AMENDED ENVIRONMENTAL COMPLIANCE APPROVAL

NUMBER 2951-CPCMNQ
Issue Date: September 14, 2023

Ontario Power Generation Inc.
1 Holt Road South
Post Office Box, No. 4000
Clarington, Ontario
L1C 3Z8

Site Location: Darlington Nuclear Generating Station
1 Holt Road South
Lots 18-25, Concession Broken Front (BF)
Municipality of Clarington, Regional Municipality of Durham

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:

Proposed Works:

the establishment of sewage Works for the collection, transmission, treatment and disposal of wastewater and storm water, at the four (4) Reactor Unit Darlington Nuclear Generating Station, consisting of the following:

B. DEMINERALIZED WATER PLANT (DWP)

- Raw lake water will be drawn from the station's Emergency Service Water (ESW) system Return Header which originates from the nuclear station's forebay, for the production of high purity demineralized product water with a maximum rated capacity of 10,368 cubic metres per day (120 litres per second) processed through a series of treatment works consisting of the following units:

  - combination of technologies, comprising pre-treatment, ultrafiltration for suspended solids removal, reverse osmosis for dissolved solids removal, granular activated carbon for chlorine and chlorination by-products removal, and continuous electro-deionization for residual ion removal, followed by final mixed bed polishing, with details of each treatment step summarized below:

    - Pre-treatment: Solids removal using two (2) 250-micron strainers, each at 100% design where one strainer has the capacity to process all water required at peak demand while the

other unit is offline for maintenance or a backwash cycle. Strainer backwash water is directed to the Process Waste Sump.

- Ultrafiltration (UF): A 3+2 design in which three (3) UF units with capacity to process all water required at peak demand designed with pressurized UF membranes that use fully automated backwash, maintenance wash, and clean-in-place (CIP) cycles.

- Chlorination: UF filtrate is dosed with Sodium hypochlorite.

- Sodium Bi-sulfite (or Calcium Thiosulphate) Addition: Two sodium bisulfite dosing pumps provided, each at 100% design with an installed spare pump.

- Anti-scalant Addition: Two (2) dosing pumps provided, each at 100% design with an installed spare pump, added upstream of the RO system.

- Reverse Osmosis (RO): Two (2) storage tanks and filtrate forwarded to the RO system for dissolved solids removal. Three (3) UF filtrate transfer pumps are provided, each at 50% design with an installed spare pump. The system design incorporates a two-pass RO system in which RO permeate (product) from the first pass is further treated with a second pass of RO membranes. The RO system is comprised of eight two-pass RO skids that are designed with the first pass and second pass on a single skid. The RO system is a 7+1 design in which seven RO skids have the capacity to process all water required at peak demand, allowing one unit to be in a quarterly CIP cycle. Specialized RO cleaning chemicals, including Low pH ROClean P303 or L403 cleaners or KLEEN MCT 503, High pH ROClean P111 or L211/L212 cleaners or KLEEN MCT 515, or similar, may be used to boost membrane cleaning during CIP procedures.

- Sodium Hydroxide Addition: Prior to second pass RO, two (2) sodium hydroxide dosing pumps provided, each at 100% design with an installed spare pump.

- Activated Carbon Filtration: RO product water is captured in two large storage tanks and forwarded to the activated carbon filters (ACF) system for further trihalomethanes (THM) removal. Three (3) Activated Carbon Filtration Vessels provided, each at 50% design with two pumps in operation and one pump in standby.

- Cartridge Filters: A bank of four (4) cartridge filter housings are piped in parallel downstream of the ACF system. Cartridge filter size is 1 micron.

- Continuous Electro-deionization: Evoqua IONPURE VNX CEDI modules used with each VNX CEDI module having flow rates of up to 3.5 litres per second, with a total of 48 modules in 4 stacks (i.e.12 CEDI modules per stack) for the DWP to achieve over 150 litres per second capacity. The CEDI process has a 3+1 design in which three CEDI systems have the capacity to process all water required at peak demand.

- Mixed Bed Deionization/Polishing: Evoqua Water Technologies PreFlex® treatment units configured with virgin mixed bed resin with three vessels provided, each at 50% design; two

mixed bed vessels have the capacity to hydraulically and ionically process all water required at peak demand.

