission pipeline which is designed to immediately notify the Approval Holder in the event of a total loss of flow or a reduction of flow below normal operating conditions.
- f) The Approval Holder shall immediately investigate any flow reduction or loss notification received from equipment outlined in Condition 7(e). These incidents, together with the reason for the loss or reduction of flow causing the alarm, shall be recorded and tracked monthly.
- g) The Approval Holder shall immediately notify the Department of a loss or reduction of flow which results or may result in a release of untreated effluent to the environment.
- h) The Approval Holder shall ensure all monitoring equipment is calibrated and maintained in accordance with manufactures specifications. Records of calibration and maintenance performed shall be maintained for not less than three (3) years and shall be made available upon request to the Department.
- i) The Approval Holder shall analyze samples of the effluent discharged at Point C, to the environment for the parameters outlined in Table 6 of Appendix A. The

Approval Holder shall comply with the monitoring frequency and discharge limits as outlined in Table 6 of Appendix A. Results of the effluent monitoring at Point C shall be tabulated on a monthly basis.

- j) The Approval Holder shall operate and maintain the settling basins and the aerated stabilization basin in a manner which minimizes odour generation at the effluent treatment system. Maintenance shall be conducted in accordance with the schedule outlined in the document entitled *Effluent Treatment System Dredging* submitted June 23, 2011. A record of maintenance activities shall be provided in the annual report.
- k) The Approval Holder shall sample effluent at Point A for COD on a daily basis and tabulate the results on a monthly basis.
- l) The Approval Holder shall monitor the effluent discharge at Point C for the following metals: aluminum, antimony, arsenic, barium, beryllium, bismuth, boron, cadmium, chromium (trivalent and hexavalent), cobalt, copper, iron, lead, manganese, molybdenum, mercury, nickel, selenium, silver, strontium, thallium, vanadium and zinc on an annual basis. The analysis shall be submitted within the annual report.
- m) The Approval Holder shall submit a monthly effluent report which contain the following information:
  - i) parameters required to be monitored in Table 6, with the exception of dioxins and furans which will be reported once annually
  - ii) Daily production of finished product, reported in tonnes.
  - iii) information required to be collected under Conditions 5(b), 7(c), 7(d), 7(f), 7(i) and 7(k), 7(o).

### **Stabilization Basin**

- n) The Approval Holder shall, together with the Department of Internal Services, develop a plan for the long term environmental management and/or rehabilitation, in accordance with the Nova Scotia Ministerial Protocols for Contaminated Sites, of the area formerly utilized as a stabilization lagoon for the Effluent Treatment System known as Boat Harbour. This plan shall be to the satisfaction of the Department and submitted for approval by no later than December 31, 2015.



- o) The Approval Holder shall continue to monitor Point D for the parameters outlined in Table 6 , Appendix A, unless otherwise authorized in writing by the Minister. The results of this monitoring shall be submitted to the Department on a monthly basis.

## 8. Pulping Liquor

- a) The Approval Holder shall develop and implement a proactive pulping liquor management plan, using the USEPA Rule 430.03 as guidance, by no later than November 15, 2015. This plan shall be made available to the Department upon request.
- b) The Approval Holder shall ensure the pulping liquor management plan required in Condition 8(a) includes, but is not limited to, the establishment of *action levels (initial, lower and upper)*, which if exceeded will trigger investigation and corrective action.
- c) The Approval Holder may select additional monitoring point(s) in order to isolate possible sources of pulping liquor from other possible sources of organic wastewaters that are tributary to the effluent treatment system (e.g., bleach plants, paper machines and secondary fiber operations).
- d) The Approval Holder shall conduct operations with the objective of limiting daily loading of total reduced sulphur compounds in the water entering the effluent treatment system to the following levels:
  - (i) 0.98 kilograms of total reduced sulphur compounds per air dried unbleached metric tonnes of pulp (kg/adubmt) by July 1<sup>st</sup>, 2016;
  - (ii) 0.658 kilograms of total reduced sulphur compounds per air dried unbleached metric tonnes of pulp (kg/adubmt) by July 1<sup>st</sup>, 2017; and
  - (iii) 0.335 kilograms of total reduced sulphur compounds per air dried unbleached metric tonnes of pulp (kg/adubmt) by July 1<sup>st</sup>, 2021.
- e) The Approval Holder shall conduct an assessment of total reduced sulphur levels in wastewater in comparison to the performance objectives established in Condition 8(d) of this Approval. Monitoring of total reduced sulphur in wastewater shall be conducted in accordance with Table 6 of Appendix A of this Approval. The Approval Holder shall submit an annual report of wastewater total reduced sulphur loading results for the previous year to the Department by June 30<sup>th</sup> each year.

- f) If the Approval Holder is unable to achieve the objectives established in Condition 8(d) of this Approval, the Approval Holder shall submit a plan, which meets the satisfaction of the Department, by October 30<sup>th</sup>, 2016, detailing a program to meet the objectives. This plan shall also include a proposed schedule for implementation of the program. Upon receiving a Letter of Authorization from the Department, the Approval Holder shall implement the program based on an acceptable schedule.

## 9. Ambient Air and Air Emissions

### Compliance with Air Quality Regulations

- a) The Approval Holder shall ensure that emissions from the facility do not contribute to an exceedance of the maximum permissible ground level concentrations specified in Schedule A of the Air Quality Regulations.
- b) For the purpose of determining compliance with Schedule A of the Air Quality Regulations, the measurement of Total Reduced Sulphur (TRS) at the ambient monitoring stations shall be considered to be a measurement of hydrogen sulphide (H<sub>2</sub>S).
- c) The Approval Holder shall ensure that fine particulate matter (PM<sub>2.5</sub>) emissions from the facility do not contribute to an exceedance of the ambient air quality standards for fine particulate matter indicated in Table 1:

**Table 1: Ambient Air Quality Standards for Fine Particulate Matter (PM<sub>2.5</sub>)**

Pollutant	Averaging Time	Standards (µg/m <sup>3</sup> )*		Metric
		2018	2020	
PM <sub>2.5</sub>	24-hour (calendar day)	28.0	27.0	The 3-year average of the annual 98th percentile of the daily 24-hour average concentrations
PM <sub>2.5</sub>	annual (calendar year)	10.0	8.8	The 3 year average of the annual average concentrations

\*micrograms per cubic metre

- d) The Approval Holder shall demonstrate compliance with Condition 9(c) by utilizing the data from the ambient monitor(s) identified in Condition 9(f) of this Approval, to complete calculations in accordance with procedures outlined in the “Guidance Document on Achievement Determination Canadian Ambient Air Quality Standards for Fine Particulate Matter and Ozone”, dated 2012, prepared by Canadian Council of Ministers of the Environment (CCME), as amended from time to time.
- e) The Approval Holder must be able to demonstrate compliance with condition 9(a), 9(b) and 9(c) through the development, implementation and maintenance of an ambient air monitoring and reporting program. The air monitoring and reporting program may include, but is not limited to:
- (i) Ambient air monitoring;
  - (ii) Continuous Emissions monitoring;
  - (iii) Source testing; and
  - (iv) Dispersion modelling.

#### **Ambient Air Monitoring Network**

- f) The Approval Holder shall operate ambient air quality stations and monitors to measure the following parameters at the following locations:
- Pictou Landing (PID 65006785)
- i) 1-hour and 24-hour rolling average concentration of Total Reduced Sulphur (TRS) in parts per billion;
  - ii) 24 hour (calendar day) average concentration in micrograms per cubic metre ( $\mu\text{g}/\text{m}^3$ ) of total suspended particulate matter (TSP);
  - iii) 1-hour and 24-hour (calendar day) continuous fine particulate matter ( $\text{PM}_{2.5}$ ) in micrograms per cubic metre ( $\mu\text{g}/\text{m}^3$ ); and
  - i) Meteorological data: wind speed, wind direction, ambient temperature, barometric pressure and humidity.
- Greenhill (PID 844233)
- v) 1-hour and 24-hour rolling average concentration of Total Reduced Sulphur (TRS) in parts per billion;
  - vi) 24 hour average (calendar day) concentration in micrograms per cubic metre ( $\mu\text{g}/\text{m}^3$ ) of total suspended particulate matter (TSP); and
  - vii) Meteorological data: wind speed, wind direction and ambient temperature.
- g) The Approval Holder shall maintain the ambient air quality stations and monitors identified in Condition 9(f) of this Approval, in accordance with the following documents:

Total Reduced Sulphur

- i) Addendum to Model TML87 Instruction Manual (P/N 047400000 Rev.A4) for Model TML60 Total Reduced Sulfur Analyzer with Model 501 TRS Thermal Converter, prepared by Teledyne Instruments Monitor Labs, dated REV. A2, February 8, 2007; and
- ii) Calibrate/Maintain TRS Analyzers, prepared by Environmental Services, Nova Scotia Power, dated Revised: January 14, 2015

Total Suspended Particulate Matter

- iii) Ambient Monitoring Procedure – Total Suspended Particulate Hi-Volume Sampler Operation, prepared by Stantec, dated January 13, 2015

Fine Particulate Matter

- iv) Ambient Monitoring Procedure – Beta-Attenuation Monitor (BAM) for Suspended Particulate Matter Less than 2.5 Microns, prepared by Stantec, dated January 13, 2015

Meteorological Data

- v) Instrument Manufacturers Requirements

**Emissions**

- h) The Approval Holder shall ensure that major point sources are operated such that stack emissions from the Recovery Boiler, Lime Kiln, Smelt Dissolving Tank and Power Boiler shall comply with the limiting criteria set out in Table 5, Appendix A.
- i) When the power boiler scrubber is not operational in excess of a continuous 24 hour period, the Approval Holder shall either shutdown the operation of the power boiler or switch to an alternative fuel authorized under Condition 10(a) of this Approval.
- j) The Approval Holder shall ensure that the recovery boiler precipitator system, is constructed, installed, commissioned and operational by May 30<sup>th</sup>, 2015.
- k) Until the recovery boiler precipitator system is operational, the Approval Holder shall ensure that the existing wet bottom electrostatic precipitator and Flakt-Modo scrubber are maintained and functioning at all times, while the recovery boiler is operational.
- l) Upon installation, the Approval Holder shall ensure that both electrostatic

precipitator chambers of the recovery boiler precipitator system are operational at all times while Recovery Boiler emissions are generated.

