

AMENDED ENVIRONMENTAL COMPLIANCE APPROVAL

NUMBER 2296-BYXQYQ
Issue Date: May 26, 2021

Northland Power Thorold Cogen GP Inc., as general partner for and on behalf of Thorold Cogen L.P.
30 St. Clair Ave W, No. 1700
Toronto, Ontario
M4V 3A1

Site Location: 90 Allanburg Road
City of Thorold, Regional Municipality of Niagara
L2V 0A8

You have applied under section 20.2 of Part II.1 of the Environmental Protection Act, R.S.O. 1990, c. E. 19 (Environmental Protection Act) for approval of:

amendments and continued use of the existing sewage works for the collection, transmission, treatment and disposal of process effluent and once through non-contact cooling water discharging a maximum of approximately 346.3 m³/min to Welland Shipping Canal, and storm water drainage, from a nominal 265 Megawatt, natural gas-fired combined cycle, Cogeneration Power Plant, operating:

- one (1) Combustion Turbine and Generator
- one (1) Heat Recovery Steam Generator and
- one (1) Steam Turbine and Generator

to provide power to the Ontario Electrical Grid, both steam and power to the adjacent Bioveld Canada Inc. (Bioveld), or steam only to the Bioveld via auxiliary boilers, including the following:

PROPOSED WORKS

Amendments to the process water discharge works, by redirecting the effluent away from the Bioveld Canada (former RFP Mill) treatment facility to the existing Northland Power facility Discharge works through the Final Wastewater Tank Process Effluent Dechlorination Works (Spent Quench Water Dechlorination Works), comprising;

- Addition of one (1) dechlorination system for the periodic addition of typically 40 percent sodium bisulphite solution, including:
 - i. feed from the spent cooling water dechlorination system's sodium bisulphite solution storage tank located in the Water Treatment Area of the Cogeneration Building;
 - ii. One (1) pair of skid mounted sodium bisulphite pumps, positioned inside the sodium bisulphite bulk storage tank dike. Each chemical metering pump is rated up to approximately 2.3 L/hr (one as standby) and connected to the Final Wastewater Tank with a chemical injection nozzle and the Final Wastewater Tank discharge pipe with a chemical injection nozzle;

complete with automation of the sodium bisulphite pumps based on dedicated Final Wastewater Tank total residual chlorine and oxidation reduction potential (ORP) analyzers, which will continuously sample flow via a dedicated sample pump located at the Final Wastewater tank and;

Programmed control of the Final Wastewater Pumps discharging from the Final Wastewater Tank;

- Amendments to the Final Wastewater Tank transfer line by constructing a new 0.2 metre diameter transfer line to the non-contact cooling water line, that ultimately outlets to the Discharge Pipeline and Structure to discharge to the Welland Canal;
- **Decommissioning/elimination of the following existing works;**
 - one (1), Bioveld Filtration Building line which connects with the 0.6 metre diameter Bioveld Mill process wastewater sewer, which in turn connects to a 914 millimetre diameter main which directs the combined process effluent of approximately 1700 cubic metres per hour via an inlet screen to the Primary Clarifier which is the first unit in the Bioveld Pure Oxygen Activated Sludge Treatment Plant for eventual discharge of the combined treated two-Plant discharge via the Bioveld Final Effluent Basin and Bioveld MISA Control Point 0100 to the Old Welland Canal, and ultimately to Twelve Mile Creek and Lake Ontario;

EXISTING WORKS

INTAKE STRUCTURE

- one (1) submerged, concrete intake structure, on the east side of the Welland Canal, upstream of Lock 7, designed to maintain an inlet current velocity of less than 0.5 metres per second, including:
 - a submerged opening, forming the mouth of the intake structure, cut at the canal edge into the existing vertical wall concrete shipping dock, beginning at an elevation approximately 2.5 metres below the canal historic low water level elevation and extending down for a distance of approximately 2.3 metres, with an approximate width of 5.5 metres
 - a preformed retaining edge to hold an engineered, vertically mounted anti-vortex/coarse trash rack
 - an inlet transition zone to an approximately 2.7 metres square concrete intake water transfer tunnel

which extends from the canal edge, approximately 30 metres east to the pumphouse

PUMPHOUSE

- one (1) raw water pumphouse, located within the main Cogeneration Building, remote from the canal edge, including:

- three (3) vertical raw water Circulating Water Pumps, (CW-01 A to C), each rated at approximately 119 cubic metres per minute, feeding a 1.5 metre diameter Condenser Inlet Water Header with normally two (2) pumps on-line and one (1) pump as stand-by providing approximately 238 cubic metres per minute of cooling water, as once through non-contact cooling water, to one (1) Steam Turbine Condenser rated for a heat removal duty of approximately 607 GJ/hour
- two (2) vertical raw water Auxiliary Cooling Water Pumps, (CW-03 A, B), each rated at approximately 19 cubic metres per minute, feeding a 0.41 metre diameter Auxiliary Cooling Water Header, with normally one (1) pump on-line and one (1) pump as stand-by, providing water to the Closed Cycle Cooling System and the remainder for Process Feedwater
- piping off the Auxiliary Cooling Water Header to convey approximately 19 cubic metres per minute of cooling water to the primary side of the Closed Cycle Cooling Water shell and tube exchanger to cool a closed loop cooling water circuit (typically drained not more frequently than once annually for authorized disposal) for the cooling of lube oil, generators, and other miscellaneous auxiliaries
- one (1) Closed Cycle Cooling Water Heat Exchanger rated for a heat removal duty of approximately 33 GJ/hour
- two (2) Firewater Pumps, (FP-01 A, B), each rated at approximately 9.5 cubic metres per minute to supply the Cogeneration Plant 0.25 metre diameter header;
- two (2) Bioveld Water/Quench Water Pumps (CW-02 A, B), each rated at approximately 34 cubic metres per minute which may feed a 0.51 metre diameter Mill Cooling Water Header, with normally one (1) pump on-line and one (1) pump as stand-by, or alternately may be directing Quench Water to the Cooling Water Return Header, as needed, to attempt the temperature of the spent cooling water being discharged to the canal
- three (3) travelling screen trash racks, dual-flow or equivalent, with a common debris catching bin
- one (1) on-line intake water temperature monitor, located at the edge of the Canal at the face of the intake structure.