- Resin Traps: Two (2) redundant resin traps placed in series.

- UF Backwash System: raw water storage tank and pumps designed to flush accumulated solids from the Ultra-Filtration (UF) membrane modules using high raw water flow rates. Waste flows are directed to the Process Waste Sump.

- Neutralization System: Skid mounted package neutralization system that receives various waste streams and uses sodium hydroxide, sulphuric acid, sodium bisulphite or calcium thiosulphate to neutralize pH and chlorine residual. When waste is within specifications, it is discharged to the CCW line.

- Process Waste Sump System: The following process wastewater flows into the sump:

  - Carbon rinse wastewater
  - UF backwash waste
  - Strainer backwash waste
  - Building floor drains
  - Deionized (DI) rinse wastewater from Mixed Bed Ion Exchange units
  - Resin transfer wastewater
  - RO concentrate (only during high raw water turbidity events)

  The sump is sized at 37.9 cubic metres. Discharge from the sump is by three (3) pumps, each with 50% design capacity to provide redundancy while one pump is offline for maintenance.

  The discharge of the Waste Sump will either be directed to the existing CCW, sanitary sewer or one of the Neutralization Tanks depending on the quality of the waste.

- Existing Condenser Cooling Water (CCW) line: Wastewater flows from the two (2) existing neutralization systems, the sump and the RO concentrate are discharged to the existing CCW line from the new DWP.

- stub connections to the water treatment train to allow the emergency use of a mobile trailer-based treatment system in place of any non-functioning section of the train, or with specific emergency skid mounted equipment as needed, and the emergency trailer waste streams will be directed to the same location as the other process equipment it is supplementing or replacing. The emergency UF trailers, backwash flows would be directed to floor trenches which drain to the Process Waste Sump. The emergency RO trailers would direct reject flows to the sump as well. The CIP flows for either

UF or RO trailers would flow to the Neutralization system. The Process Waste Sump would handle all other flows that occur, and online instrumentation ensures that facility discharges will be appropriately directed to the CWDD or trucked to the Building Effluent Lagoons for further treatment and eventual discharge via the Lagoon discharge system to Lake Ontario.

F. YARD DRAINAGE - Stormwater Management of the Demineralized Water Plant (DWP)

stormwater management Works to serve the new Demineralized Water Plant (DWP) located is south of the Engineering Support and Services Building (ESSB) and to replace the existing Water Treatment Plant (WTP), for the collection, transmission, treatment and disposal of stormwater runoff from a total catchment area of 0.84 hectares, to provide Enhanced Level water quality protection via treatment train and erosion control, and to attenuate post-development peak flows to pre-development peak flows for all storm events up to and including the 100-year storm event, consisting of the following:

- **stormwater management facility (catchment area 0.84 hectares):** one (1) detention pond with grassed bottom, having a maximum available storage volume of approximately 174 cubic metres, complete with two (2) inlet swale structures, one (1) emergency overflow weir and riprap-lined spillway to the western ditch, and one (1) outlet structure, consisting of a 450 millimetres diameter storm outlet pipe, allowing a maximum discharge of 285.1 litres per second under the 100-year storm event to the oil/grit separator described below;

- **oil and grit separator (catchment area: 0.84 hectares):** one (1) oil and grit separator, Stormceptor Model EFO6 or Equivalent Equipment, located downstream of the stormwater detention pond, and a maximum treatment rate of 22.53 litres per second, discharging via a 450 millimetres diameter outlet pipe to the western ditch and ultimately to Lake Ontario.

F. YARD DRAINAGE - Extension/Realignment of Holt Road

stormwater infrastructure conveyance systems of trapezoidal grassed swales and culverts, along with existing open road side ditches to accommodate the extension/realignment of Holt Road, serving the Darlington Nuclear Generating Station and Hydro One Networks Inc. lands north of the Darlington Station, having approximately a total of 104.2 hectares (7.19 hectares for the Darlington Station) for the collection, transmission, treatment and disposal of stormwater runoff, to provide Normal Level quality control and to attenuate post-development peak flows up to the 100-year storm event, via a new/relocated shoreline outlet to Lake Ontario.

including erosion/sedimentation control measures during construction and all other controls and appurtenances essential for the proper operation of the aforementioned Works.

all in accordance with the following submitted supporting documents listed in Schedule A.