- m) Notwithstanding Condition 9(l) of this Approval, the Approval Holder may operate a single electrostatic precipitator chamber while conducting maintenance of the second electrostatic precipitator chamber of the Recovery Boiler.

### **Facility Emissions Cap**

- n) The Approval Holder shall measure or estimate annual emissions of total particulate matter and sulphur dioxide from the following main sources of emissions:
  - i) Power Boiler;
  - ii) Recovery Boiler;
  - iii) Smelt Dissolving Tank; and
  - iv) Lime Kiln.
- o) Starting in 2016, the Approval Holder shall submit an annual emissions report to the Department by June 30<sup>th</sup> for the previous calendar year. This report shall include, but not be limited to, total emissions of sulphur dioxide and particulate matter from the facility, mill production over the same time period and the methodologies used to measure or estimate emissions for each main source identified in Condition 9(n).
- p) Starting January 1<sup>st</sup>, 2016, the Approval Holder shall limit total annual facility emissions of sulphur dioxide and total particulate matter from main facility sources identified in Condition 9(n) to:
  - i) 2.0 kilograms of total particulate matter (TPM)/tonne of production
  - ii) 4.0 kilograms of sulphur dioxide/tonne of production
- q) Calculations used in the annual emissions report, to demonstrate compliance with Condition 9(p), shall be conducted in accordance with Appendices C and D of this Approval.

### **Continuous Emission Monitors**

- r) The Approval Holder shall operate a continuous emission monitor (CEM), that will monitor, on an hourly basis, the Total Reduced Sulphur (TRS) concentration in parts per million by volume being released from the Recovery Boiler exhaust gas stack and the Lime Kiln exhaust gas stack (upon installation) to the atmosphere.

- s) The Approval Holder shall install a continuous emission monitor (CEM), that will monitor, on an hourly basis, the Total Reduced Sulphur (TRS) concentration in parts per million by volume being released from the Lime Kiln exhaust gas stack to the atmosphere by July 1<sup>st</sup>, 2016.
- t) The Approval Holder shall ensure that the continuous emission monitor(s) for Total Reduced Sulphur (TRS) are installed, calibrated, maintained, operated and tested in accordance with the “Continuous Emission Monitoring System (CEMS) Code”, published by Alberta Environmental Protection, dated May, 1998, as amended from time to time.
- u) The Approval Holder shall ensure that the continuous emission monitor(s) used to monitor the concentration of the Total Reduced Sulphur (TRS) released from the Recovery Boiler exhaust stack and the Lime Kiln exhaust stack(when installed), are equipped with sufficient data logging capabilities to provide a 4-hour rolling average.
- v) The Approval Holder shall operate a continuous emission monitor system(s) (CEM), to measure the percent oxygen and temperature of the power boiler flue gas, while the power boiler is in operation.
- w) The Approval Holder shall ensure that the continuous emission monitor system(s) described in Condition 9(v) of this Approval are calibrated, maintained, operated and tested in accordance with the “Protocols and Performance Specifications for Continuous Monitoring of Gaseous Emissions From Thermal Power Generation”, (Report EPS 1/PG/7), dated December 2005, published by Environment Canada.
- x) The monitoring results from the CEMs shall be recorded and maintained on file for a period of not less than 2 years and made available to the Department upon request.

### **Source Testing**

- y) Each year the Approval Holder shall undertake two source testing events to determine the Particulate Matter (PM) emission rate and concentration released to the atmosphere from the point source exhaust gas stacks in the units identified in Table 2.

**Table 2: Semi-Annual Particulate Matter Source Testing**

Point Source Exhaust Gas Stack	Concentration Unit	Emission Rate Unit
Lime Kiln	kg/adubmt	g/s
Smelt Dissolving Tank	kg/adubmt	g/s

kg - kilograms

adubmt - reference production rate in air dried unbleached metric tonnes

g/s – grams per second

- z) Each year, testing events described in Condition 9(y) of this Approval shall include, one test conducted during January 1<sup>st</sup> to June 30<sup>th</sup> and the second test conducted during July 1<sup>st</sup> to December 31<sup>st</sup> with at least 120 days between the first and second source testing event.
- aa) Each year the Approval Holder shall undertake four source testing events to determine the Particulate Matter (PM) emission rate and concentration released to the atmosphere from the point source exhaust gas stacks in the units identified in Table 3.

**Table 3: Quarterly Particulate Matter Source Testing**

Point Source Exhaust Gas Stack	Concentration Unit	Emission Rate Unit
Recovery Boiler	mg/Rm <sup>3</sup>	g/s
Power Boiler	mg/Rm <sup>3</sup>	g/s

mg - milligrams

Rm<sup>3</sup> --reference cubic metre (ie. the volume of gas at 25°C and 101.3 kpa corrected to 11% Oxygen)

g/s – grams per second

- ab) Each year, testing events described in Condition 9(aa) of this Approval shall include, one test conducted during January 1<sup>st</sup> to March 31<sup>st</sup>, the second test conducted during April 1<sup>st</sup> to June 30<sup>th</sup>, the third test conducted during July 1<sup>st</sup> to September 30<sup>th</sup> and the fourth test conducted during October 1<sup>st</sup> to December 31<sup>st</sup>, with at least 60 days between each source testing event.
- ac) Following the commissioning of the recovery boiler precipitator system, the Approval Holder shall undertake source testing to determine the Particulate Matter (PM) emission rate and concentration released to the atmosphere from the Recovery Boiler exhaust gas stack in the units identified in Table 3 of this Approval. This testing shall be completed by June 30<sup>th</sup>, 2015, to confirm

compliance with the particulate matter stack emission limit of Table 5, Appendix A. Within 30 days of completion of testing, the Approval Holder shall ensure that a Final Report on Source testing is completed and submitted to the Department.

- ad) Notwithstanding Conditions 9(y) and 9(aa) of this Approval, if the results of the source testing conducted under Conditions 9(y) and 9(aa) demonstrate emissions are at or below 75 percent of the emission limit of the pollutant identified in Table 5, Appendix A of this Approval, for at least 2 consecutive years, and there has been no changes in the operation of the emission source or air pollution control equipment that could increase emissions, the Approval Holder may request in writing a reduction in source testing frequency to an annual basis.
- ae) If results of source testing conducted under an authorized reduced frequency of Condition 9(ad) demonstrate that emissions exceed 75 percent of the emission limit of the pollutant identified in Table 5, Appendix A of this Approval, the Approval Holder shall revert to the applicable source test frequency identified in Condition 9(y) and 9(aa) of this Approval.
- af) Each year, the Approval Holder shall undertake one source testing event to determine the fine particulate matter (PM<sub>2.5</sub>) emission rate and concentration released to the atmosphere from the point source exhaust gas stacks in the units identified in Table 4.

**Table 4: Annual Fine Particulate Matter (PM<sub>2.5</sub>) Source Testing**

Point Source Exhaust Gas Stack	Concentration Unit	Emission Rate Unit
Recovery Boiler	mg/Rm <sup>3</sup>	g/s
Power Boiler	mg/Rm <sup>3</sup>	g/s
Lime Kiln	mg/Rm <sup>3</sup>	g/s
Smelt Dissolving Tank	mg/Rm <sup>3</sup>	g/s
<b>R E F E R E N C E S A M P L I N G M E T H O D</b>	Environment Canada EPS 1/RM/55 or an alternative method acceptable to the Department	

mg - milligrams

Rm<sup>3</sup> - reference cubic metre (ie. the volume of gas at 25°C and 101.3 kpa corrected to 11% Oxygen)

g/s – grams per second



- ag) Each year, the Approval Holder shall undertake two source testing events to determine Total Reduced Sulphur (TRS) concentrations in parts per million, dry volume, at stack conditions, released to the atmosphere from the following point source exhaust gas stacks:
  - (i) Lime Kiln (continuous over 24 hour period, until continuous emission monitor has been installed);
  - (ii) High Level Roof Vent (continuous over 24 hour period); and
  - (iii) Smelt Dissolving Tank (continuous over 24 hour period).
- ah) Each year, testing events described in Condition 9(ag) of this Approval shall include, one test conducted during January 1<sup>st</sup> to June 30<sup>th</sup> and the second test conducted during July 1<sup>st</sup> to December 31<sup>st</sup> with at least 120 days between the first and second source testing event.
- ai) Each year, the Approval Holder shall undertake a source testing event to determine the chlorine and chlorine dioxide concentration in micrograms per cubic metre and emission rate in grams per second released to the environment from the Bleach Plant vents and/or stacks, utilizing National Council for Air and Stream Improvement (NCASI) test methodology.
- aj) Within 60 days of completion of testing, the Approval Holder shall ensure that a Final Report on Source testing is conducted and submitted in accordance with conditions 9(y), 9(aa), 9(af), 9(ag) and 9(ai) of this Approval.

### **Opacity**

- ak) The opacity of visible emissions, as measured by an observer, from any point source shall be limited to 20% except that the opacity may increase to 40 % for a period totaling not more than four minutes in any one half hour period.
- al) Notwithstanding Condition 9(ak) of this Approval, every time a fire is started in the combustion process equipment, the opacity of the visible emissions, as measured by an observer, may be greater than 40%, but not greater than 60% for a period totaling not more than 3 minutes during each quarter hour.

### **Reporting**

- am) The Approval Holder shall submit monthly summary reports containing the following information:
  - i) a summary of any air quality related emergency and non-emergency incidents pursuant to the Environment Act, the Air Quality Regulations or this Approval, including the date and time of the

- incident(s);
  - ii) a summary of any operational problems related to the continuous air emission monitoring devices, environmental control equipment and/or the ambient air monitor(s), including the date and time of the incident(s);
  - iii) a summary of the quality assured, quality controlled (QA/QC) ambient air quality data from the ambient air monitor(s) identifying the one hour averages and 24 hour rolling averages of total reduced sulphur in parts per billion, the 24 hour averages of total suspended particulate in micrograms per cubic metre, the one hour averages and 24 hour averages (calendar day) of continuous fine particulate (PM<sub>2.5</sub>) data in micrograms per cubic metre, hourly average wind speed, wind direction, ambient temperature, barometric pressure and humidity including the dates used to calculate the averages. In addition, the Approval Holder shall submit the average annual geometric mean ground level concentration of total suspended particulate for the previous year, in the first monthly report of each year. The monthly summary reports shall include electronic spreadsheets of the quality assured, quality controlled (QA/QC) air quality data;
  - iv) a table showing the 4-hour rolling average of total reduced sulphur emissions from the recovery boiler stack and lime kiln stack (upon installation of the continuous emission monitor), including the date and time covered by the average. The table shall also include the percentage of time during the month that the recovery boiler was compliant with the limit of Table 5, Appendix A, of this Approval.
  - v) a summary of any complaints received from the public and how they were responded to by the Approval Holder, including the date and time of the complaint; and
  - vi) the number of incidents of direct venting to atmosphere of untreated Concentrated Non-Condensable Gases (CNCGs), Dilute Non-Condensable gases (DNCGs), and Stripper Off Gases (SOGs), including the date, time and duration of each discharge, the total amount of time that CNCG, DNCG and SOG has been emitted for the month, the percentage of operating time the gases are released, and the suspected reason for each discharge.
- an) Each monthly report shall be submitted within 60 days of the end of the calendar month.