DISCHARGE PIPELINE AND STRUCTURE

- one (1), 1.5 metre diameter, steel, Cooling Water Return Header, running north from the area of the Pumphouse, along the top of the Canal bank to convey the combined spent once through non-contact cooling water from the Steam Turbine Condenser and Closed Cycle Cooling loops and process effluent from the **Final Wastewater Effluent Tank (now being proposed to be amended as per the Proposed Works)**, including:

- a concrete Seal Weir Box (anti-siphon chamber), 8.2 metres long by 5.2 metres wide by 4.9 metres deep, used to reduce the flow velocity of the discharging water
- an Outfall Chamber, made of sheet piling driven to bedrock, receiving water from the Seal Weir Box for discharge to the canal via four (4) submerged openings (each 1.8 metres high and 1.6 metres wide) designed to maximize temperature mixing and to minimize momentum transfer
- one (1) on-line flow monitoring element, located at the Seal Weir Box
- one (1) on-line temperature monitor, located at the Seal Weir Box

Inlet Water Chlorination Works

- one (1) chlorination system for the periodic addition of typically 12 percent sodium hypochlorite solution, including:
 - one (1) vertical, FRP, sodium hypochlorite solution storage tank with a capacity of approximately 20 cubic metres, positioned within a spill containment area and located in the Water Treatment Area of the Cogeneration Building
 - one (1) pair of skid-mounted sodium hypochlorite solution metering pumps, inside a drip tray, with a feed tote, located in the Pumphouse, each rated up to approximately 350 Litres per hour (one as stand-by) and connected to the Pumphouse basin just ahead of the travelling screen trash racks
 - an on-line Total Residual Chlorine (TRC) analyzer on the Condenser Inlet Water Header, near the condenser inlet
 - programmed control of the chlorination system so that the main circulating water pump(s) will be operational at all times during the chlorination process and will continue to be in operation, once the addition of sodium hypochlorite solution is stopped, as a minimum, until the equivalent of three (3) times the volume of water residing in the pumphouse has been conveyed to the process in order to prevent a backflow of chlorinated water back into the Canal

SPENT COOLING WATER DECHLORINATION WORKS

- one (1) dechlorination system for the periodic addition of typically 40 percent sodium bisulphite solution, including:
 - one (1) vertical, FRP, sodium bisulphite solution storage tank, with a capacity of approximately 11.4 cubic metres, positioned within a spill containment area and located in the Water Treatment Area of the Cogeneration Building
 - one (1) pair of skid-mounted sodium bisulphite solution metering pumps, inside a drip tray, with a feed tote, located in the Pumphouse, each rated up to approximately 290 Litres per hour (one as stand-by) and connected to the 0.5 metre diameter Cooling Water Return Header with an on-line Oxidation/Reduction Potential (ORP) probe, positioned downstream in the Cooling Water Return header next to the Pumphouse

- programmed control of the dechlorination system to start-up approximately 5 minutes prior to the presence of any added sodium hypochlorite and to operate for approximately an additional 5 minutes after the addition of sodium hypochlorite is stopped

SPENT QUENCH WATER DECHLORINATION WORKS

- one (1) dechlorination system for the periodic addition of typically 40 percent sodium bisulphite solution, including:
 - feed from the spent cooling water dechlorination system's sodium bisulphite solution storage tank located in the Water Treatment Area of the Cogeneration Building
 - one (1) pair of skid-mounted sodium bisulphite solution metering pumps, inside a drip tray, with a feed tote, located in the Pumphouse, each rated up to approximately 290 Litres per hour (one as stand-by) and connected to the 1.5 metre diameter Quench Water/Mill Cooling Water Return Header with an on-line Oxidation/Reduction Potential (ORP) probe, positioned downstream in the Cooling Water Return header in the Pumphouse
 - programmed control of the dechlorination system to start-up approximately 5 minutes prior to the presence of any added sodium hypochlorite and to operate for approximately an additional 5 minutes after the addition of sodium hypochlorite is stopped;

BOILER FEEDWATER TREATMENT SYSTEM

- one (1), 0.20 metre diameter piping take-off, including a flow meter, from the Auxiliary Cooling Water Pump Water Header to convey intake water to the Boiler Feedwater Treatment System;
- one (1) Boiler Feedwater Treatment System, rated for a maximum flow of approximately 5 cubic metres per minute, including the following units in treatment sequence:
 - two (2) self-cleaning automatic filters, operating in parallel
 - two (2) instrumented, modular, skid-mounted Ultra-Filtration (UF) Units, operating in parallel, each fed by pumps, with UF Reject up to approximately 0.5 cubic metres per minute (0.3 cubic metres per minute normal) discharged to the Neutralization Tank and the permeate, at a typical rate of approximately 2.3 cubic metres per minute, and a maximum of approximately 4.5 cubic metres per minute discharged to the Filtered Water Storage Tank
 - four (4) pre-filters for the Reverse Osmosis (RO) feed, operated in parallel as two (2) trains of two (2) filters each
 - two (2) instrumented, modular skid-mounted RO Units, operating in parallel, each fed by a set of two (2) pumps, with RO Reject up to approximately 1.1 cubic metres per minute (0.6 cubic metres per minute normal) discharged to the Neutralization Tank and the permeate, at a typical rate of approximately 1.7 cubic metres per minute, and a maximum rate of approximately 3.4 cubic metres per minute, to the RO Permeate Tank for later use in the Demineralization System

- one (1) Demineralization System, rated for a maximum combined flow of approximately 4.5 cubic metres per minute of RO permeate and Bioveld return condensate, including:
 - two (2), 2.4 metre diameter Mixed Bed Ion Exchange Tanks (one as stand-by) with final discharge of Boiler Feedwater up to approximately 3.4 cubic metres per minute to the Demineralized Water Storage Tank
- piping to convey spent regeneration effluent from the Ion Exchange Tanks and bed backwash water to the Neutralization Tank;
- one (1) indoor, FRP, Caustic Storage Tank, with a volume of approximately 24 cubic metres, within a spill containment dyke, located in the Water Treatment Tank Area, to supply sodium hydroxide solution via connecting pipes and valves to the Demineralizer and Neutralization Tank Systems;
- one (1) indoor, epoxy-lined steel, Sulphuric Acid Storage Tank, with a volume of approximately 16 cubic metres, within a spill containment dyke, located in the Water Treatment Tank Area, to supply acid solution via connecting pipes and valves to the Demineralizer and Neutralization Tank Systems;

BIOVELD CONDENSATE RETURN

- two (2) Multimedia Filters (one as stand-by) to treat approximately 1.5 cubic metres per minute of returned condensate from the Bioveld with discharge to the Reverse Osmosis (RO) Permeate Tank, described above;

CHEMICAL ADDITION TO THE BOILER FEEDWATER TREATMENT SYSTEM

- the following skid-mounted chemical addition units, including instruments, piping, valves and typically two (2) metering pumps per skid (one as stand-by) and a nominally 1.5 cubic metre storage tote with a nominally 1.1 cubic metre supply tote on top, all within a spill containment area, to add the following chemical solutions:
 - sodium hypochlorite solution to the inlet line, upstream of the self-cleaning automatic filters
 - ferric chloride coagulant solution to the inlet line prior to the self-cleaning automatic filters, just downstream of the sodium hypochlorite addition
 - antiscalant solution (Hypersperse MDC150TM or equivalent) to the inlet line to the RO Pre-Filters
 - sodium bisulphite solution to the inlet line to the RO Pre-Filters, upstream of the antiscalant addition point
- one (1), off-line, RO Clean-In-Place System, including feed and return piping, a circulation pump with spent cleaning solution contained for authorized disposal;
- one (1), off-line, Ultra-Filtration Clean-In-Place System, including feed and return piping, a circulation pump with spent cleaning solutions contained for authorized disposal;

PROCESS EFFLUENT WORKS

- drains and piping to collect process effluents from the following sources in the Cogeneration Building:
 - Auxiliary Boiler 1 and 2 Area floor drains
 - Boiler Feedwater Preparation Area floor and tank drains
 - Water Treatment Plant floor drains
 - Gas Turbine, HRSG and Steam Turbine Area floor drains
 - Storm water collected in the Transformer Spill Containment Pits, drained via manually operated valves

and to convey them via a 0.2 metre diameter inlet pipe to the Oil/Water Separator, located to the east of the Gas Turbine