Temporary Works:

B. WATER TREATMENT PLANT (WTP)

- Emergency Service Water (ESW) piping to convey screened raw lake water via the Auxiliary Service Water System to the Water Treatment Plant Building between Reactor Unit 2 and 3 Pumphouses, for the production of demineralized water at a net output of approximately 9800 cubic metres per day with the treatment works consisting of the following units:

    - o two (2) parallel Solid Contact Clarifiers where lime slurry and coagulant polymer solutions are added, with the solids discharged to a sludge dewatering system and the treated water decanted to two (2) Sand Filters, operating in parallel, with piping to convey filtered water to the Filtered Water Sump.

    - o a sludge dewatering system with liquid return pumped to the front end of the Clarifier system and dewatered sludge removed offsite for disposal.

    - o piping to convey the backwash from the two (2) parallel Sand Filters to the concrete Backwash Sump for pumped return to the front end of the Solid Contact Clarifiers.

    - o one (1) concrete, Filtered Water Sump, with a volume of approximately 1467 cubic metres, discharging via three (3) Filtered Water Pumps to a common header feeding three (3) identical demineralization trains, each consisting of a carbon filter, cation exchanger, a decarbonator, an anion exchanger and a mixed bed ion exchanger, with the treated water from each train conveyed to Storage Tanks for use in the Station Process systems.

    - o one (1) bulk sulphuric acid tank and one (1) bulk caustic tank, each with gravity feed to the respective day tank, all within a spill containment area, with six (6) acid pumps and four (4) caustic pumps and piping to allow regeneration of the ion exchangers and including piping and valves to also allow manually controlled addition of acid or caustic to the Neutralizing Sump.

    - o two (2) concrete-lined Neutralizing Sumps, each with a volume of approximately 1585 cubic metres, to collect regeneration unit backwash and acid/caustic unloading pad drains, with a recirculation line and two pumps, each rated at approximately 81 litres per second discharging the neutralized contents via MISA Control Point 2200 to the CWDD.

- stub connections to the water treatment train to allow the emergency use of a mobile trailer-based treatment system in place of any non-functioning section of the train, with the mobile unit filter backwash and regenerant solution being directed via hoses to the Neutralization Sump for pumped discharge to the CWDD or trucked to the Building Effluent Lagoons for further treatment and eventual discharge via the Lagoon discharge system to Lake Ontario.

Existing Works:

existing sewage Works for the collection, transmission, treatment and disposal of wastewater and storm water, at the four (4) Reactor Unit Darlington Nuclear Generating Station, consisting of the following:

A. COOLING WATER

- one (1) intake structure at a depth of approximately 10 metres in Lake Ontario consisting of pre-cast concrete sections, conveying water through a nominal 8 metre diameter tunnel to the forebay.

- piping for the collection and discharge of condenser cooling water to the Cooling Water Discharge Duct (CWDD) from each of the three (3) steam condensers at each of the four (4) Reactor Units at a design rate of approximately 33 cubic metres per second for each Unit, based on the operation of all three (3) Condenser Cooling Water (CCW) pumps at each Reactor Unit.

- a reinforced concrete Cooling Water Discharge Duct (CWDD), located south of the Turbine Hall, and running west from Reactor Unit 4, designed to convey up to 161 cubic metres per second of effluent.

- one (1) discharge structure at the west end of the CWDD, equipped with adjustable gates for frazil ice control, to allow, as required, up to approximately 32 cubic metres per second of partial diversion of effluent to the Station Intake Forebay, to the north, and to regulate the back pressure in the condensers, with normal discharge from the structure via a nominal 8 metre diameter underground pipe, extending approximately 1850 metres along the bottom of Lake Ontario and including a final 900 metre long anchored diffuser section with 90 ports, 0.6 metres in diameter, designed to limit the surface water temperature rise to a maximum of 2 degrees Celsius above ambient lake temperature at the edge of a one kilometre square mixing zone.

- one (1) secondary debris filter assembly installed across the flow path in each of the twenty-four (24), 1.8 metre diameter cooling water inlet pipes serving a total of 12 steam condensers at the four (4) Reactor Units consisting of a filter basket with 12 filter segments and a backwash rotor assembly which operates on a high differential pressure signal across the filter basket to open the discharge valve on the backwash pipe.