- ao) An annual report of continuous emission monitoring data for total reduced sulphur emissions, shall be submitted to the Department by March 31<sup>st</sup> of each year for the previous calendar year containing as a minimum:
- i) the annual average of 4 hour rolling averages expressed in ppm<sub>dv</sub>;
  - ii) the maximum 4 hour rolling average of emissions expressed in ppm<sub>dv</sub>;
  - iii) the annual percentage of time emissions exceeded the limit of Table 5, Appendix A, of this Approval;
  - iv) summaries of gas cylinder audits, Relative Accuracy Test Audit (RATA) results, system recommendations; and
  - v) any corrective actions implemented to the continuous emission monitor(s) from the previous year of operations.
- ap) Complaints shall be recorded and maintained on file for a period of not less than 2 years. All complaints of an opacity nature received by the Facility directly from the public shall be reported to the Department immediately between 08:30 and 16:30 Monday to Friday, excluding Holidays. Any complaints received during holidays or after stipulated hours, shall be reported immediately to 1.800.565.1633. Otherwise, reporting shall be in accordance with Condition 3(i) of this Approval.

## 10. Fuels

### Primary Fuels

- a) Fuel for the power boiler is limited to biomass, natural gas, No. 2 fuel oil, No. 6 fuel oil, and reconditioned fuel oil.
- b) Reconditioned fuel oil utilized in the Power Boiler shall comply with the following concentration limits:
- |                                   |            |
|-----------------------------------|------------|
|                                   | PCBs       |
|                                   | 2 mg/kg    |
| Total organic halogen as chlorine | 1000 mg/kg |
| Cadmium                           | 2 mg/kg    |
| Chromium                          | 10 mg/kg   |
| Lead                              | 100 mg/kg  |
- c) The Approval Holder shall maintain fuel consumption records for a period of at least 2 years to demonstrate compliance with Condition 10(b) of this Approval. These records shall be submitted to the Department upon request.

## **Alternate Fuels**

- d) Test burns of alternate fuels may be conducted under a Letter of Authorization on a case-by-case basis provided the following information has been submitted to the Department and deemed acceptable:
  - i) written notification of the intent to test the use of an alternate fuel identifying the type, volume, source and rate of consumption;
  - ii) analytical data identifying trace metals and/or contaminants in the proposed fuel;
  - iii) identification of potential air contaminants resulting from combustion of the fuel and the anticipated change to emissions for the proposed fuel combustion scenario;
  - iv) proposed feed rate and feed method;
  - v) identification of test methods proposed to confirm that air emissions are acceptable;
  - vi) identification of air quality standards proposed for comparison during testing; and
  - vii) proposed testing scenarios to demonstrate that testing will be conducted for the cases when the highest concentration of air contaminants would occur.
  
- e) Should a Letter of Authorization be issued by the Department for a test burn of an alternate fuel, the Approval Holder shall be required to submit:
  - i) A schedule to conduct the test burn. The maximum duration of the test burn shall be 120 hours (unless otherwise approved in writing by the Department); and
  - ii) Submission of a Final Report outlining the results of the test burn. This report shall include, but not be limited to, the test methods and analytical results, air quality standards used, the feed rates, quantity and quality of fuel used, monitoring data from the CEMs and any other operational data deemed pertinent during the test burn, summary of any equipment problems or failures, and the overall effectiveness of the material as an alternate fuel.

## **11. Air Emissions Process Control**

### **Concentrated Non-Condensable Gas (CNCG) Emissions**

- a) The Approval Holder shall ensure that all Concentrated Non-Condensable Gases (CNCGs) are collected and directed to the Recovery Boiler for incineration.

- b) When the Recovery Boiler becomes inoperable, the Approval Holder shall undertake a controlled shutdown of the evaporator(s) and digester(s) to ensure the release of Concentrated Non-Condensable Gases (CNCGs) is minimized.
- c) By December 31<sup>st</sup>, 2016, the Approval Holder shall limit direct venting or release to atmosphere of untreated CNCGs to a maximum of 4 percent of mill operating time. The Approval Holder shall also submit, by the same date, an engineering study that would determine the means to reduce direct venting or release to atmosphere of untreated CNCGs to a maximum of 1 percent of mill operating time.
- d) By July 1<sup>st</sup>, 2018, the Approval Holder shall limit direct venting or release to atmosphere of untreated CNCGs to a maximum of 1 percent of mill operating time.

#### **Dilute Non-Condensable Gas (DNCG) Emissions**

- e) Dilute Non-Condensable Gases (DNCGs) resulting from emissions of the chip bin, first stage filtrate tank, Number 2 brown stock washer filtrate seal tank, digester vent seal tank, and pressure filter filtrate tank shall be collected and directed to the Recovery Boiler for incineration.
- f) By December 31<sup>st</sup> 2016, the Approval Holder shall limit direct venting or release to atmosphere of untreated dilute non-condensable gas streams identified under Condition 11(e) of this Approval, to a maximum of 8 percent of mill operating time. The Approval Holder shall also submit, by the same date, an engineering study that would determine the means to reduce direct venting or release to atmosphere of untreated dilute non-condensable gas streams identified in Condition 11(e), to a maximum of 4 percent of mill operating time.
- g) By July 1<sup>st</sup>, 2018, the Approval Holder shall limit direct venting or release to atmosphere of untreated dilute non-condensable gas streams identified under Condition 11(e) of this Approval, to a maximum of 4 percent of mill operating time.
- h) The Approval Holder shall replace the evaporator ejector system associated with the evaporator vacuum system. This replacement evaporator ejector system shall be operational by July 1<sup>st</sup> 2016.
- i) The Approval Holder shall submit a study, which meets the satisfaction of the Department, to collect and direct the dilute non-condensable gas streams from the hood over the brown stock washers number 1 and 2, hood on the brown stock thickener, the brown stock thickener seal tank, the black liquor oxidizer and the washed stock storage tank to an incineration source for treatment. This study shall include an implementation schedule for the collection and treatment of these DNCG streams which shall be submitted to the Department for consideration by July 1<sup>st</sup>, 2017. Upon receipt of a Letter of Authorization from the Department, the

Approval Holder shall implement this project based on an acceptable schedule.

### **Condensate Stripper Off Gas (SOG) Emissions**

- j) The condensate steam stripper off gases shall be collected and directed to the lime kiln for incineration.
- k) The Approval Holder shall limit direct venting or release to atmosphere of untreated SOGs to a maximum of 1 percent of mill operating time.
- l) The foul condensate steam stripper shall be operated and maintained in accordance with the Foul Condensate Stripping System CNCG and SOG Collection and Incineration System Report, regarding operation and maintenance, prepared by AH Lundberg Systems Limited dated April 23, 2012.

### **Other Emission Sources**

- m) The Approval Holder shall operate and maintain scrubbers to treat chlorine dioxide emissions at the chlorine dioxide towers and chlorine dioxide generator.

## **12. Hydrology and Hydrogeology**

### **Mill Site Hydrogeological Monitoring Network**

- a) The Approval Holder shall maintain the existing thirty-seven (37) groundwater monitoring wells on the Site, including: the Industrial Landfill Monitoring Network (1A, 1B, 1C, 2A, 2B, 3A, 3B, 3C, 4A, 4B, 4C, 5A, 5B, 6A, 6B, 7A, 7B, 7C, 8B, 9A, 9C, 09-1A, 96-1B, 96-2B, 09-2C, 09-3B and 96-3C), the Mill Monitoring Network (MW12-1, MW12-2, MW12-3, MW12-4, MW12-5, MW12-6), and the Cardlock Facility Wells (A, B, C, and D). The location of the thirty-seven (37) groundwater monitoring wells are as identified on Figure 3-2, entitled *Surface Water and Monitoring Well Locations*, dated March 2014 included in the Northern Pulp Nova Scotia Corporation 2013 Annual Monitoring Report, prepared by Dillon Consulting, dated March 2014.
- b) Any new or existing well at the Facility that has been damaged or “abandoned” (i.e. is not being used or maintained for present or future use) shall be sealed in a manner acceptable to the Department.
- c) Prior to implementation of any modification, (addition, deletion or replacement), to the Monitoring well network, the Approval Holder shall submit a written request for a Letter of Authorization, together with justification for the modification. The

justification for the change shall be prepared by a qualified professional, licensed to practice in the Province of Nova Scotia by APGNS or APENS.

- d) The request for modification outlined in Condition 12(c) shall be submitted a minimum of ninety (90) days prior to the proposed implementation date and must be approved in writing, by the Department, prior to implementation.
- e) The Approval Holder shall maintain the following production wells: Construction Gate and Scalehouse.
- f) The Approval Holder shall implement all modifications to the monitoring network as deemed necessary by NSE and within timeframes acceptable to the Department.
- g) The Approval Holder shall maintain records for all groundwater monitoring wells and production wells at the Facility, including but not limited to borehole logs and construction details, and maintenance records for the life of the facility.

#### **Mill Site Hydrogeological Monitoring**

- h) The Approval Holder shall measure static water levels at all groundwater monitoring wells prior to sample collection.
- i) The Approval Holder shall collect groundwater samples from the following industrial landfill monitoring wells on a semi-annual basis, during spring and fall: 1B, 2A, 2B, 4A, 4B, 09-1A, 96-1B, 96-2B, 09-2C, 09-3B, 96-3C.
- j) The Approval Holder shall collect groundwater samples from the following industrial landfill monitoring wells on an annual basis, during the low flow period: 1A, 1C, 3A, 3B, 3C, 4C, 5A, 5B, 6A, 6B, 7A, 7B, 7C, 8B, 9A and 9C.
- k) The Approval Holder shall collect groundwater samples from the Mill monitoring wells (MW12-1, MW12-2, MW12-3, MW12-4, MW12-5, and MW12-6) on a semiannual basis.
- l) The Approval Holder shall collect groundwater samples from the four cardlock facility wells (A, B, C, and D) on an annual basis.
- m) The Approval Holder shall collect groundwater samples from the following production wells semi-annually: the Construction Gate Well and the Scale House Well.
- n) The Approval Holder shall ensure all groundwater samples are collected in a consistent manner in accordance with established industry standards and best practices.