- one (1) in-ground, double-walled, cylindrical steel tank, Oil/Water Separator, approximately 5.5 metres long by 1.6 metres in diameter, rated at approximately 1.1 cubic metres per minute with an oil spill capture volume of approximately 9 cubic metres, including:
 - an inlet plate separator,
 - corrugated parallel plate separator and,
 - a secondary final coalescing pack

outletting to an integral but separate pump chamber with two (2) submersible pumps, each rated at approximately 1.1 cubic metres per minute, operating on level control, with discharge to the inlet of the Final Wastewater Tank;

- drains and piping to convey the filter backwashes, regeneration effluents and process effluent from the following sources:
 - Floor drains from all of the containment areas in the Water Treatment Plant, including the truck unloading area,
 - Self-cleaning automatic filters
 - Ultra-Filtration System, backwash
 - Reverse Osmosis Treatment System, flushes
 - Demineralizer System, regeneration effluent
 - Condensate Multimedia Filters, backwash

to the in-ground Chemical Waste Sump, which is a 28 cubic metre epoxy-lined concrete tank, with pumped discharge to the Neutralization Tank;

- piping to convey process effluents from the following sources:
 - Water from the Chemical Waste Sump
 - Continuous rejects from the Reverse Osmosis units
 - Periodic flushes and backwashes from the Ultra-Filtration, Mixed-Bed Ion Exchange units and the Condensate Multimedia Filters

to the above-ground, FRP, membrane-lined, 245 cubic metre capacity Neutralization Tank, equipped with pH measurement and pH adjustment lines from the Caustic and Sulphuric Acid Tanks, with pumped discharge of the neutralized waste conveyed to the Final Wastewater Tank

- piping to convey to the inlet of the Final Wastewater Tank, process effluents from the following sources:
 - Heat Recovery Steam Generator (HRSG) Blowdown Tank with cooled blowdown at a rate of approximately 50 litres per minute
 - Auxiliary Boiler 1 and 2, when operating, at a blowdown rate of approximately 40 litres per minute
 - Effluent pumped from the Oil/Water Separator
 - Effluent pumped from the Neutralization Tank

- one (1) in-ground, double-walled, Final Wastewater Tank, with a capacity of approximately 38 cubic metres, with two (2) pumps, each rated at approximately 1.7 cubic metres per minute, operated on level control, to discharge the Tank contents at a typical rate of approximately 0.8 cubic metres per minute, via a 0.2 metre diameter, carbon steel, insulated and heated overhead transfer line which is tied into the line to the Bioveld Mill Filtration Building; **(Now being amended as per the Proposed Works description);**

CHEMICAL ADDITION TO THE BOILER/STEAM SYSTEM

- during HRSG operation, to the boiler/steam cycle system, the following skid-mounted chemical addition units, including instruments, piping, valves and typically two (2) metering pumps per skid (one as stand-by) and a 1.5 cubic metre storage tote with a 1.1 cubic metre supply tote on top, all within a spill containment area to add the following chemical solutions:
 - carbonylhydrazide-based oxygen scavenger solution to the suction side of the Deaerator
 - ammonium hydroxide corrosion inhibitor solution to the suction side of the Deaerator
 - phosphate/caustic corrosion inhibitor solution to a water dilution system and then to the boiler evaporators

- during Auxiliary Boiler operation, to the boiler/steam cycle system, the following skid-mounted chemical addition units, including instruments, piping, valves and typically two (2) metering pumps per skid (one as stand-by) and a 1.5 cubic metre storage tote with a 1.1 cubic metre supply tote on top, all within a spill containment area to add the following chemical solutions:
 - carbonylhydrazide based oxygen scavenger solution to the suction side of the Deaerator
 - ammonium hydroxide corrosion inhibitor solution to the suction side of the Deaerator
 - phosphate/caustic corrosion inhibitor solution to the boilers

STORM WATER MANAGEMENT

- five (5) concrete, oil/grit separators, OGS1, 2, 3, 4 and 5, with the following specifications:
 - OGS1, 3 and 5, each rated for a maximum flow rate of 18 Litres per second, without bypassing, and each with a sediment capacity of approximately 2250 Litres and an oil holding capacity of approximately 900 Litres
 - OGS2 and 4, each rated for a maximum flow rate of 5 Litres per second, without bypassing, and each with a sediment capacity of approximately 1450 Litres and an oil holding capacity of approximately 300 Litres

to collect and treat storm water, from an area of approximately 3.9 hectares around the Cogeneration Building, to a normal level of water quality protection (70 percent minimum long term Total Suspended Solids removal) and with no requirement for storm water quantity control and with the following locations and specific discharge routes:

 - OGS1, with a top and side inlet, located near the north-east corner of the Plant collecting drainage from a the north-east segment of the Site (0.54 hectares), including roof drain down comers, with drainage via MH5 to the Welland Canal
 - OGS2, with a top inlet, located near the north-west corner of the Plant collecting drainage from the north and north-west segments of the Site (0.34 hectares), with drainage via MH5 to the Welland Canal
 - OGS3, with a top and side inlet, located at the west side fence line at Allanburg Road, approximately mid-way along the west wall of the Cogeneration Building, and north of a second Station entrance road from Allanburg Road, collecting drainage from a 0.85 hectare area along the west side of the Building, including some roof downcomers, with drainage via MH5 to the Welland Canal
 - OGS4, with a top and side inlet, located at the north end of the Cogeneration Building, collecting mainly roof drain run-off (0.19 hectares), with drainage via MH5 to the Welland Canal
 - OGS5, with a top and side inlet, connected to the storm water management pond, with drainage to the municipal storm sewer system at the south west corner of the site

- one (1) grass-covered, storm water management pond (bermed, grassy low point) receiving storm water run-off from the central portion of the site (1.97 hectares) and providing storm water surge control, with discharge via OGS5;
- one (1) concrete, 2.4 metre diameter manhole MH5 with a pre-cast concrete storm water discharge duct, 0.45 metre deep by 1.2 metre wide, which passes under Allanburg Road to discharge to the Welland Canal;
- overland storm water flow from the south-west portion of the Site (0.88 hectares) mainly to the south and west, draining via existing storm water catch basins at Allanburg Road;

- parking lot area (0.33 hectares) storm water drainage via an existing storm water catch basin adjacent to Allanburg Road;
- a system of storm water catch basins around an existing storage building in the south-east corner of the Site, with discharge from an east side catch basin to the east perimeter storm ditch draining south to the municipal storm sewer along Niagara Falls Road;

TRANSFORMER SPILL CONTAINMENT

- four (4) separate, in-ground, concrete Transformer Spill Containment Areas, with three grouped together east of the Steam Turbine Hall and the fourth located east of the gas turbine building, including for each:
 - a sloped concrete floor and concrete walls, with transformer foundation piers within the containment area and an open grate deck covering all of the containment area
 - a layer of 0.30 metres of crushed stone covering each grate
 - open space between the concrete floor and the stone-covered grating
 - a low point sump with inspection access provided through the grating, provision for a vacuum pump-out line for oil removal and a manually-controlled valve (normally closed) to allow storm water to be drained to the Plant's Oil/Water Separator

and all designed to hold rainfall from a 25 year, 24 hour storm, a one hour fire hose addition of approximately 20 cubic metres and the oil content of the respective transformer, with the following specific curb heights and spill containment volumes:

- one (1) North-East Spill Containment Area, for Station Transformer UAT-01 with approximately 38 cubic metres of oil, with a minimum curb height of 2.2 metres to provide a net containment volume of approximately 87 cubic metres
 - one (1) North-West Spill Containment Area, for Station Transformer UAT-02 with approximately 5 cubic metres of oil, with a minimum curb height of 1.7 metres to provide a net containment volume of approximately 51 cubic metres
 - one (1) Centre Spill Containment Area, for Power Transformer STG-01 with approximately 52 cubic metres of oil, with a minimum curb height of 2.2 metres to provide a net containment volume of approximately 219 cubic metres
 - one (1) South Spill Containment Area, for the Power Transformer CTG-01 with approximately 59 cubic metres of oil, with a minimum curb height of 1.6 metres to provide a net containment volume of approximately 127 cubic metres
- one (1) hydrocarbon vapour detector, in each Transformer Spill Containment Area, mounted above the lower point sump well, including an external alarm;

- all other controls, electrical equipment, instrumentation, piping, pumps, valves and appurtenances essential for the proper operation of the aforementioned sewage works;

all in accordance with the Schedule A.

For the purpose of this environmental compliance approval, the following definitions apply:

"Approval" means this environmental compliance approval and any schedules attached to it, and the application;

"Director" means a person appointed by the Minister pursuant to section 5 of the EPA for the purposes of Part II.1 of the EPA;

"District Manager" means the District Manager of the Niagara District Office of the Ministry;

"EPA" means the Environmental Protection Act, R.S.O. 1990, c.E.19, as amended;

"mg/L" means milligrams per Litre;

"Ministry" means the Ministry of the Government of Ontario responsible for the EPA and OWRA and includes all officials, employees or other persons acting on its behalf;

"Owner" means Northland Power Thorold Cogen GP Inc., as general partner for and on behalf of Thorold Cogen L.P.;

"OWRA" means the Ontario Water Resources Act, R.S.O. 1990, c. O.40, as amended;

"process material" means any raw material, product, by-product, intermediate product, lubricant, solvent, additive chemical, waste material or any other chemical used in the works approved by this Approval;

"SLSMC" means the St. Lawrence Seaway Management Corporation which is responsible for the operation of the Welland Canal;

"TRC" means Total Residual Chlorine

"Works" means the approved sewage works, and includes Proposed Works;

"Proposed Works" means those portions of the Works included in the Approval that are under construction or to be constructed;

The following symbols are abbreviations for the monitoring frequencies indicated:

"C" means continuously during the operation of the chlorination system and continuously throughout the year for temperature monitoring or in the case of failure or unavailability of an on-line monitor for:

- Total Residual Chlorine (TRC) measurement, at a grab sample frequency of three times over the chlorination period with at least 30 minutes between successive samples with the immediate analysis performed in the field for each grab sample, or,

- Plant intake water and spent cooling water discharge temperatures, at a grab sample frequency of four times per hour with at least 10 minutes between successive readings

"D" means daily, i.e. once per 24 hour period or once per the operating day period if the operating day is less than 24 hours

"M" means monthly, i.e. once during the operating day per calendar month, with at least 15 days between successive samples

"Q" means quarterly, i.e. once during the operating day, every calendar quarter with at least 45 days between successive samples

"W" means weekly, i.e. once during the operating day, every 7 days with at least 4 days between successive samples

You are hereby notified that this environmental compliance approval is issued to you subject to the terms and conditions outlined below:

TERMS AND CONDITIONS

1. GENERAL PROVISIONS

1. The Owner shall ensure that any person authorized to carry out work on or operate any aspect of the Works is notified of this Approval and the terms and conditions herein and shall take all reasonable measures to ensure any such person complies with the same.
2. The Owner shall design, construct, operate and maintain the Works in accordance with the conditions of this Approval.
3. Where there is a conflict between a provision of any document referred to in this Approval and the conditions of this Approval, the conditions in this Approval shall take precedence.

2. CHANGE OF OWNER AND OPERATING AGENCY

1. The Owner shall notify the District Manager and the Director, in writing, of any of the following changes within thirty (30) days of the change occurring:
 - a. change of address of Owner;
 - b. change of Owner, including address of new owner;
 - c. change of partners where the Owner is or at any time becomes a partnership, and a copy of the most recent declaration filed under the *Business Names Act, R.S.O. 1990, c. B.17* , as amended, shall be included in the notification;

- d. change of name of the corporation where the Owner is or at any time becomes a corporation, and a copy of the most current information filed under the *Corporations Information Act, R.S.O. 1990, c. C.39* , as amended, shall be included in the notification.
2. The Owner shall notify the District Manager, in writing, of any of the following changes within thirty (30) days of the change occurring:
 - a. change of address of Operating Agency;
 - b. change of Operating Agency, including address of new Operating Agency.
3. In the event of any change in ownership of the Works, the Owner shall notify the succeeding owner in writing, of the existence of this Approval, and forward a copy of the notice to the District Manager.
4. The Owner shall ensure that all communications made pursuant to this condition refer to the environmental compliance approval number.

3. CONSTRUCTION OF PROPOSED WORKS / RECORD DRAWINGS

1. All Proposed Works in this Approval shall be constructed and installed and must commence operation within five (5) years of issuance of this Approval, after which time the Approval ceases to apply in respect of any portions of the Works not in operation. In the event that the construction, installation and/or operation of any portion of the Proposed Works is anticipated to be delayed beyond the time period stipulated, the Owner shall submit to the Director an application to amend the Approval to extend this time period, at least six (6) months prior to the end of the period. The amendment application shall include the reason(s) for the delay and whether there is any design change(s).
2. Within thirty (30) days of commencement of construction, the Owner shall prepare and submit to the District Manager a schedule for the completion of construction and commissioning operation of the Proposed Works. The Owner shall notify the District Manager within thirty (30) days of the commissioning operation of any Proposed Works. Upon completion of construction of the Proposed Works, the Owner shall prepare and submit a statement to the District Manager, certified by a Professional Engineer, that the Proposed Works is constructed in accordance with this Approval.
3. Within one (1) year of completion of construction of the Proposed Works, a set of record drawings of the Works shall be prepared or updated. These drawings shall be kept up to date through revisions undertaken from time to time and a copy shall be readily accessible for reference at the Works.