- one (1) backwash pipe under each filter, connected to a zone of lower pressure at the outlet cooling water line downstream of the condenser with a rotating backwash trough moved over each filter segment, in turn, so that the higher pressure above the filter segment drives a reverse water flow to flush the collected debris into the backwash pipe for discharge with the outlet side cooling water into the CWDD and hence to Lake Ontario.

- a differential pressure monitoring system across each secondary debris filter which is routinely flushed with demineralized water which is discharged to the CWDD.

SERVICE WATER

- Low Pressure Service Water (LPSW) piping and distribution system at each Reactor Unit, including four (4) intake water pumps, located in each of the Reactor Unit Pumphouses, each rated at 2.1 cubic metres per second, for cooling duties including heat exchangers and the Turbine Lubricating Oil Coolers, discharging to the CWDD;

- Upper Level Service Water piping and distribution system, supplied from the LPSW system with a booster pump rated at 500 litres per second, serving heavy water systems and equipment at high elevations in each Reactor Unit, discharging to the CWDD;

- an Emergency Service Water (ESW) System with four (4) pumps, each rated at approximately 0.9 cubic metres per second, located in the ESW Pumphouse west of Reactor Unit 1 Turbine Building providing fire water, cooling water for the Irradiated Fuel Bay Heat Exchangers and auxiliary service water throughout the Station, discharging to the CWDD;

- chlorination systems for the Station Low Pressure Service Water (LPSW) and Emergency Service Water (ESW) Systems for the control of zebra mussels and other mollusks, with effluents from both Systems discharging to the Cooling Water Discharge Duct (CWDD), and including:

  Central Hypochlorite Transfer System for LPSW

  - four (4), 27 cubic metre capacity, HDPE, Hypochlorite Solution Storage Tanks, located in the Water Treatment Plant Building, each within a spill containment area, and including a level sensor and switch to prevent overfilling.

  - two (2) Solution Transfer Pumps, (one as standby), each rated up to 60 litres per minute, with piping to supply sodium hypochlorite solution, as needed, to each of the four (4) Reactor Unit Pumphouse Chlorination Systems.

  Unit Pumphouse LPSW Chlorination Systems

  - four (4) similar, skid mounted LPSW sodium hypochlorite solution injection systems, within secondary containment, one (1) at each of the four (4) Reactor Unit Pumphouses, consisting of the following:

    - one (1), 4 cubic metre capacity, HDPE Day Tank with overfill protection, and two (2) metering pumps (one as standby), each rated up to 230 litres per hour, with piping and valving to inject hypochlorite solution to the LPSW Pump Wells in each Pumphouse, and making use of a Total Residual Chlorine (TRC) monitor, located downstream of the Unit's Bio-Box, to allow manual injection control to a TRC target level of approximately 0.5 milligrams pre litre, and including an interlock to prevent dosing when Unit LPSW Pumps are not in operation.

  ESW Chlorination System

- o two (2), 4.5 cubic meter capacity sodium hypochlorite solution storage tanks, in a secondary containment, located in the Chlorination Building, south of the ESW Pumphouse, with three (3) skid-mounted, metering pumps (one as standby), each rated up to 42 litres per hour, with piping and valving to inject hypochlorite solution to the ESW pump well in the ESW Pumphouse and making use of one (1) TRC monitor, located downstream of the Bio-Box, to allow manual injection control to a TRC target level of approximately 0.5 milligrams per litre.

LPSW and ESW Dechlorination System

- o a dechlorination system for the effluent from the Station LPSW and ESW Systems to neutralize TRC, consisting of the following:
  - ■ two (2) vertical stainless steel tanks containing one of dechlorination chemical Sodium Bisulphite (SBS) or Calcium Thiosulphate (CTS), each with a capacity of up to 23 cubic metres, located outside, west of the Fuelling Facilities Auxiliary Area West (FFAA-W) Building, with level sensors, overfill protection and secondary containment.
  - ■ one (1) dosing panel, located inside the Dechlorination Building (west of the FFAA-W Building), with secondary containment, to pump and metre the Sodium Bisulphite (SBS) or Calcium Thiosulphate (CTS) from the storage tanks to the ESW discharge duct, consisting of the following:
    - ■ four (4) dosing pumps (with one (1) on standby), each rated for up to 117 litres per hour; and
    - ■ a strainer to protect the pumps from debris.
- o a mobile Kemmerer water sampler, or equivalent, to be used for backup TRC sampling at the CCW discharge structure.
- o all other equipment, valves and piping required for accurate metering of Sodium Bisulphite (SBS) or Calcium Thiosulphate (CTS) to the ESW discharge duct.