- o) The Approval Holder shall analyze all groundwater samples from all industrial landfill monitoring wells for general inorganic chemistry and metals as listed in Table 8, Appendix 'A'.
- p) The Approval Holder shall analyze the groundwater samples collected from the following industrial landfill monitoring wells for volatile organic compounds (VOCs) and polycyclic aromatic hydrocarbons (PAHs) on an annual basis, during the low flow period: 09-1A, 96-1B, 96-2B, and 09-2C
- q) The Approval Holder shall analyze groundwater samples collected from the following industrial landfill monitoring wells for total petroleum hydrocarbons (TPH) and Benzene, Toluene, Ethyl benzene, and Xylene (BTEX) on an annual basis, during the low flow period: 4A, 4B, 5A, 5B, 6A, 6B, 7A, 7B, and 7C.
- r) The Approval Holder shall analyze groundwater samples collected from the following industrial landfill monitoring wells for mercury on an annual basis during the low flow period: (09-1A, 96-1B, 96-2B, 09-2C, 09-3B, 96-3C, 7A, 7B and 7C).
- s) The Approval Holder shall analyze groundwater samples collected from the Mill monitoring wells (MW12-1, MW12-2, MW12-3, MW12-4, MW12-5, and MW12-6) for general inorganic chemistry and metals as listed in Table 4, Appendix 'A'. Once annually, during the low flow period, all six (6) Mill monitoring wells shall be analyzed for TPH and BTEX, and the following five (5) Mill monitoring wells shall be analyzed for PAHs: MW12-1, MW12-2, MW12-4, MW12-5, and MW12-6.
- t) The Approval Holder shall analyze groundwater samples collected from the four cardlock facility wells (A, B, C, and D) for the parameters listed in Table 8, Appendix A.
- u) The Approval Holder shall analyze groundwater samples collected from the Construction Gate Well and Scale House Well for the general chemical and metal parameters listed in Table 8, Appendix A. Once annually, during the low flow period, samples collected from the Scale House Well shall be analyzed for VOCs and PAHs.
- v) The Approval Holder shall maintain records of the approved groundwater monitoring program for the life of the Facility. Records shall include, but is not limited to: groundwater quality results, water levels, sampling procedures, sampling schedules, and annual reports.
- w) The Approval Holder shall review the groundwater quality monitoring data as it is collected in order to identify potential changes in water chemistry associated with mill activities. Any change in groundwater quality or quantity shall be reported immediately to the Department.



- x) The Approval Holder shall submit an Annual groundwater monitoring report to the Department by April 1<sup>st</sup> of each calendar year. The Annual Report shall:
- (i) include, but is not limited to a review of field methodologies, including sampling techniques; a description of the groundwater monitoring network; a review of the current groundwater monitoring program and recommendations for modifications, as applicable; current and historical static water level data in tabular format; current and historical groundwater quality data in tabular format; laboratory certificates of analysis; a detailed interpretation of the groundwater quality data including an analysis of spatial and temporal trends; and the identification of any adverse impacts to groundwater as a result of mill activities and associated recommendations, as applicable.
  - (ii) be prepared by or under the direction of a Professional Hydrogeologist licensed to practice in Nova Scotia by the Association of Professional Geoscientists of Nova Scotia (APGNS) or the Association of Professional Engineers of Nova Scotia (APENS).

#### **Mill Site Hydrological Monitoring Network**

- y) The Approval Holder shall maintain the twelve (12) surface water monitoring stations at the Site: SW2, SW4, SW5, SW6, SW9, SW10, SW11, SW12, SW13, SW12-1, SW12-2, and SW12-3.
- z) The location of the twelve (12) surface water monitoring stations are identified on Figure 3-2, entitled *Surface Water and Monitoring Well Locations*, dated March 2014 included in the Northern Pulp Abercrombie Pulp Mill 2013 Annual Report, prepared by Dillon Consulting, dated March 2014.

#### **Hydrological Monitoring (All locations)**

- aa) The Approval Holder shall ensure that the following discharge limits for suspended solids are met for any water which is discharged from the Site to a watercourse or wetland at the Site:

Clear Flows (Normal Background Conditions):\*

- (i) Maximum increase of 25 milligrams/litre from background levels for any short term exposure (24 hours or less)
- (ii) Maximum average increase of 5 milligrams/litre from background levels for longer term exposure (inputs lasting between 24 and 30 days)

High Flow (Spring Freshets and Storm Events):\*

- (i) Maximum increase of 25 milligrams/litre from background levels at any time when background levels are between 25

- milligrams/litre and 250 milligrams/litre
  - (ii) Shall not increase more than 10% over background levels when background is > 250 milligrams/litre

\*CCME Environmental Quality Guideline for Aquatic Life, 2002.

- ab) The Approval Holder shall ensure surface water discharge from the Site meets the limits outlined in Table 7 of Appendix A.

### **Mill Site Hydrological Monitoring**

- ac)
  - (i) The Approval Holder shall collect surface water samples from SW5, SW6, SW9, SW12, SW12-1, SW12-2, and SW12-3 on a quarterly basis.
  - (ii) The Approval Holder shall collect surface water samples from SW2, SW4, SW10, SW11, and SW13 on a semi-annual basis, during spring and fall.
  - (iii) The Approval Holder shall collect a leachate sample from the leachate collection manhole on a quarterly basis.
  - (iv) All surface water and leachate samples shall be collected in a manner consistent with established industry standards and best practices.
- ad) The Approval Holder shall ensure the following surface water stations are analyzed for parameters listed in Table 7 and 8, in Appendix A, as well as total suspended solids (TSS), biological oxygen demand (BOD), chemical oxygen demand (COD): SW1, SW3, SW4, SW5, SW6, SW7, SW8, SW9, SW11, SW12, and SW13. Once annually, during the low flow period, all surface water samples shall be analyzed for mercury.
- ae) The Approval Holder shall ensure all surface water samples collected from SW2 and SW10 are analyzed for the parameters in Table 8, in Appendix A, as well as total suspended solids (TSS), biological oxygen demand (BOD) and chemical oxygen demand (COD). Once annually, during the low flow period, all surface water samples shall be analyzed for mercury.
- af) The Approval Holder shall ensure leachate samples are analyzed for the parameters listed in Table 7 and 8 of Appendix A as well as mercury, TSS, COD, and BOD.
- ag) The Approval Holder shall monitor SW 12-3 for phenanthrene on an semi-annual basis, during a period of high flow and a period of low flow for a minimum of two (2) years, at which time the Approval Holder may apply to reduce the monitoring frequency for this parameter. A trend analysis shall be included in the annual report.

- ah) The Approval Holder shall evaluate the surface water monitoring program annually to determine whether modifications to the program are required. Requests to modify the surface water monitoring program must be submitted to the Department in writing complete with adequate justification prepared by a qualified professional licensed to practice by APGNS or APENS. Any changes to the program must be authorized in writing by the Department prior to implementation.
- ai) The Approval Holder shall maintain records of the surface water monitoring program for the life of the Facility. Records shall include, but are not limited to: surface water quality data, sampling techniques, sampling schedule, and locations.
- aj) The Approval Holder shall review the surface water quality data as it is collected in order to identify potential changes in water chemistry associated with Mill activities. Any change to surface water quality or quantity shall be reported immediately to the Department.
- ak)
  - (i) The Approval Holder shall submit an Annual surface water monitoring report to the Department by April 1<sup>st</sup> of each calendar year.
  - (ii) The Annual Report shall include, but is not limited to, the following: a review of field methodologies, including sampling techniques; a description of the surface water monitoring network; a review of the current surface water monitoring program and recommendations for modifications, as applicable; current and historical surface water and leachate quality data in tabular format; laboratory certificates of analysis; a detailed interpretation of the surface water quality and leachate data including an analysis of spatial and temporal trends; the identification of any adverse impacts to surface water as a result of mill activities and associated recommendations, as applicable.
  - (iii) The Annual Report shall be prepared by or under the direction of a qualified Hydrologist.

#### **Effluent Treatment System Hydrogeological Monitoring Network**

- al) The Approval Holder shall assess and recommend the appropriate siting of a groundwater monitoring network for the Effluent Treatment System. This assessment shall be completed by a qualified professional licensed to practice in Nova Scotia by the Association of Professional Geoscientists of Nova Scotia (APGNS) or the Association of Professional Engineers of Nova Scotia (APENS). This evaluation shall be submitted to the Department no later than July 15, 2015.

- am) The Approval Holder shall install the groundwater monitoring network recommended in Condition 12(al), within six months of receipt of written authorization from the Department.

### **Effluent Treatment System Hydrogeological Monitoring**

- an) The Approval Holder shall maintain records for all groundwater monitoring wells at the Facility, including but not limited to borehole logs and construction details, and maintenance records for the life of the Facility.
- ao) The Approval Holder shall measure static water levels at all groundwater monitoring wells prior to sample collection.
- ap) The Approval Holder shall submit a recommended monitoring program, including a monitoring schedule, for the monitoring wells proposed under Condition 12(al). This recommendation shall be prepared by a qualified professional licensed to practice in Nova Scotia by the Association of Professional Geoscientists of Nova Scotia (APGNS) or the Association of Professional Engineers of Nova Scotia (APENS). Submission to the Department for authorization is required no later than July 15, 2015.
- aq) All groundwater samples shall be collected in a consistent manner in accordance with established industry standards and best practices.
- ar) The Approval Holder shall implement the approved monitoring program required under Condition 12(ap) in accordance with the authorized frequency, locations, and parameters within six (6) months of receipt of a Letter of Authorization from the Department.
- as) The Approval Holder shall review the groundwater quality monitoring data as it is collected in order to identify potential changes in water chemistry associated with mill activities. Any change in groundwater quality or quantity shall be reported immediately to the Department.
- at) The Approval Holder shall submit an Annual ground water monitoring report to the Department by April 1<sup>st</sup> of each calendar year. The Annual Report shall:
  - (i) include, but is not limited to a review of field methodologies, including sampling techniques; a description of the groundwater monitoring network; a review of the current groundwater monitoring program and recommendations for modifications, as applicable; current and historical static water level data in tabular format; current and historical groundwater quality data in tabular format; laboratory certificates of analysis; a detailed interpretation of the groundwater quality data including an analysis of spatial and temporal trends; and the identification of any adverse impacts to groundwater as a result of

mill activities and associated recommendations, as applicable.