4. EFFLUENT OBJECTIVES

1. The Owner shall use best efforts to design, construct and operate the works with the objective that for each effluent stream listed in the **Schedule B.1**, the stated effluent concentrations for the listed effluent parameters for that stream are not exceeded at any time.
2. The Owner may hypochlorinate the intake water system, using the herein approved works, during the operating day when cooling water is being taken by the Station for the purposes of power generation for the Ontario Grid, subject to the following restrictions:
 - a. for bio-fouling and zebra mussel control during the navigation season and only when the mean daily intake water temperature is 12 degrees Celsius or higher, daily, for up to 120 minutes, to a TRC concentration objective of 0.5 milligrams per Litre, as measured by an on-line analyzer in the inlet line to the Steam Turbine Condenser
 - b. for severe zebra mussel infestation control during the navigation season and only when the mean daily intake water temperature is 12 degrees Celsius or higher, once per year, upon notification of the District Manager, for a period up to ten (10) consecutive operating days, to a TRC concentration objective of 0.5 milligrams per Litre, as measured by an on-line analyzer in the inlet line of the Steam Turbine Condenser with any extension of the consecutive day chlorination period beyond ten (10) days, if required, subject to approval in writing by the District Manager
3. The Owner may hypochlorinate the Fire Water system, using the herein approved works, to a TRC concentration objective of 0.5 milligrams per Litre, on a batch basis when the system is being filled with water and additionally, as required, from time to time to maintain the 0.5 milligram per Litre TRC level.
4. The Owner shall dechlorinate the spent Cooling Water discharged to the Welland Canal by adding sodium bisulphite solution to the outlet header, ensuring that the dechlorination system is only operated concurrently with the chlorination system.
5. Despite Subsection (4), the Owner may operate the respective chlorination and dechlorination systems for up to 5 minutes when the other is not being operated when the chlorination/dechlorination systems are being turned on or are being turned off.
6. The Owner may add to the Boiler Feedwater Treatment System, in addition to sodium hypochlorite, as needed, the two (2) specialty chemical additive aqueous solutions (or approved equivalents), containing the active ingredients listed in the table given in the **Schedule B.2**, at the typical dosage rates shown, unless otherwise required in writing by the District Manager.
7. The Owner may add to the boiler/steam cycle system, during the operation of the HRSG, the three (3) specialty chemical additive aqueous solutions (or approved equivalents), containing the active ingredients listed in the table given in the **Schedule B.3**, at the typical dosage rates shown, unless otherwise required in writing by the District Manager.

8. The Owner may add to the auxiliary boiler/steam cycle system, the three (3) specialty chemical additive aqueous solutions (or approved equivalents), containing the active ingredients listed in the table given in the **Schedule B.4**, at the typical dosage rates shown, unless otherwise required in writing by the District Manager.
9. The Owner may add to the Closed Loop Cooling system, the one (1) specialty chemical additive aqueous solution, containing the active ingredients listed in the table given in the **Schedule B.5**, at the typical solution dosages shown, unless otherwise required in writing by the District Manager, provided that the spent solution when drained is collected for authorized offsite disposal.
10. In the event of an exceedance of the objectives set out in Subsections (1), (2), (6), (7), (8) and (9), the Owner shall;
 - a. notify the District Manager as soon as possible during normal working hours
 - b. take immediate action to identify the cause of the exceedance, and,
 - c. take immediate action to prevent any further exceedance.

5. COMPLIANCE LIMITS

1. The Owner shall operate and maintain the Existing and Proposed Works such that the concentration of the Effluent parameters and the three-hour running average Effluent temperature requirements listed in the Tables included in Schedule C are met.
2. The Owner shall ensure that each rainbow trout acute lethality test and each Daphnia magna acute lethality test performed on a grab sample collected from the Cooling Water Discharge prior to the addition of any tempering/quench water and prior to discharge into the Welland Canal, results in mortality for no more than 50 percent of each of the test organisms in 100 percent effluent.
3. The Owner shall ensure that the accuracy of the temperature measurements required to demonstrate compliance under this Section, is within plus or minus 0.4 Celsius degrees.
4. For the purposes of determining non-compliance with and enforcing Subsection (1):
 - a. for the once-through non-contact spent cooling water and final wastewater tank effluent combined flow, non-compliance with respect to the Total Residual Chlorine (TRC) Concentration Limit is deemed to have occurred when any single grab sample analyzed for TRC is greater than the maximum concentration set out in the Table in Schedule C.

- b. for the Final Wastewater Tank Effluent, non-compliance with respect to the Total Residual Chlorine (TRC) Concentration Limit is deemed to have occurred when any single measurement for TRC is greater than the maximum concentration set out in the Table in Schedule C.
 - c. non-compliance with respect to the Monthly Average Total Suspended Solids (TSS) Concentration Limit is deemed to have occurred when the arithmetic average of all daily grab samples analyzed for TSS in a calendar month is greater than the Monthly Average Limit set out in the Table in Schedule C.
 - d. non-compliance with respect to the Oil and Grease (O&G) Concentration Limit is deemed to have occurred when any daily or quarterly grab sample analyzed for O&G is greater than the maximum concentration set out in the Table in Schedule C.
5. non-compliance with respect to the temperature limit is deemed to have occurred when the three-hour running average temperature is greater than the value shown in the Table included in the Schedule C on any day or when the three-hour running average temperature differential (Maximum Temperature Rise) is calculated to be greater than the value shown in the Table, on any day, with each such continuous non-compliance event being deemed to be a single non-compliance from the time the temperature limit is exceeded until the limit is again complied with
 6. non-compliance with respect to pH is deemed to have occurred when any single measurement is outside of the range shown in the Table in the Schedule C.
 7. Compliance with the temperature limitations and operating requirements set out in Conditions 8 and 9 shall be deemed to be compliance with the temperature limits set out in Subsection 5(1).

6. EFFLUENT VISUAL OBSERVATIONS

1. Notwithstanding any other Condition in this Approval, the Owner shall ensure that the effluent from the works is essentially free of floating and settleable solids and does not contain oil or any other substance in amounts sufficient to create a visible film, sheen, foam or discoloration on the receiving waters

7. OPERATION AND MAINTENANCE

1. The Owner shall ensure that, at all times, the Works and the related equipment and appurtenances used to achieve compliance with this Approval are properly operated and maintained. Proper operation and maintenance shall include effective performance, adequate funding, adequate staffing and training, including training in all procedures and other requirements of this Approval and the OWRA and regulations, adequate laboratory facilities, process controls and alarms and the use of process chemicals and other substances used in the Works.

2. The Owner shall update/maintain the operations manual for the Works within six (6) months of completion of construction of the Proposed Works, that includes, but not necessarily limited to, the following information:
 - a. operating procedures for the Works under Normal Operating Conditions;
 - b. inspection programs, including frequency of inspection, for the Works and the methods or tests employed to detect when maintenance is necessary;
 - c. repair and maintenance programs, including the frequency of repair and maintenance for the Works;
 - d. procedures for the inspection and calibration of monitoring equipment;
 - e. operating procedures for the Works to handle situations outside Normal Operating Conditions and emergency situations such as a structural, mechanical or electrical failure, or an unforeseen flow condition, including procedures to minimize Bypasses and Overflows;
 - f. a spill prevention and contingency plan, consisting of procedures and contingency plans, including notification to the District Manager, to reduce the risk of spills of pollutants and prevent, eliminate or ameliorate any adverse effects that result or may result from spills of pollutants;
 - g. procedures for receiving, responding and recording public complaints, including recording any followup actions taken.
3. The Owner shall maintain the operations manual up-to-date and make the manual readily accessible for reference at the Works.