CONDENSER SYSTEMS

- o piping and equipment to allow the injection of sulphur hexafluoride to the inlet waterbox side of each of the twelve (12) condensers at the Station, for periodic tube-to-shell leakage testing with the test solution discharging to the CWDD.
- o a condenser tube cleaning system at each condenser, consisting of neutral buoyancy sponge rubber balls at the inlet waterbox to the condenser and collected at the outlet waterbox and returned via a connecting pipe between the inlet and outlet waterboxes in a closed loop cycle.

VACUUM BUILDING

- o piping to convey the periodic controlled batch drainage of dousing water from the Vacuum

Building Dousing Water System containing approximately 11,500 cubic metres of water with up to 150 milligrams per litre of corrosion inhibitor (hydrazine) and varying levels of accumulated tritium, up to a maximum rate of approximately 120 litres per second to the CWDD with additional event drainage, up to three times per week, up to a total volume of approximately 900 cubic metres per event;

C. BOILER BLOWDOWN, CONDENSATE AND FEEDWATER

- piping and automatic valves to direct continuous and intermittent blowdown during standard and non-standard boiler operation from each of the four boilers (Steam Generators) at each Reactor Unit to a header and hence via two discharge lines at each Reactor Unit to the CWDD.

- building heating steam condensate return system for the Station consisting of eight (8) Condensate Storage Tanks and associated pumps to convey the high pressure turbine extraction steam condensate at typical rates of 47 litres per second to a common condensate return header for discharge from any one of the Reactor Units to the CWDD.

- connection for backup heating steam, supplied from the Construction Boilerhouse of eight (8) oil-fired boilers and four (4) electric boilers, to the Station building heating system at Reactor Unit 3 and thus to the Station condensate return system, described above, to convey condensate at typical rates of 15 litres per second to the Station common condensate return header for discharge normally via Reactor Unit 2 condensate piping to the CWDD.

- one (1) mobile skid-mounted sodium fluorescein addition system consisting of a 204 litre solution storage drum and a pump rated up to 6 litres per second to inject sodium fluorescein to the secondary steam side of a boiler at a concentration of approximately 100 milligrams per litre for leak testing of boiler tubes with discharge of the sodium fluorescein solution at approximately 10 litres per second via the Boiler Blowdown piping to the CWDD.

- piping to allow the drainage of process effluent from specific equipment in the boiler and feedwater system to the CWDD.

- application of ODACON®F solution (containing aqueous emulsion of 5 % to <10 % Film Forming Amine (FFA)) as a corrosion inhibitor solution via the existing boiler chemical addition system or standalone injection equipment prior to outages and/or refurbishment to maintain a FFA dosage concentration of 1 parts per million in the boiler (ppm) feedwater system, and the FFA concentrations in the discharged boiler blowdown below 0.5 ppm.

D. ACTIVE (RADIOACTIVE) LIQUID WASTE (ALW)

- a system for the collection, holding, mixing, pumping, testing and treatment of radioactive liquid wastes with final discharge of effluent, upon prior testing for radioactivity, via MISA Control Point 0100 to the CWDD and including the following facilities:

  - sixteen (16) active plant drainage sumps including two (2) sumps at each Reactor Unit, plus three (3) sumps in the Central Services Area (CSA), one (1) in the Heavy Water Management

Building, two (2) sumps in West Fuelling Facilities Auxiliary Annex (FFAA) and two (2) sumps in the East FFAA with each sump equipped with a pump to transfer contents to the Active Liquid Waste (ALW) System.

- o one (1) Emergency Coolant Injection (ECI) sump located in the CSA to collect drainage from the ECI system, equipped with two (2) pumps to transfer contents, as required, to the ALW System.

- o fourteen (14) stainless steel and epoxy/rubber lined reinforced concrete Tanks, in the CSA, including connecting piping and pumps, providing a combined volume of approximately 1674 cubic metres, with the Tanks typically dedicated to collecting same source radioactive effluents.