- (ii) be prepared by or under the direction of a Professional Hydrogeologist licensed to practice in Nova Scotia by the Association of Professional Geoscientists of Nova Scotia (APGNS) or the Association of Professional Engineers of Nova Scotia (APENS).

#### **Effluent Treatment System Hydrological Monitoring Network**

- au) The Approval Holder shall assess and recommend the appropriate locations for surface water monitoring locations at the Effluent Treatment System. This assessment shall be based on the recommendations of the *Hydrogeological and Hydrological Evaluation for the Boat Harbour Treatment Facility Report*, prepared by Stantec Consulting Limited, dated April 30, 2012 and be completed by a qualified professional licensed to practice in Nova Scotia by the Association of Professional Geoscientists of Nova Scotia (APGNS) or the Association of Professional Engineers of Nova Scotia (APENS). This evaluation shall be submitted to the Department for approval no later than July 15, 2015
- av) The Approval Holder shall establish the surface water monitoring locations recommended in Condition 12(au), within two months of receipt of written authorization from the Department

#### **Effluent Treatment System Hydrological Monitoring**

- aw) The Approval Holder shall collect surface water samples from locations authorized locations on a quarterly basis
- ax) All surface water samples shall be analyzed for parameters listed in Table 7 and 8, in Appendix A as well as total suspended solids (TSS), biological oxygen demand (BOD), chemical oxygen demand (COD), mercury, volatile organic compounds (VOCs) and polycyclic aromatic hydrocarbons (PAHs).
- ay) The surface water monitoring program shall be evaluated annually to determine if modifications to the program are required. Requests to modify the surface water monitoring program must be submitted to the Department in writing complete with adequate justification prepared by a qualified professional licensed to practice in Nova Scotia by APGNS or APENS. Any changes to the program must be approved in writing by the Department prior to implementation.
- az) All surface water and leachate samples shall be collected in a manner consistent with established industry standards and best practices
- ba) The Approval Holder shall maintain records of the surface water monitoring program for the life of the Facility. This shall include, but is not limited to: surface

water quality data, sampling procedures, and locations.

- bb) The Approval Holder shall review the surface water quality data as it is collected in order to identify potential changes in water chemistry associated with mill activities. Any change to surface water quality or quantity shall be reported immediately to the Department.
- bc)
  - (i) The Approval Holder shall submit an Annual surface water monitoring report to the Department by April 1<sup>st</sup> of each calendar year.
  - (ii) The Annual Report shall include, but is not limited to, the following: a review of field methodologies, including sampling techniques; a description of the surface water monitoring network; a review of the current surface water monitoring program and recommendations for modifications, as applicable; current and historical surface water and leachate quality data in tabular format; laboratory certificates of analysis; a detailed interpretation of the surface water quality and leachate data including an analysis of spatial and temporal trends; the identification of any adverse impacts to surface water as a result of mill activities and associated recommendations, as applicable.
  - (iii) The Annual Report shall be prepared by or under the direction of a qualified professional licensed to practice in Nova Scotia by APGNS or APENS.

### **13. Registered Public Drinking Water Supply**

- a) The Approval Holder shall maintain registration as a Public Drinking Water Supply, in accordance with the Guidelines for Monitoring Public Drinking Water Supplies, as required.

### **14. Dangerous Goods**

#### **General**

- a) In the event of a conflict between the terms and conditions of Condition 14 of this Approval and the Dangerous Goods Management Regulations, the Dangerous Goods Management Regulations will apply.
- b) This Approval allows the Facility to store and handle Dangerous Goods.

- c) The Approval Holder shall maintain a complete inventory of all Dangerous Goods handled and stored at the Facility. The list provided by Northern Pulp to NSE dated June 23, 2011 will be considered the list of authorized Dangerous Goods for the Facility under this Approval.
- d) The Approval Holder shall not accept or handle Dangerous Goods which are not authorized by this Approval. Should the Facility wish to store or handle any dangerous goods not listed on the inventory provided in Condition 14(c), the Approval Holder shall submit the Material Safety Data Sheets (MSDS) to the Department 10 business days in advance for review.
- e) The Approval Holder shall designate Dangerous Goods storage and receiving areas within the Facility and restrict the handling and storage of Dangerous Goods to designated areas.
- f) The Approval Holder shall not accept Waste Dangerous Goods at the Facility that the Approval Holder did not produce.

#### **Storage / Process Tanks and Handling**

- g) All loading and unloading of Dangerous Goods shall be completed within the receiving areas of the Facility.
- h) All Dangerous Goods shall be handled in a manner which safely minimizes generation of vapour to the atmosphere, at the Facility and at the Site.
- i) Incompatible Dangerous Goods shall not be loaded or unloaded in the receiving area at the same time. Incompatible materials shall not share piping, valves, pumps or other means of transfer unless the transfer system is cleaned and purged between uses.
- j) The Approval Holder shall submit to the Department for review the Chemical Unloading Area Upgrade Study, indicated in the January 21, 2013 correspondence from Northern Pulp regarding the Assessment of Dangerous Goods Handling and Storage, by no later than March 15, 2016.
- k) Individual Dangerous Goods or groups of compatible Dangerous Goods shall have isolation barriers, control systems or strategies to meet the specifications of

Condition 14(q). Isolation barriers shall be constructed or control systems or strategies implemented such that potential spills of Dangerous Goods do not come in contact with or pass under or over incompatible materials.

- l) A trained employee of the Facility or Company responsible for the supply and/or delivery of the Dangerous Goods shall be present during all Dangerous Goods handling operations.
- j) The Approval Holder shall submit a plan to redirect spills/releases from or eliminate open floor drains in Dangerous Goods storage and handling areas of the Facility which currently could potentially allow release of Dangerous Goods to the environment or the effluent treatment system. If suitable, this plan shall receive a Letter of Authorization from the Department and contain an implementation schedule. This plan shall be submitted no later than December 1, 2015.
- k) The Approval Holder shall submit a plan by January 30, 2016 to manage dangerous goods spills in a manner which prevents them from entering the effluent treatment system by the end of the Approval term.
- l) The Approval Holder shall develop procedures for the interim isolation of releases of dangerous goods from entering the effluent treatment system. These procedures shall be submitted to the Department for review by March 30, 2015 and shall be made available to the Department upon request.
- p) All storage racks, vehicles, railcars, ventilation ducts, containers and mix/storage tanks associated with flammable Dangerous Goods shall be electrically grounded to prevent build-up of static electric charges.
- q) All Dangerous Goods that are accepted by the Facility shall be stored in drums, containers, totes, tanks or pails composed of materials which are compatible with the goods stored therein.
- r) The Approval Holder shall undertake a study, performed by and bearing the signature of a registered professional engineer, to receive a Letter of Authorization from the Department, for the installation of secondary containment, spill control or equivalent measures, for all Dangerous Goods Storage tanks, containers and transfer systems. Where required, secondary containment shall be sized to contain 110% of the volume of the largest tank or container in the specifically contained/catchment area being serviced by the spill control or 100% of the volume of the largest tank or container plus 10% of the aggregate capacity of all other



containers or tanks in the contained/ catchment area, whichever is greater. Where required, spill control systems or strategies will have backup or redundant controls and alarms to ensure Dangerous Goods do not enter the environment. This study shall include a plan for implementation based on a hierarchy of risk (i.e. the highest risk being implemented first). Preference shall be given to secondary containment, spill control systems and administrative measures in descending order of suitability and the study must justify why a particular measure is recommended, with cost not being a significant factor. The risk matrix shall be included in the submission. This study shall be submitted to the Department no later than January 30, 2016.

- s) The Approval Holder shall submit a report on the evaluation of surface grades as indicated in the January 21, 2013 correspondence from Northern Pulp regarding the Assessment of Dangerous Goods Handling and Storage. The report shall be submitted by January 30, 2016.
- t) All containers shall be stored upright and kept off the floor. All products and Dangerous Goods shall be stored in accordance with manufacturer's specifications.
- u) Door openings shall be provided with sills or ramps of a minimum 3" inches to contain spillage of Dangerous Goods inside the Dangerous Goods storage buildings.
- v) The Dangerous Goods storage building shall be constructed of impervious or liquid tight materials where the outside walls meet the floor. The materials of construction or containment shall be compatible with the Dangerous Goods being stored.
- w) Sufficient aisle space shall be provided between containers/drums to allow the unobstructed movement of persons, transfer equipment, fire protection equipment, spill control equipment, and decontamination equipment to any part of the Dangerous Goods Storage facility.
- x) The Approval Holder shall ensure that all storage areas, containers, tanks, totes, drums and pails, including railcars and trucks containing products and Dangerous Goods are labelled to clearly identify their contents.
- y) All bulk tank storage vessels shall operate with visual and audible high level alarms that will indicate issues in an area that is staffed by trained staff from the Facility at all times. The Approval Holder shall submit confirmation within 30 days of the issuance of this Approval that audible alarms have been installed and are operable

on these tanks. Should this Condition not be met within 30 days of issuance of this Approval, the Approval Holder shall file notification of which tanks do not comply and a plan, which may receive a Letter of Authorization from the Department, indicating how this Condition will be achieved and including a schedule of regular testing and maintenance to ensure the systems continue to perform properly. Notification shall be submitted within 30 days of the issuance of the Approval. The plan shall be submitted within 60 days of the issuance of the Approval.