8. SPECIAL OPERATING REQUIREMENTS - WELLAND CANAL NAVIGATION SEASON

1. The Owner shall establish, prior to the commencement of operation of the works, the procedures and instrumentation to allow the following flow information to be obtained and recorded by the Owner:
 - a. real time, continuous flow through the Welland Canal Power House adjacent to Lock 4
 - b. an estimate of the daily average flow at Weir 7 from the SLSMC, which may be on a one day delayed basis
 - c. an estimate of the daily average flow through Lock 7 from the SLSMC which may be on a one day delayed basis and which may be estimated on the basis of the number of vessels passed through the Lock
2. The Owner shall establish and operate, prior to the commencement of operation of the works, continuous temperature monitors/detectors, in the Welland Canal, each with a minimum accuracy of plus or minus 0.4 degrees Celsius, located:

- a. upstream of the Plant intake and outside of any potential zone of influence from the Plant, as approved by the District Manager, which will be deemed to be the Upstream Canal Water Temperature
 - b. at the Plant intake which will be deemed to be the Local Intake Water Temperature
 - c. at two (2) locations which are representative of the temperature in the Canal in the area of Lock 7, as approved by the District Manager and continuously record the temperature information in the Plant Control Room;
3. Despite meeting the temperature limitations under Condition 5(1) at all times, whenever the Welland Canal Powerhouse flow is less than 6 cubic metres per second, based on a 60 minute rolling average, the Owner shall operate the Plant in such a way as to ensure that there is no thermal impact caused by the Plant's spent cooling water discharge on the aquatic life in the Canal.
 4. As a minimum, to comply with the requirements of Subsection (3), the Owner shall stop the discharge of all spent cooling water from the Plant to the Canal, whenever the temperature of the spent cooling water exceeds 33 Degrees Celsius for any continuous period of six hours, at any time.
 5. The Owner may not restart the discharge of Plant spent cooling water to the Canal following a shutdown under Subsection (4), until either:
 - a. the flow to the Welland Canal Power House is 6 or more cubic metres per second, based on a 60 minute rolling average and the temperature difference between the Upstream Canal Water Temperature monitoring point and the average of the two (2) downstream Lock 7 area monitoring point temperatures is within 2 Celsius degrees based on a 60 minute average or,
 - b. Lock 7 has been put through a minimum of three (3) complete fill and empty cycles since the shutdown, should the Welland Canal Power House flow be less than 6 cubic metres per second, and the temperature difference between the Upstream Canal Water Temperature monitoring point and the average of the two (2) downstream Lock 7 area monitoring point temperatures is within 2 Celsius degrees based on a 60 minute average
 6. The Owner shall report to the District Manager, each occurrence of a shutdown and restart resulting from the limiting conditions under Subsections (4) and (5), orally as soon as reasonably possible, and in writing within seven (7) days of the first oral reporting of the information.

9. SPECIAL OPERATING REQUIREMENTS - WELLAND CANAL NON-NAVIGATION (WINTER) SEASON

- a. The Owner shall not hypochlorinate the intake water system at any time during the non-navigation (winter) season.

- b. Despite Subsection (9)(a), upon the written request of the Owner, when demonstrated impairment of operations is occurring due to bio-fouling, the District Manager may authorize chlorination of the intake water system for bio-fouling control, during the non-navigation (winter) season, for a period up to 120 minutes per day, at a weekly frequency and on days other than weekends and holidays to a TRC concentration objective of 0.5 milligrams per Litre as measured by an on-line analyzer in the inlet line to the Steam Turbine Condenser.
- c. On any given day, during the non-navigation (winter) season, when the flow at the Welland Canal Power House is less than 6 cubic metres per second, based on a 60 minute rolling average, the Owner's discharge of spent cooling water from the Plant to the Canal shall be limited, for that day, to the lesser of the following two (2) time periods:
 - 1. twelve (12) hours per day, or
 - 2. the period of time until the calculated 60 minute rolling average temperature difference between the Local Intake Water Temperature and the Upstream Canal Water Temperature first exceeds 2 Celsius degrees, indicating entrainment of re-circulated heated water
- d. The Owner shall report to the District Manager, each occurrence of a shutdown resulting from the limiting condition under Subsection (9)(c)(2), orally as soon as reasonably possible, and in writing within seven (7) days of the first oral reporting of the information.

10. MONITORING AND RECORDING

- 1. The Owner shall, upon commencement of operation of the Works, carry out a monitoring program of collecting samples at the required sampling points, at the frequency specified or higher, by means of the specified sample type and analyzed for each parameter listed in the tables under the monitoring program included in Schedule D and record all results, as follows:
 - a. all samples and measurements are to be taken at a time and in a location characteristic of the quality and quantity of the sewage stream over the time period being monitored.
 - b. All metals shall be reported as total unfiltered concentrations in milligrams per Litre.
 - c. definitions and preparation requirements for each sample type are included in document referenced in Paragraph 4.
- 2. The streams named in the Tables included in the Schedule D shall be sampled at the sampling points named with the corresponding Table, in accordance with the monitoring frequency and sample type specified for each parameter named in each of the Tables, and the samples analyzed for the stated parameters.
- 3. All metals shall be reported as total unfiltered concentrations in milligrams per Litre.

4. The methods and protocols for sampling, analysis and recording shall conform, in order of precedence, to the methods and protocols specified in the following documents and all analysis shall be conducted by a laboratory accredited to the ISO/IEC:17025 standard or as directed by the District Manager:
 - a. the Ministry's Procedure F-10-1, "Procedures for Sampling and Analysis Requirements for Municipal and Private Sewage Treatment Works (Liquid Waste Streams Only), as amended;
 - b. the Ministry's publication "Protocol for the Sampling and Analysis of Industrial/Municipal Wastewater Version 2.0" (January 2016), PIBS 2724e02, as amended;
 - c. the publication "Standard Methods for the Examination of Water and Wastewater", as amended.
 - d. the Environment Canada publications "Biological Test Method: Reference Method for Determining Acute Lethality of Effluents to Rainbow Trout" (EPS 1/RM/13 Second Edition - December 2000) and "Biological Test Method: Reference Method for Determining Acute Lethality of Effluents to *Daphnia magna* " (EPS 1/RM/14 Second Edition - December 2000), as amended, subject to the following:
 - i. the use of pH stabilization in the determination of acute lethality of Final Effluent to Rainbow Trout in accordance with the Environment Canada publication "Procedure for pH Stabilization during the Testing of Acute Lethality of Wastewater Effluent to Rainbow Trout (EPS 1/RM/50)" (2008), as amended, is permitted only if:
 - a. all the three criteria stipulated in the Environment Canada EPS 1/RM/50 are met; and
 - b. the Final Effluent is not discharged to a receiver in which the Final Effluent contributes more than 50% of the total flow in the receiving water, unless the District Manager, having reviewed additional information submitted regarding the Final Effluent and the receiving water approves on the use of RM50 on a site-specific basis.
5. If the Owner monitors Bisulphite Residual as a surrogate to Total Residual Chlorine, then detected levels of Bisulphite Residual in the sample shall be deemed to confirm absence of Total Residual Chlorine.
6. The Owner shall determine from continuous flow rate measurements and record in cubic metres for each day, the daily volume of the Wastewater Tank Process Effluent conveyed to the Once-through Spent Cooling Water line, to an accuracy within plus or minus 15 percent.
7. The Owner shall determine from continuous flow rate measurements and record in cubic metres for each day, the daily volume of cooling water effluent discharged to the Welland canal, to an accuracy within plus or minus 20 percent and also record the number of hours each day, that the cooling water effluent was discharged to the Welland Canal.
8. The Owner shall record for each day, the average Welland Canal Power House flow

9. After twenty four (24) months of effluent monitoring under Subsection (1), the sampling program and/or the monitoring frequencies specified in Subsection (1) with respect to any parameter, except for TRC, temperature and pH, may be reduced, eliminated or otherwise modified by the District Manager, in writing, from time to time.