- o one (1), 300 litre sampling tank located in the West FFAA for collecting radiological samples from the CWDD.

- o two (2) Chemical Decontamination Tanks, each with a volume of approximately 10 cubic metres, for the collection of decontamination solutions for pH adjustment as required, to be pumped to the ALW Treatment System.

- o one (1) ALW Treatment System to treat water on an "as needed" basis, from any of the three (3), 200 cubic metre holding tanks consisting of two (2) Cartridge Filters and two (2) 1.7 cubic metre ion exchange columns, with treated effluent collected in a 200 cubic metre dispersal tank for eventual discharge to the CWDD.

WATER LANCING SYSTEM

- a mobile collection and treatment system for wastewater from the periodic high pressure water lancing and flushing of tubesheets at the four (4) Boilers at each Reactor Unit including:

  - o two (2) pneumatic diaphragm pumps, each rated at approximately 5.7 litres per second, conveying via pressure hoses, wastewater from the tubesheet lancing and flushing operations to the wastewater filtration system.

  - o one (1) skid-mounted wastewater filtration system with a capacity of approximately 14 litres per second, consisting of two (2) similar filtration trains (one as standby) including one (1) coarse filter with a 5 micron cartridge, followed in series with a fine filter with a 1 micron cartridge or a 0.5 micron cartridge, discharging to a 2.3 cubic metre capacity Supply Tank to recirculate the filtered water via a flushing pump at approximately 150 litres per minute for tubesheet flushing or to allow discharge via a pneumatic diaphragm pump rated at approximately 5.7 litres per second to the floor drains and hence via the existing Site Active Liquid Waste System or via the existing Inactive Drainage System to the CWDD.

E. INACTIVE DRAINAGE

- a system for the collection, treatment and discharge of non-radioactive drainage including roof drains, floor drains, sump effluent and system utility drains to either the Forebay, the CWDD or the

yard drainage system as described below, and thus ultimately to Lake Ontario:

DISCHARGING TO THE FOREBAY

Floor Drainage

- drainage piping from floors at elevation 100 metres in the Emergency Service Water Pumphouse and in the Emergency Power Supply Building discharging by gravity directly to the Forebay.

- one (1) sump to collect drainage from other areas of the Emergency Service Water Pumphouse discharging via Control Point 0300, as required.

Oily Water

- an Oily Water Collection System described as follows:

    - eight (8) identical carbon steel Oil Collection Tanks, two (2) for each of the four (4) Reactor Units, approximately 0.46 metres in diameter and 0.72 metres high, anchored above the operating floor, with sight-glass level indication to collect routine oil drips and leaks from miscellaneous sources in each Reactor Unit, such as the Turbine Lube Oil Tank, the Turbine Lube Drum Oil Header Siphon and Fans, the Seal Oil Cooler and Filter and the Seal Oil from Plant #2, with:

        - a 51 millimetre discharge line at the bottom of each tank with a valve (normally closed) to allow periodic draining of the tank to a dedicated 45 gallon drum below each tank for disposal of the contents by a licensed agent, and

        - a 102 millimetre overflow line on the side of each tank to direct any overflow in an emergency to the existing 102 millimetre header draining to the Oily Water Storage Sump.

    - four (4) identical, carbon steel, 0.27 cubic metre, open top, removable oil containers, one for each of the four (4) Reactor Units, to collect oil drips from instrument tubing from the Seal Oil Plant at each Reactor Unit, with:

        - periodic manual transfer of collected oil to a pail and then to a dedicated 45 gallon drum for disposal of the contents by a licensed agent, and

        - an overflow plate on one side of each container to direct any oil overflow in an emergency from the container to a drain funnel, connecting with the 102 millimetre header, draining to the Oily Water Storage Sump.

    - one (1), 340 cubic metre Oily Water Storage Sump in the Water Treatment Plant Building which can be pumped on manual control to the Oil/Water Separator, collecting oily water from the following sources:

        - emergency overflows from the Oily Water Collection tanks/drums to a 102 millimetre

header; and

- dyked areas surrounding the electrical transformers and Lube oil storage tanks.