- z) All transfers of bulk Dangerous Goods shall be conducted using containment pads or drip pans to capture spills or drips during transfer operations to/from railcars and other approved containers.
- aa) The bulk storage tanks shall be equipped with emergency shut-off valves or emergency shut-off on transfer pumps to permit the immediate shutdown of transfer operations in the event of an uncontrolled release.
- ab) All bulk underground steel storage tanks at the Dangerous Goods storage facility shall have cathodic protection or sacrificial anode protection systems.
- ac) The Approval Holder shall ensure that all sludges and solid wastes associated with the Facility, including tank bottoms, shall be handled and disposed in a manner authorized by the Department or at a facility approved by the applicable regulatory having jurisdiction. Discharge or disposal of sludges or solid wastes to the Effluent Treatment System is strictly prohibited.
- ad) The Approval Holder shall not transfer Dangerous Goods to/from more than one railcar or tanker truck at a time unless each operation is being supervised by a dedicated trained employee of the Facility or an employee of the supplier and only if the materials are compatible.
- ae) The Approval Holder shall not store Dangerous Goods in railcar tankers or tanker trucks for a period which exceeds 21 days from arriving on the Site. The Approval Holder shall document exact times of arrival and departure of bulk shipments and make those available to the Department upon request.
- af) The Approval Holder shall maintain written acceptable standard operating procedures for the handling of Dangerous Goods, including valving and venting procedures. Such procedures shall be readily available to all employees.

## **Waste Dangerous Goods**

- ag) The disposal of Waste Dangerous Goods, including radioactive sources, shall be at a facility licensed or approved for the disposal of such Waste Dangerous Goods by the applicable regulatory agency having jurisdiction.

## **Dangerous Goods / Process Bulk Storage Tank Maintenance**

- ah) The Approval Holder shall develop an inspection/repair plan for the following tanks identified in the Tank Assessment Study, submitted November 2012, as requiring further investigation and or repair: 11% Caustic Tank, CLO<sub>2</sub> Storage Tank #2, Chemical Feed Tank, Green Liquor Dump Tank, Liquid Alum Storage Tank, Clarified White Tank. This plan shall include, but not be limited to, a schedule for any repairs identified and shall be submitted by no later than June 1, 2016.
- ai) The Approval Holder shall implement the plan required under Condition 14(ah), in accordance with the agreed upon schedule, following receipt of a Letter of Authorization from the Department.
- aj) The Approval Holder shall submit the details of the assessment and repair of the White Liquor Tank, as indicated in the January 21, 2013 correspondence from Northern Pulp regarding the Assessment of Dangerous Goods Handling and Storage, and the work completed on the Caustic Storage Tank (cleaning required for further inspection) as indicated in the Tank Assessment Study, submitted November 2012. This information shall be submitted to the Department no later than April 15, 2015.
- ak) Dangerous Goods Storage/ Process tank(s) shall be assessed against a Standard(s) acceptable to the Department on a five (5) year cycle, beginning June 30, 2018. The Approval Holder shall submit the proposed Standard(s) to the Department 60 days in advance of the inspection.
- al) If results of the assessment required in Condition 14 (ak) indicate that the Dangerous Goods Bulk Storage/ Process Tanks require maintenance, replacement or upgrades, then the Approval Holder will:
  - (i) Submit to the Department a copy of the report as well as a plan for maintenance, replacement or upgrades within 30 days of the testing event to address any outstanding issues identified;
  - (ii) Undertake the necessary maintenance or upgrades within one (1) year

of being identified. If these deficiencies cannot be corrected within one (1) year of being identified, then the reasons shall be submitted in writing 60 days prior to the deadline with a proposal for a revised schedule, and a request for an extension;

- (iii) Following completion of the maintenance or upgrades, the tank(s) shall be reassessed in accordance with Condition 14(ak) to ensure the maintenance or upgrades were effective.

### **Inventory Control**

- am) The Approval Holder shall maintain an up-to-date inventory of Dangerous Goods which are stored at the Facility. The inventory shall consist of informational requirements of Section 12 (2) of the *Dangerous Goods Management Regulations*.
- an) The inventory required under Condition 14(am) shall be made available to the Department for inspection upon request.

### **15. Petroleum Management**

- a) The Approval Holder shall reassess the petroleum storage tanks at the Facility, on a five (5) year cycle for each tank, against the “Nova Scotia Standards for Construction and Installation for Petroleum Storage Tank Systems” (Standard), current edition and the Nova Scotia *Petroleum Management Regulations*, (the Regulations). The assessment shall be submitted within 90 days immediately following the testing. The Approval Holder shall submit the schedule for reassessment for each tank to the Department by September 30, 2015.
- b) The Approval Holder shall operate and maintain the petroleum storage tanks in accordance with the *Nova Scotia Standards for Construction and Installation for Petroleum Storage Tank Systems*, dated June 5, 1997, as amended from time to time.
- c) Testing and monitoring of the petroleum storage tanks shall be conducted in accordance with the *Nova Scotia Standards for Construction and Installation for Petroleum Storage Tank Systems*, dated June 5, 1997, as amended from time to time.

## 16. Industrial Landfill

- a) The disposal of domestic solid waste shall be conducted at a facility licensed or approved for the recycling, composting or disposal of such solid waste. The Approval Holder shall not dispose of domestic solid waste at the industrial landfill.
- b) The Approval Holder shall dispose of all Effluent Treatment System sludges at the Approval Holder's industrial landfill, unless authorization has been obtained from the Department for alternative disposal.
- c) The Approval Holder shall dispose of all combustion residues and solid waste originating from pollution control equipment such as, electrostatic precipitators, scrubbers and demisters at the Approval Holder's industrial landfill, unless authorization has been obtained from the Department for alternative disposal. Unless otherwise approved, solid waste from the multiclone must be disposed at the Approval Holder's industrial landfill.
- d) The Approval Holder shall dispose of petroleum impacted soil, or soils deemed to be impacted by hazardous substances, at a facility licensed or approved for the treatment or disposal for such waste. Disposal of petroleum impacted soils or soils considered to be contaminated, as defined by Section 3(k) of the Environment Act, at the Facility's industrial landfill is strictly prohibited.
- e) Only industrial waste types for which the Facility's industrial landfill was designed and as identified in the Landfill Operations Manual, dated December, 1989 and Solid Waste Management Strategy Background Report, dated November 1989, shall be disposed at the industrial landfill. These wastes include bark, gravel, dirt, sawdust, wood slivers, tramp metal, boiler bottom and fly ash, clarifier dregs, settled lime and slaker rejects, lime grit and line mud impurities and effluent treatment system sludge.
- f) The Approval Holder shall maintain and update the Abercrombie Point Landfill No. 3 Operations and Maintenance Manual at a minimum, on an annual basis or more frequently if necessary. A copy of the updated Manual shall be provided to the Department within 30 days of the update.
- g) The Approval Holder shall submit a schedule for implementation of the recommendations outlined in the February 21, 2012 memo from Dillon Consulting to Northern Pulp regarding Assessment of Landfill 1 and 2, Abercrombie Point, by no later than April 15, 2015.
- h) The Approval Holder shall submit closure plans for all disposal sites at the Facility a minimum of 90 days in advance of the proposed closure. An amendment to this Approval may be required.

- i) Any proposed change or modification to the size, design, construction, disposal practices of any landfill, the Approval Holder will require an amendment to this Approval prior to implementation of that change or modification.

#### **Ash Pond Management**

- j) The Approval Holder shall maintain and update the Ash Pond Operations and Maintenance Manual, dated June 13, 2011 on an annual basis. Any changes or modifications to the Manual shall be submitted to the Department.
- k) The Approval Holder shall submit an accurate depth survey of the ash pond by no later than November 30, 2015.
- l) The Approval Holder shall operate and maintain the ash pond to prevent a release to the environment.

### **17. Asbestos**

#### **Designated Asbestos Disposal Area**

- a) Asbestos waste generated from the Facility shall be disposed of in the area designated for asbestos disposal on Engineering Plan entitled *Industrial Solid Waste Landfill Engineering Drawing Rev. 1 dated August 1990, Sheet 5 and Sheet 6*, prepared by Porter Dillon Consulting Ltd.
- b) A copy of the site plan indicating the location of the asbestos waste disposal area shall be maintained by the Approval Holder in the Registry of Deeds.
- c) Any modification or change to the area outlined in Condition 17(a) will require an amendment to this Approval.
- d) The designated asbestos disposal area shall be clearly marked by signage.
- e) The area designated for asbestos waste disposal must be secured from unauthorized access.
- f) The Facility shall not accept asbestos waste from third party generators of the waste.

#### **Designated Area Cover Limits**

- g) Upon abandonment or discontinuance of use of the designated asbestos waste disposal area, the Approval Holder shall apply a final capping material having a depth of not less than one hundred twenty five (125) centimetres with a permeability of not greater than  $10^{-6}$  centimetres per second.

## **Facility Inspection**

- h) Upon abandonment or discontinuance of use of the designated asbestos waste disposal area, the Approval Holder shall inspect the area on a monthly basis to ensure that the final capping is intact.
- i) The Approval Holder shall undertake any repairs that may be required to maintain the cover limits specified in this Approval.

## **18. Spills or Releases**

- a) All spills or releases shall be reported in accordance with the *Act (Part IV)* and the *Emergency Spill Regulations*.
- b) Spills or releases shall be cleaned up in accordance with the *Act, Policies, Standards and/or Procedures*, as directed by the Minister.

## **19. Records Maintenance**

- a) The Approval Holder shall keep all chemical and physical analyses reports required under this Approval for a period of not less than ten (10) years unless otherwise stated in this Approval.
- b) The Approval Holder shall keep all calibration and maintenance records for a period of not less than ten (10) years, unless otherwise stated in this Approval.
- c) The Approval Holder shall maintain all other data not mentioned in Conditions 19(a) or 19(b) for a minimum of ten (10) years, unless otherwise stated in this Approval.

## **20. Reporting**

- a) All reporting requirements required by this Approval shall be submitted in writing and/or electronically, in a format acceptable to the Administrator.
- b) The Approval Holder shall submit required annual reports within ninety (90) days of the end of the applicable calendar year.

- c) The Approval Holder shall submit required quarterly reports within forty-five (45) days of the end of the applicable quarter being reported, unless otherwise specified in the Approval.
- d) The Approval Holder shall submit required monthly reports within thirty (30) days of the end of the applicable month being reported, unless otherwise specified in the Approval.

## **21. Community Liaison Committee**

- a) The Approval Holder shall establish a Community Liaison Committee in accordance with the Department's Guide for the Formation and Operation of a Community Liaison Committees. The membership of said committee shall consist of at least two representatives of the Pictou Landing First Nation Community, one representative of the Pictou Landing Community, one representative of the Moodie Cove Community, one representative of the Town of Pictou Community and one representative of the Abercrombie Community, one representative of the Green Hill area along with participation of one employee of Northern Pulp Nova Scotia Limited.
- b) The Approval Holder shall submit the list of proposed Community Liaison Committee members as well as the terms of reference for the Committee to the Department by April 30<sup>th</sup>, 2015. This list shall be updated and submitted on an annual basis in the Annual Report for the Facility.