11. REPORTING

1. The Owner shall report to the District Manager orally as soon as possible any non-compliance with the compliance limits, and in writing within seven (7) days of non-compliance.
2. The Owner shall, within fifteen (15) days of occurrence of a spill within the meaning of Part X of the EPA, submit a full written report of the occurrence to the District Manager describing the cause and discovery of the spill, clean-up and recovery measures taken, preventative measures to be taken and schedule of implementation, in addition to fulfilling the requirements under the EPA and O. Reg. 675/98 "Classification and Exemption of Spills and Reporting of Discharges".
3. The Owner shall, upon request, make all manuals, plans, records, data, procedures and supporting documentation available to Ministry staff.
4. The Owner shall prepare performance reports on a calendar year basis and submit to the District Manager by March 31 of the calendar year following the period being reported upon. The reports shall contain, but shall not be limited to, the following information pertaining to the reporting period:
 - a. a summary and interpretation of all Final Effluent monitoring data, including concentration, flow rates, loading and a comparison to the design objectives and compliance limits in this Approval, including an overview of the success and adequacy of the Works;
 - b. a summary of all operating issues encountered and corrective actions taken;
 - c. a summary of all normal and emergency repairs and maintenance activities carried out on any major structure, equipment, apparatus or mechanism forming part of the Works;
 - d. a summary of any effluent quality assurance or control measures undertaken;
 - e. a summary of the calibration and maintenance carried out on all Effluent monitoring equipment to ensure that the accuracy is within the tolerance of that equipment as required in this Approval or recommended by the manufacturer;

- f. a summary of efforts made to achieve the design objectives in this Approval, including an assessment of the issues and recommendations for pro-active actions if any are required under the following situations:
 - i. when any of the design objectives is not achieved more than 50% of the time in a year, or there is an increasing trend in deterioration of Final Effluent quality;
- g. a summary of any complaints received and any steps taken to address the complaints;

The reasons for the imposition of these terms and conditions are as follows:

GENERAL CONDITION

1. Condition 1 regarding general provisions is imposed to ensure that the Works are constructed and operated in the manner in which they were described and upon which approval was granted.

CHANGE OF OWNER AND OPERATING AGENCY

2. Condition 2, regarding change of Owner and Operating Agency is included to ensure that the Ministry records are kept accurate and current with respect to ownership and Operating Agency of the Works and to ensure that subsequent owners of the Works are made aware of the Approval and continue to operate the Works in compliance with it

CONSTRUCTION OF PROPOSED WORKS / RECORD DRAWINGS

3. Condition 3 regarding construction of Proposed Works/record drawings is included to ensure that the Works are constructed in a timely manner so that standards applicable at the time of Approval of the Works are still applicable at the time of construction to ensure the ongoing protection of the environment, and that prior to the commencement of construction of the portion of the Works that are approved in principle only, the Director will have the opportunity to review detailed design drawings, specifications and an engineer's report containing detailed design calculations for that portion of the Works, to determine capability to comply with the Ministry's requirements stipulated in the terms and conditions of the Approval, and also ensure that the Works are constructed in accordance with the Approval and that record drawings of the Works "as constructed" are updated and maintained for future references.

EFFLUENT OBJECTIVES

4. Condition 4 regarding design objectives is imposed to establish non-enforceable design objectives to be used as a mechanism to trigger corrective action proactively and voluntarily before environmental impairment occurs.

COMPLIANCE LIMITS AND EFFLUENT VISUAL OBSERVATIONS

5. Conditions 5 and 6 regarding compliance limits and effluent visual observation are imposed to ensure that the Final Effluent discharged from the Works to the environment meets the Ministry's effluent quality requirements.

OPERATION AND MAINTENANCE

6. Conditions 7, 8 and 9 are regarding operation and maintenance are included to require that the Works be properly operated, maintained, funded, staffed and equipped such that the environment is protected and deterioration, loss, injury or damage to any person or property is prevented. As well, the inclusion of a comprehensive operations manual governing all significant areas of operation, maintenance and repair is prepared, implemented and kept up-to-date by the Owner. Such a manual is an integral part of the operation of the Works. Its compilation and use should assist the Owner in staff training, in proper plant operation and in identifying and planning for contingencies during possible abnormal conditions. The manual will also act as a benchmark for Ministry staff when reviewing the Owner's operation of the Works.

MONITORING AND RECORDING

7. Conditions 10 regarding monitoring and recording is included to enable the Owner to evaluate and demonstrate the performance of the Works, on a continual basis, so that the Works are properly operated and maintained at a level which is consistent with the design objectives and compliance limits.

RECORD KEEPING AND REPORTING

8. Condition 11 is included to set out the required record keeping and reporting procedures which will allow both the Owner and the Ministry to be kept informed of the operation of the works as it relates to meeting the requirements of this Approval. These conditions emphasize the necessity for proper operation and maintenance as well as care and accuracy in reporting the required information.

REPORTING

9. Condition 12 regarding reporting is included to provide a performance record for future references, to ensure that the Ministry is made aware of problems as they arise, and to provide a compliance record for this Approval.

Schedule A

1. Environmental Compliance Approval Application for Industrial Sewage Works dated January 25, 2021 and received on January 26, 2021.

Schedule B.1

Effluent Objectives Tables

I. **Oil/Water Separator Effluent** - prior to discharge to the Final Wastewater Tank

EFFLUENT PARAMETER	EFFLUENT OBJECTIVE
Oil and Grease	15 mg/L

II. **The Final Wastewater Tank Effluent** - prior to discharge to once-through spent non-contact cooling water discharge line

EFFLUENT PARAMETERS	EFFLUENT OBJECTIVES
Temperature*	32 Degrees Celsius*
Hydrogen ion*	6.5 - 9.0 pH Units*

* apply upon construction of all of the proposed works

III. **Spent Cooling Water** - prior to discharge to the Welland Canal

EFFLUENT PARAMETER	EFFLUENT OBJECTIVE
Total Residual Chlorine (TRC)	<0.035 mg/L**

** as measured continuously by an on-line TRC analyzer

Schedule B.2

Effluent Objectives Tables

ACTIVE INGREDIENTS	PURPOSE	DOSAGE RATE
Ferric Chloride	Coagulant	40 mg/L
sodium pentaphosphonate	Scale Inhibitor	5 mg/L

Schedule B.3

Effluent Objectives Tables

ACTIVE INGREDIENTS	PURPOSE	DOSAGE RATE
ammonium hydroxide	Corrosion Inhibitor	2 mg/L
carbohydrazide (1,3-diaminourea)	Oxygen Scavenger	0.1 mg/L
phosphate/caustic blend	Corrosion Inhibitor	20 mg/L

Schedule B.4

Effluent Objectives Tables

ACTIVE INGREDIENTS	PURPOSE	DOSAGE RATE
ammonium hydroxide	Corrosion Inhibitor	2 mg/L
carbohydrazide (1,3-diaminourea)	Oxygen Scavenger	0.1 mg/L
phosphate/caustic blend	Corrosion Inhibitor	20 mg/L

Schedule B.5

Effluent Objectives Tables

ACTIVE INGREDIENT	PURPOSE	DOSAGE RATE
Sodium nitrite/boric acid salt	Corrosion Inhibitor	800 mg/L

Schedule C

Effluent Limits Tables

I. **Once Through Non-contact Spent Cooling Water and Final Wastewater Effluent Discharge**

Sampling Location: Effluent discharge to the Welland Canal, prior to any quench water addition for all parameters below except temperature