- one (1) Oil/Water Separator, approximately 1.75 metres by 1.1 metres by 1.0 metre deep, with a throttling valve on the inlet line from the Oily Water Storage Sump set to limit the separator inlet flow to the design value of approximately 13 litres per second with discharge via a dropleg outlet and a 75 millimetre diameter carbon steel pipe via MISA Control Point 1900 to the Station Forebay.

- four (4) similar 0.6 metre square by 0.9 metres high, carbon steel Condensate Holding Tanks, one for each of the four (4) Reactor Units, collecting steam condensate from each of four (4) corresponding Heat Exchangers, with removable covers to allow visual inspection and manual drainage of the contents to the four (4) respective Reactor Unit Inactive Drainage Sumps, each of which is equipped with two pumps on automatic level control pumping the contents of each of the four similar sumps to the Building Effluent Lagoons for eventual discharge to the Station Forebay.

Building Effluent Management System

- collection piping and one (1) common carbon steel, 150 millimetre diameter header in the Powerhouse, collecting pumped building effluents from twenty-one (21) sumps (5 Sumps at each Reactor Unit and the Central Services Area Sump, SU-2) to direct flow to a Treatment Tank which overflows to a Transfer Tank.

  - one (1), 36 cubic metre, high density polyethylene (HDPE) Treatment Tank with discharge to the Transfer Tank, including an agitator, a pumped recirculation loop, an on-line Total Residual Chlorine analyzer and control system, and a connection from the sodium hypochlorite addition system which consists of solution storage totes and two (2) high and two (2) low flow metering pumps.

  - one (1), 36 cubic metre, HDPE Transfer Tank with an agitator and a pumped recirculation loop, capable of receiving building effluent directly or the treated effluent from the Treatment Tank and including a connection from the sodium bisulphite addition system which consists of solution storage totes and two (2) low flow metering pumps, on-line pH and Oxidation/Reduction measurement and overflow provision to the Unit 4 Sump, S-4, with discharge via two (2), 950 litre per minute transfer pumps, on level control, via sections of 200 millimetre diameter carbon steel and PVC pipe, to the Building Effluent Lagoons for eventual discharge to the Station Forebay.

  - one (1), 200 millimetre diameter PVC, Lagoon Feed Return/Spare Line connected through a normally closed valve to the Lagoon Feed Line and capped with a blind flange.

  - two (2) Building Effluent Lagoons separated by a common berm, each with a holding volume of approximately 4000 cubic metres at a normal water level elevation of 114.4 metres, configured

as follows:

- an inlet feed splitter with 200 millimetre diameter PVC discharge lines with valves to either Lagoon 1 (normal operation) or Lagoon 2 (valve closed).

- four (4) sub-surface aerators in each Lagoon.

- a 300 millimetre diameter PVC transfer line from Lagoon 1 to Lagoon 2 at an elevation of 113.5 metres.

- a 150 millimetre diameter PVC discharge line from Lagoon 1 with a normally closed valve, connected to the Lagoon 2 effluent line upstream of the MISA sampling point.

- a 150 millimetre diameter, PVC bottom drain line from Lagoon 2, passing through the common berm wall, along the bottom of Lagoon 1 and out through the south berm of the Lagoon to the MISA sampling hut where it enters a 0.61 metre diameter carbon steel standpipe.

- a run of buried 200 millimetre diameter PVC pipe connected to the existing discharge line from the Building Effluent Lagoons via a tee piece at a point downstream of the MISA Building Effluent Lagoon control point, providing a blanked-off side stream connection to the existing yard drainage system and extending south and west with the west run buried in a filled-in ditch bed between Transformer Road and Park Road, to convey Lagoon effluent to the east end of the Station Forebay, near the inlet to the Unit 4 Pumphouse.

- a pipe outlet on the 200 millimetre diameter Lagoon effluent line extending through the Forebay sheet metal piling above the water surface to allow the Lagoon effluent to mix with water coming into the Station for eventual discharge as condenser cooling water to the CWDD.

Miscellaneous Maintenance

- Drainage of the Condenser Cooling Water (CCW) pipework upstream of waterboxes into the forebay in order to support periodic maintenance work and inspections of equipment.

DISCHARGING TO YARD DRAINAGE

- Sump SU-12 located in the Reactor Unit 1 area of the Powerhouse Complex at the 100 metre floor elevation, collecting leakage water from the CWDD with pumped discharge via the Yard Drainage System to Lake Ontario.