## **22. Communication Plan**

- a) The Approval Holder shall develop, in consultation with the Pictou Landing First Nation, a Mi'kmaq Communication Plan for the purposes of sharing information between the Approval Holder and the Pictou Landing First Nation (PLFN) on environmental issues. This plan shall be developed to the satisfaction of the Department and submitted for review by no later than March 30, 2015 and shall include but not be limited to the following information:
  - (i) a mechanism for PLFN to identify any questions or concerns they may have about the information supplied to them.
- b) The Approval Holder shall provide PLFN with a copy of all reporting information and reports that are required to be submitted under this Approval. Service of all of the aforementioned information and reports shall be in accordance with Section 24(1) of the Environment Act.



- c) The Approval Holder shall provide a list of documents shared, and records of communication with the Pictou Landing First Nation to the Department on or before July 1<sup>st</sup> (for the period January 1 to June 1) and January 30<sup>th</sup> (for the period June 2 to December 31 of the previous calendar year) of each year.

## **23. Contingency Plans/Operation and Maintenance Manuals**

### **Contingency Planning**

- a) The Approval Holder shall submit to the Department a contingency plan to address any potential emergency situation at the Facility. The contingency plan shall be developed and routinely updated in accordance with the Department's *Contingency Planning Guidelines* dated September 29, 2004, as amended from time to time, and made available to the Department upon request.
- b) The Approval Holder shall ensure that all personnel are trained to address environmental emergencies in a manner consistent with the Facility's approved contingency plan and that the necessary materials and equipment are available at all times for such purpose.
- c) A copy of the contingency plan is to be maintained on site at all times.
- d) A copy of the contingency plan is to be sent to the local fire department.

## **24. Rehabilitation Plans**

- a) One (1) year prior to decommissioning/closure of the Facility, or any part thereof, the Approval Holder shall submit a detailed closure plan to the Department for review. The plan shall include but not be limited to, the estimated total cost for labour, equipment, supplies and services of a 3<sup>rd</sup> party contractor to undertake all the work necessary to decommission the Facility, or any part thereof, as well as a plan for dealing with all of the wastes and residual materials / contamination in accordance with the any Provincial legislation including the *Act*, the Regulations, Policies, Procedures, Guidelines or other agreements entered into by the Province which may impact rehabilitation, as well as a long term monitoring plan for the site.
- b) The closure plan shall include the method and practices for the handling and disposal of all products and waste materials on Site.

- c) The closure plan shall be implemented in accordance with the approved plan.

## **25. General Insurance – Construction, Operation, Reclamation Period**

- a) The Approval Holder shall, at its own expense, purchase and maintain in full force during the period of operation, insurances to protect itself, its contractors and subcontractors, the Province of Nova Scotia, the Corporation, their successors and assigns and their respective directors, officers, council members, employees, agents and servants involved in the operation and reclamation of Bleached Kraft Pulp Mill, as outlined in this Approval.

Such insurance shall provide coverage for all environmental risks associated with the operation of the Facility and shall protect Nova Scotia, the Corporation, their successors and assigns, and their respective officers, directors, council members and employees from all claims arising out of liability for environmental impairment.

All policies shall be issued by financially sound insurers licensed to carry on business in Canada and shall be subject to review by Nova Scotia. All policies shall be non-cancellable, except for violation of statutory law which places the Insurer in violation of the laws of its place of domicile or threatens its solvency.

Certified copies of all operation, reclamation period insurance policies, or other forms of documentation acceptable in form and content to Nova Scotia, shall be delivered to Nova Scotia by no later than March 30, 2015.

This insurance will include the following provisions:

- i. a policy limit of liability of not less than \$5 million per occurrence
- ii. "Her Majesty the Queen in the Right of the Province of Nova Scotia as represented by the Minister of Environment" named as "Additional Insured";
- iii. this approved Facility shall be included on the policy in its description of operations;
- iv. waiver of Insurer's rights of subrogation against Nova Scotia;
- v. breach of any terms or conditions of the policy, or negligence or wilful act or omission or false representation by an Insured or any other person, shall not invalidate the insurance with respect to Nova Scotia;
- vi. 90 days prior written notice of cancellation or material change from Insurer to Nova Scotia;
- vii. Gradual and sudden pollution coverage for all insured perils;
- viii. Government- ordered clean up expenses coverage;

- ix. Waste materials coverage;
  - x. Products Hazard & Completed Operations, Pollution Coverage.
- b) Policy limit of liability in Condition 25 (a)(i) shall increase to \$10 million as of January 30, 2017.
- c) Following a review by the Province, NSE may require the Approval Holder a change in the coverage required in Condition 25 (a).

**APPENDIX A**  
**TABLES**

**Table 5: Stack Emission Limits**

POINT SOURCE	AIR CONTAMINANT	
	PARTICULATE	T O T A L R E D U C E D S U L P H U R (TRS)
Recovery Boiler	77 mg/Rm <sup>3</sup> *	15 ppm dv*** (any 4 hour rolling average)
Lime Kiln	0.50 kg/adubmt	20 ppm dv (any 4 hour rolling average)**
Smelt Dissolving Tank	0.50 kg/adubmt	
Power Boiler	150 mg/Rm <sup>3</sup>	
<b>REFERENCE SAMPLING METHOD</b>	Environment Canada EPS 1/RM/8	US EPA Method 16/16A/16B

mg - milligrams

Rm<sup>3</sup> - reference cubic metre (ie. The volume of gas at 25 degrees celsius (°C) and 101.3 kilopascals (kpa) corrected to 11% Oxygen)

ppm dv - parts per million dry volume

kg - kilograms

adubmt – reference production rate in air dried unbleached metric tonnes

\*Emission limit to be achieved upon completion of commissioning of the recovery boiler precipitator system. For the period between the issuance of this Approval and the commissioning of the recovery boiler precipitator system, the particulate emission limit is 375 mg/Rm<sup>3</sup>.

\*\* Prior to installation of the continuous emission monitor, the TRS limit is to be confirmed through source testing, conducted twice per annum, on a continuous basis over a 24-hour period on a day acceptable to the Department. Testing shall be done during normal lime kiln operation and data confirming this shall be submitted along with the TRS test results. Upon installation of the continuous emission monitor, measurement readings from the continuous emission monitor shall be used for compliance purposes. Following a year of operation of the continuous emission monitor, an emission limit allowance for startup, shutdown and malfunction conditions will be established.

\*\*\*To allow for startup, shutdown and malfunction conditions, the Approval Holder may exceed this limit upto 5 % of the time, on an annual basis, with no 4 hour rolling average exceeding 60 ppm dv.

**TABLE 6: Effluent Monitoring Parameters and Discharge Limits**

<b>Parameter</b>	<b>Sample Type</b>	<b>Monitoring Frequency</b>	<b>Location</b>	<b>Discharge Limit</b>
Biochemical Oxygen Demand (BOD <sub>5</sub> )	Continuous	3 days per week	Effluent Monitoring Station Point C	PPER
Suspended Solids	Continuous	Daily	Effluent Monitoring Station Point C	PPER
pH	Continuous	Daily	Point A and Effluent Monitoring Station Point C	6-9
Flow rate	Continuous	Daily	Effluent Monitoring Station Point C	
Acute Toxicity-rainbow trout	Grab	once per month*, as per PPER	Effluent Monitoring Station Point C	Pass LC50, as per the PPER
Acute Toxicity-Daphnia magna	Grab	once per week**, as per PPER	Effluent Monitoring Station Point C	Pass LC50, as per the PPER
Dioxins and Furans	24 hour composite sample	Annually as per PPER	Effluent Monitoring Station Point C	as required by the Pulp and Paper Effluent Chlorinated Dioxins and Furans Regulations***
Total Reduced Sulphur	Grab	Once every three months	Point A	NCASI****Method RSC-02.02

PPER – Federal Pulp and Paper Effluent Regulations

\* if LC50 test fails, testing will be increased to weekly until a minimum of three (3) consecutive tests are passed.

\*\* if LC50 test fails, acute toxicity on rainbow trout shall be conducted immediately, testing on Daphnia magna shall be increased to three (3) times per week until a minimum of three (3) consecutive tests are passed.

\*\*\* if measurable quantities of 2,3,7,8 TCDD (15 ppq) or 2,3,7,8 TCDF (50 ppq) are detected, testing shall be increased to monthly until three (3) consecutive non-detect quarters are achieved.

\*\*\*\* National Council for Air and Stream Improvement, or equivalent method authorized by the Department



**TABLE 6A: Effluent Parameters and Discharge Limits**

<b>PARAMETER</b>	<b>COMPLIANCE</b>		<b>MONITORING LOCATION</b>	<b>LIMIT</b>
Adsorbable organic halides (AOX)	1 Day Maximum		TBD**	10 mg/L
	Monthly Average			7 mg/L
Nitrate-Nitrogen	Daily		TBD**	As determined by a receiving water study*
Total Phosphorous	Daily		TBD**	As determined by a receiving water study*
Colour	Daily		TBD**	As determined by a receiving water study*
COD	Daily		TBD**	As determined by a receiving water study*
Biochemical Oxygen Demand (BOD <sub>5</sub> )	Continuous	3 days per week	TBD**	As determined by a receiving water study* or 40 mg/L maximum monthly average, whichever is less
Suspended Solids	Continuous	Daily	TBD**	As determined by a receiving water study* or 42 mg/L maximum per monthly average, whichever is less
Dissolved Oxygen	Field (grab)	5 days per week	TBD**	As determined by a receiving water study*
pH	Continuous	Daily	TBD**	6-9
Flow rate	Continuous	Daily	TBD**	TBD**

\*A receiving water study, which meets the satisfaction of the Department, conducted by a qualified individual, based on the proposed location of discharge

\*\*To be determined based on proposed location of treatment facility.