EFFLUENT PARAMETERS	EFFLUENT LIMITS
Total Residual Chlorine (mg/L)	0.01 mg/L
Total Suspended Solids**	25 mg/L**
Oil and Grease	15 mg/L
Hydrogen Ion (pH Units)	6.0 - 9.5
Maximum Effluent Temperature	32 degrees Celsius***
Maximum Temperature Rise, (Effluent minus Local Intake Temperature)	10 Celsius degrees***

** monthly average limit

*** quench water may be used, as needed, only to meet the temperature limits

*** monitored through 3 hour rolling average

II. **Final Wastewater Effluent Tank (Limits applicable upon completion of all of the proposed Works)**

Sampling Location: Effluent discharge from tank, prior to discharge to once-through spent non-contact cooling water discharge line

EFFLUENT PARAMETERS	EFFLUENT LIMITS
Temperature*	35 degree Celcius*
pH	6 - 9.5
Oil and Grease	15 mg/L
Total Residual Chlorine	0.02 mg/L
Acute Lethality (Daphnia Magna, Rainbow Trout)	No Acute Lethality

* quench water may be used, as needed, for the final effluent wastewater tank

Schedule D

Effluent Monitoring Tables

- I. **The Final Wastewater Tank Effluent** - prior to discharge to the once-through spent non-contact cooling water discharge line

EFFLUENT PARAMETERS	MONITORING FREQUENCY	SAMPLE TYPE
Total Residual Chlorine (TRC)	C	On-line
Temperature	C	On-line
Hydrogen ion (pH)	C	On-line
BOD5	Q	Composite
(Ammonia + Ammonium) Nitrogen	Q	Composite
(Nitrate + Nitrite) Nitrogen	Q	Composite
Total Kjeldahl Nitrogen	Q	Composite
Total Organic Carbon (TOC)	Q	Composite
Total Phosphorus	Q	Composite
Total Suspended Solids	Q	Composite
Toluene	Q	Composite
Chloroform	Q	Composite
Total Metals (ATG 9)***	Q	Composite
Iron	Q	Composite
Phenolics (4AAP)	Q	Composite
Oil and Grease	Q	Grab
Acute Lethality with Rainbow Trout and Daphnia magna	Annual	Grab

*** in accordance with the protocols referenced under Subsection 10(4)

- II. **Oil/Water Separator Effluent** - prior to discharge to Wastewater Tank

EFFLUENT PARAMETER	MONITORING FREQUENCY	SAMPLE TYPE
Oil and Grease	W	Grab

III. **Spent Cooling Water** - in the outfall header prior to discharge to the Welland Canal

EFFLUENT PARAMETERS	MONITORING FREQUENCY	SAMPLE TYPE
Total Residual Chlorine (TRC)	D	Grab
Total Suspended Solids	D	Grab
Oil and Grease	D	Grab
Hydrogen Ion (pH Units)	D	Grab
Temperature	C	On-line
Acute Lethality with Rainbow Trout and Daphnia magna	Q	Grab

IV. **Cooling Water System Chlorination** - sampled at the Steam Turbine Condenser inlet

EFFLUENT PARAMETER	MONITORING FREQUENCY	SAMPLE TYPE
Total Residual Chlorine	C	On-line

V. **Station Intake Water** - measured at the raw water intake structure

EFFLUENT PARAMETER	MONITORING FREQUENCY	SAMPLE TYPE
Temperature	C	On-line

VI. **Upstream Canal Water** - measured upstream of the zone of influence of the Plant Intake

EFFLUENT PARAMETER	MONITORING FREQUENCY	SAMPLE TYPE
Temperature	C	On-line

VII. **Lock 7 Area Canal Water** - measured at two (2) locations

EFFLUENT PARAMETER	MONITORING FREQUENCY	SAMPLE TYPE
Temperature	C	On-line

VIII. **Oil Grit Separator OGS1, OGS2, OGS3, OGS4 and OGS5 Effluents** - prior to

discharge offsite to their respective receivers with no bypass flow occurring

EFFLUENT PARAMETER	MONITORING FREQUENCY	SAMPLE TYPE
Oil and Grease	Q	Grab
Total Suspended Solids	Q	Grab
Toluene	Q	Grab
Chloroform	Q	Grab
Total Metals (ATG 9)**	Q	Grab

**** in accordance with the protocols referenced under Subsection 10(4)**

Upon issuance of the environmental compliance approval, I hereby revoke Approval No(s). 6994-8UDKWS issued on June 1, 2012.

In accordance with Section 139 of the Environmental Protection Act, you may by written Notice served upon me, the Environmental Review Tribunal and in accordance with Section 47 of the Environmental Bill of Rights, 1993, the Minister of the Environment, Conservation and Parks, within 15 days after receipt of this Notice, require a hearing by the Tribunal. The Minister of the Environment, Conservation and Parks will place notice of your appeal on the Environmental Registry. Section 142 of the Environmental Protection Act provides that the Notice requiring the hearing shall state:

- a. The portions of the environmental compliance approval or each term or condition in the environmental compliance approval in respect of which the hearing is required, and;
- b. The grounds on which you intend to rely at the hearing in relation to each portion appealed.

Pursuant to subsection 139(3) of the Environmental Protection Act, a hearing may not be required with respect to any terms and conditions in this environmental compliance approval, if the terms and conditions are substantially the same as those contained in an approval that is amended or revoked by this environmental compliance approval.

The Notice should also include:

1. The name of the appellant;
2. The address of the appellant;
3. The environmental compliance approval number;
4. The date of the environmental compliance approval;
5. The name of the Director, and;
6. The municipality or municipalities within which the project is to be engaged in.

And the Notice should be signed and dated by the appellant.

This Notice must be served upon:

The Secretary*
Environmental Review Tribunal
655 Bay Street, Suite 1500
Toronto, Ontario
M5G 1E5

AND

The Minister of the Environment,
Conservation and Parks
777 Bay Street, 5th Floor
Toronto, Ontario
M7A 2J3

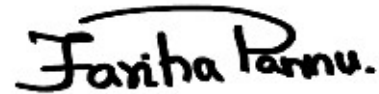
AND

The Director appointed for the purposes of
Part II.1 of the Environmental Protection Act
Ministry of the Environment,
Conservation and Parks
135 St. Clair Avenue West, 1st Floor
Toronto, Ontario
M4V 1P5

*** Further information on the Environmental Review Tribunal's requirements for an appeal can be obtained directly from the Tribunal at: Tel: (416) 212-6349, Fax: (416) 326-5370 or www.ert.gov.on.ca**

This instrument is subject to Section 38 of the Environmental Bill of Rights, 1993, that allows residents of Ontario to seek leave to appeal the decision on this instrument. Residents of Ontario may seek leave to appeal within 15 days from the date this decision is placed on the Environmental Registry. By accessing the Environmental Registry at <https://ero.ontario.ca/>, you can determine when the leave to appeal period ends.

The above noted activity is approved under s.20.3 of Part II.1 of the Environmental Protection Act.
DATED AT TORONTO this 26th day of May, 2021



Fariha Pannu, P.Eng.
Director
appointed for the purposes of Part II.1 of the
Environmental Protection Act

KH/

c: District Manager, MECP Niagara District.
Candra Whitesell/Antony Aruldoss, AECOM