



Thunder Bay Operations

# EFFLUENT SUMMARY REPORT 2023



**For More Information:  
Thunder Bay Pulp and Paper Inc.  
ENVIRONMENTAL AFFAIRS DEPARTMENT  
2001 NEEBING AVE.  
THUNDER BAY, ONTARIO  
P7E 6S3  
(807) 475-2400**

## **EFFLUENT TREATMENT SUMMARY**

The Thunder Bay Operations is an integrated pulp and paper facility, consisting of one Kraft Mill, one newsprint machine and a thermo-mechanical pulp plant producing on average about 1600 tonnes of finished product a day. The mill is located on 300 acres of land along the Kaministiquia River in the City of Thunder Bay.

The facility currently treats process water (or effluent) by means of primary and secondary treatment. The Kraft Mill effluent and Newsprint Mill effluent are treated by two separate systems.

Kraft effluent is pumped to the oxygen activated sludge secondary treatment system. This system consists of a two-train oxygen reactor where effluent is mixed with pure oxygen and micro-organisms, which break down the components of the process water. From the reactor, the effluent is pumped into two 225-foot diameter secondary clarifiers, where the biological solids are allowed to settle. The clarified effluent is drawn off the top and discharged into the Kaministiquia River through a monitored outfall station.

The News effluent undergoes primary treatment via two primary clarifiers that are 150 feet in diameter. As of November 1995, the News effluent undergoes secondary treatment. From the primary clarifiers, the effluent is pumped to one of the trains of the oxygen reactor, where it undergoes secondary treatment similar to the Kraft effluent. From the reactor, the effluent is pumped into a 265-foot diameter secondary clarifier, where it is then mixed with the Kraft effluent and discharged into the Kaministiquia River.

## **EFFLUENT SUMMARY – 2023**

Throughout 2023, there were no excursions or exceedances at the Combined Mill Outfall (CMO) or News Clean Water Outfall (NCWO). However, the mill did experience one unplanned discharge of fresh water through the Kraft Clean Water Outfall (KCWO) on December 6<sup>th</sup>, 2023.

### **DECEMBER 6, 2023 – DISCHARGE OF FRESH WATER AT KCWO**

As reported to Spills Action Center (Report Ref # 1-4H4SP1), at approximately 10:25 AM on December 6<sup>th</sup>, 2023, the Mill was alerted to an underground treated water leak at the Chemical Plant (operated by ERCO Worldwide). At the onset of discovering the spill, ERCO personnel began to troubleshoot the source of the spilled water and quickly determined the leak was on a portion of the treated water line that was only required during summer months.

Therefore, ERCO personnel were able to identify and close several valves that isolated the leak, with the spill ultimately stopping at 11:25 AM. However, the site grading in the area directed all the spilled treated water, estimated at 12 m<sup>3</sup>, into a manhole connected to the site's Kraft Clean Water Outfall, a fully monitored outfall which discharges directly to the Kaministiquia River.

Inline instrumentation did not indicate any change in discharge flow, pH, or conductivity throughout the event. Samples were also collected prior to isolating the leak and analyzed for daphnia and trout toxicity, both of which came back as non-lethal.

The failed water line has since been replaced with a new above-ground piping.

### **EFFLUENT SUMMARY – LOW FLOW & TEMPERATURE ON KAM RIVER**

In 2023, the Mill did not experience any low flow, high river temperature conditions which would have resulted in a lower BOD<sub>5</sub> limit. There were no days of low flow recorded below 17 CMS at the Kakabeka Falls Generating Station between May 1 and October 15. During this time the lowest flow recorded was 17.8 CMS on August 6<sup>th</sup>, 2023. The highest hourly river temperature that was recorded from May 1<sup>st</sup> to October 15<sup>th</sup> occurred on July 29<sup>th</sup>, 2023 and was recorded as 24.781 °C.

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