**TABLE 7: Surface Water Discharge Limits**

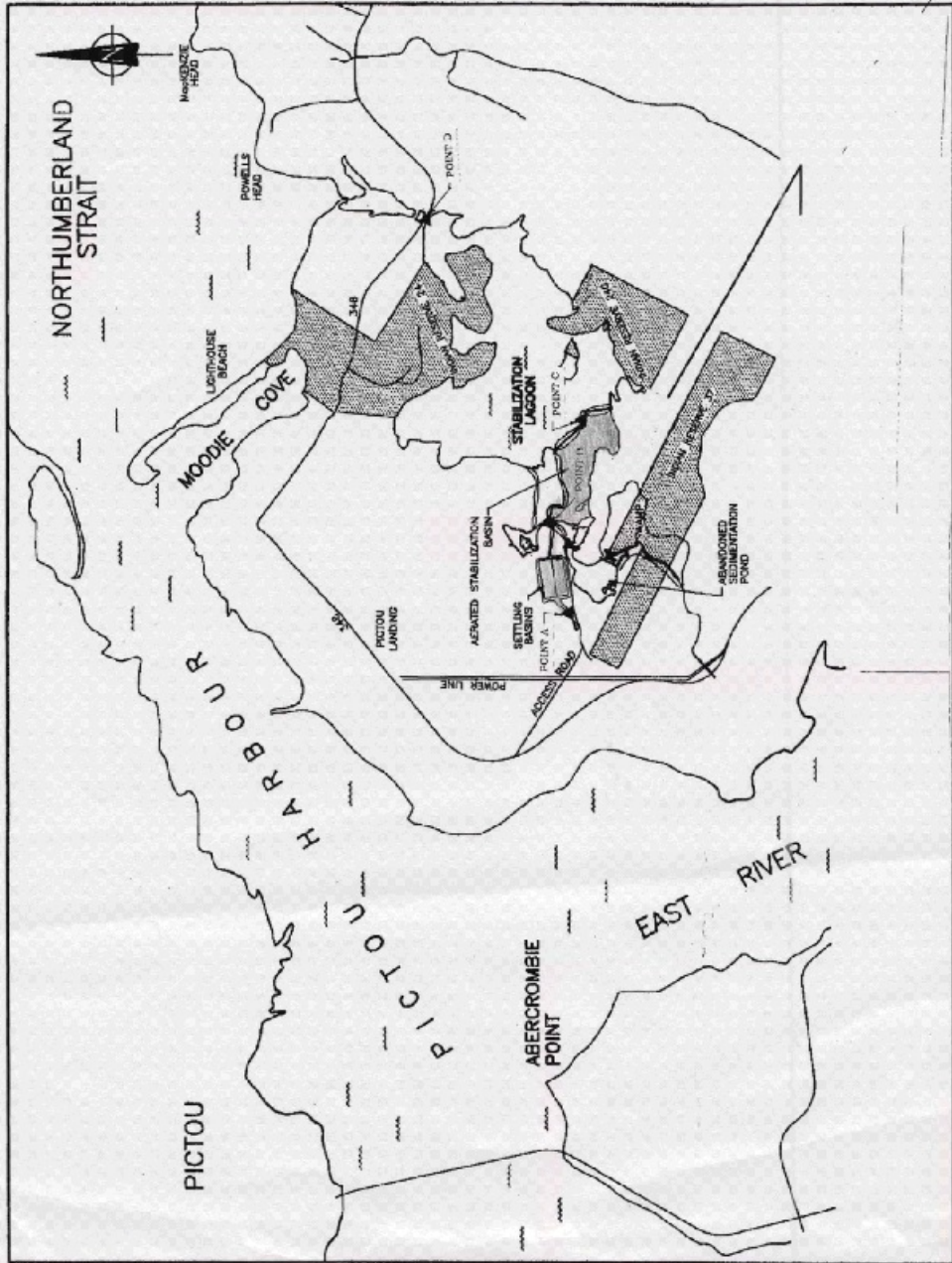
<b>PARAMETER</b>	<b>DISCHARGE LIMIT</b>
pH	6.5 - 9.0
Total Petroleum Hydrocarbons	3.5 milligrams per litre or Atlantic RBCA*
Chromium (trivalent)	8.9 micrograms per litre
Chromium (Hexavalent)	1.0 micrograms per litre
Copper	2-4 micrograms per litre
Iron	300 micrograms per litre
Nickel	25-150 micrograms per litre
Vanadium	2 milligrams per litre
Zinc	30 micrograms per litre

\* lowest value after finalization of Atlantic RBCA standard for surface water

**TABLE 8: General Inorganic Chemistry and Metals Parameters**

Sodium (Na)	Nitrate + Nitrite (N)	Conductivity	Antimony (Sb)
Potassium (K)	Nitrite (N)	pH	Selenium (Se)
Calcium (Ca)	Nitrate (N)	Total Organic Carbon	Tin (Sn)
Magnesium (Mg)	Phosphorus	Total Dissolved Solids	Silver (Ag)
Hardness (CaCO <sub>3</sub> )	Ammonia (N)	Aluminum (Al)	Strontium (Sr)
Alkalinity (CaCO <sub>3</sub> )	Arsenic (As)	Boron (B)	Thallium (Tl)
Carbonate (as CaCO <sub>3</sub> )	Iron (Fe)	Bismuth (Bi)	Titanium (Ti)
Bicarbonate (as CaCO <sub>3</sub> )	Manganese (Mn)	Barium (Ba)	Uranium (U)
Sulfate (SO <sub>4</sub> )	Lead (Pb)	Beryllium (Be)	Vanadium (V)
BTEX	Copper (Cu)	Chromium (Cr)	Cadmium (Cd)
Fluoride (F)	Zinc (Zn)	Cobalt (Co)	Total petroleum Hydrocarbons (TPH)
Silica (SiO <sub>2</sub> )	Colour	Molybdenum (Mo)	
Ortho-Phosphorus (P)	Turbidity	Nickel (Ni)	

# APPENDIX B



**APPENDIX C**  
**Quantification of Sulphur Dioxide and Total Particulate Matter Air**  
**Emissions for Facility Emissions Cap**

Characterization of the emissions shall take into account the following emission sources:

- Power Boiler
  - Smelt Dissolving Tank
  - Lime Kiln
  - Recovery Boiler
  - Any other stationary combustion sources with a nominal heat capacity greater than 1 gigajoule per hour (GJ/h).
1. The following formula shall be used to calculate the total annual sulphur dioxide (SO<sub>2</sub>) and total particulate matter (TPM) emissions:

$$Q_{\text{poll}} = \sum_i^n Q_{xi}$$

where:

- $Q_{\text{poll}}$  is the annual quantity of pollutants emitted by the mill, expressed in kilograms.
- $Q_{xi}$  is the annual quantity of pollutants emitted by each emission source in the mill, expressed in kilograms.
- $X_i$  represents each emission source in the mill.
- $n$  is the total number of each type of emission source in the mill.

2. The following formula shall be used to calculate the annual SO<sub>2</sub> and TPM emissions from each emission source:

$$Q_{xi} = \sum_i^n \frac{Ex_i \times Fx_i}{fx_i} \times \frac{1}{1000}$$

where:

$Q_{xi}$  is the annual quantity of pollutants emitted by each emission source, expressed in kilograms.

$Ex_i$  is the result of the characterization of an emission source “i”, expressed in grams per hour (g/h) and corrected to 7% oxygen.

$x$  represents each emission source.

$Fx_i$  is the quantity used by one emission source “i” during the 12-month period covered by this quantification.

- For the recovery boiler, it is the quantity of black liquor, expressed in metric tonnes of black liquor dry solids.
- For the power boiler, it is the quantity of fuel consumed, expressed in gigajoules (GJ).
- For the smelt dissolving tank, it is the quantity of black liquor sent to the recovery boiler, expressed in metric tonnes of black liquor dry solids.
- For the lime kiln, it is the quantity of lime produced, expressed in metric tonnes of calcium oxide (CaO).
- For any other combustion sources, it is the quantity of fuel consumed, expressed in GJ, metric tonnes or cubic metres (m<sup>3</sup>).

$fx_i$  is the average input of fuel consumed by each emission source “i” during the characterization.

- For the recovery boiler, it is the black liquor input rate, expressed in metric

tonnes of black liquor dry solids per hour.

- For the power boiler, it is the fuel input rate, expressed in GJ/h.
- For the smelt dissolving tank, it is the input rate of black liquor sent to the recovery boiler, expressed in metric tonnes of black liquor dry solids per hour.
- For the lime kiln, it is the lime production rate, expressed in metric tonnes of calcium oxide per hour.
- For any other combustion sources, it is the fuel consumption rate, expressed in GJ/h, metric tonnes per hour or cubic metres per hour.

1/1000 is the gram to kilogram conversion factor.

n = the total number of each emission source in the mill.

3. All emissions shall be sampled downstream of any emission control devices. Each source test shall be done on three separate samples. The average of the three samples is the result.

The sampling shall be done during the mill's regular hours of operation (in other words, no sampling is to be done during an interruption or when there is a problem with the equipment that could impact atmospheric emissions from the source). The tests for each source shall be performed under normal operating conditions, including normal fuel composition and a normal combustion rate.

4. Measurement of emissions from sources and the parameters required to calculate emissions shall comply with one of the following methods:
  - Environment Canada, Reference Method for Source Testing: Measurement of Releases of Particulate from Stationary Sources, EPS 1/RM/8.
  - Environment Canada, Standard Reference Methods for Source Testing: Measurement of Emissions of Sulphur Dioxide from Stationary Sources, EPS 1-AP-74-3.
  - Environment Canada, Reference Method for the Monitoring of Gaseous Emissions from Fossil Fuel-fired Boilers, EPS 1/RM/15, September 1990.
  - If a continuous measurement device is used, the facility shall comply with Environment Canada's Protocols and Performance Specifications for Continuous Monitoring of Gaseous Emissions from Thermal Power Generation (EPS 1/PG/7), and the device must be maintained and operated in accordance with the manufacturer's specifications.
  - Any other method authorized by the Department.

5. The measurement devices used to measure the quantities of fuel, raw materials or any other quantities specified in this appendix shall be installed, operated, maintained and calibrated in accordance with the device manufacturer's instructions.

## **APPENDIX D**

### **Determining Annual Production for Air Emissions Calculations of the Facility Emissions Cap**

1. The annual quantity of finished product shall be aggregated by using the total daily production from January 1 to December 31.
2. The finished product must be measured using devices that comply with the federal Weights and Measures Regulations. The production of a finished product must be measured in air-dried metric tonnes.
3. If the water content of the pulp is greater than 10%, the weight of the finished product is to be adjusted such that this content does not exceed 10%; if the water content is equal to or less than 10%, the weight does not need to be adjusted;