- twenty-two (22) Foundation Box Drain Sumps located outside the Powerhouse, collecting groundwater to be pumped out, as required, using a portable submersible pump to the Yard Drainage System to Lake Ontario.

- sumps/dykes collecting oil contaminated water in the Emergency Power Generator Buildings, the

Emergency Power Generator Fuel Management Building, the Standby Generator Buildings, the Standby Generator Fuel Management Buildings and the Standby Generator Fuel Oil Storage Tank Dykes, and hydrostatic testing water from the Standby Generator Fuel Oil Storage Tanks, Station Service Water (LPSW/PULSW that meets the PWQOs) pumped to the Yard Drainage System upon prior testing when the oil and grease concentration criterion is met.

DISCHARGING TO THE COOLING WATER DISCHARGE DUCT (CWDD)

- roof drains, utility drains and floor drains conveying storm water, air conditioning condensate, potable water and boiler feedwater discharges to a vertical concrete shaft in each Reactor Unit and the CSA, for discharge to the CWDD.

MISCELLANEOUS DISCHARGES TO FURTHER TREATMENT

- drainage in each of the four (4) Pumphouse Drainage Sumps from the strainer and trash sump pits and the circulating water pump pit pumped to the Water Treatment Plant Backwash Sump for further treatment along with the Treatment Plant Filter Backwash water.

- floor drainage from the 93 metre elevation in the Water Treatment Building and from the tunnel to the Service Building, directed to a drainage sump which is pumped to the Sludge Dewatering Tank.

- one (1) sump located at the 87.0 metre elevation in the Heavy Water Management Building equipped with two (2) pumps discharging via the Active Liquid Waste (ALW) System.

- three (3) Construction Joint Drainage Sumps in each Reactor Unit at floor elevation 87.7 metres, each equipped with a pump, discharging via the ALW System.

- two (2) Underliner Drainage sumps in each Reactor Unit at floor elevation 87.7 metres collecting groundwater, each equipped with a pump, discharging via the ALW System.

F. YARD DRAINAGE

- a system of open ditches, underground storm sewers, perforated pipe subdrains, culverts, catch basins, manholes, sumps, storm water management ponds and control structures, paved areas, infiltration drain pits, and outlet works for the collection, transmission, treatment and disposal of Station storm water and building roof drains via shoreline outlets to Lake Ontario and including the following:

ENGINEERING SUPPORT AND SERVICES BUILDING AREA DRAINAGE

- a network of interconnected storm sewers servicing the Engineering Support and Services Building (ESSB), with associated paved parking space and grassed areas connected to one (1) oval shaped, single cell storm water management pond, located at the southeast corner of the ESSB with a maximum working depth of 1.5 metres, an overall storage volume of approximately 2550 cubic metres, including a sediment forebay area at the inlet, a Gabion overflow control weir, with discharge through a Hickenbottom type drain structure with a 105 millimetre diameter orifice plate to a rip rap lined area in a ditch which flows south to Lake Ontario.

HAZARDOUS MATERIALS STORAGE (HAZMAT) BUILDING AREA DRAINAGE

- a paved access ramp and a paved shipping area under roof, on the southeast side of the HAZMAT Building, with a sump for spill collection, approximately 0.6 metres square and 1.5 metres deep, with a shut-off valve (closed during unloading operations) to allow for visual inspection of sump contents and either removal for authorized disposal, or if uncontaminated, discharged through the opened valve and a 100 millimetre diameter sewer to a catch basin south of the Building which is part of the 300 millimetre diameter storm sewer which outlets to a rip rap lined area of the roadside ditch linked with the Station north-south ditch system along Lakeshore Road, for final discharge to Lake Ontario.

POTABLE WATER DISCHARGES

Fire Water Testing/Drainage

- piping, outside the protected area, for the commissioning, testing, and maintenance of firewater systems, using water supplied by the Regional water system, discharging at up to 105 L/s per hydrant into the Yard Drainage system of culverts, manholes, ditches, and/or geotextile/rip rap lined ditches to Lake Ontario.

Maintenance Discharges

- yard drainage system for the occasional collection and transmission of potable water during maintenance operations at a flow rate not to exceed 20 litres per second;

WATER DISCHARGES FROM THE TRITIUM REMOVAL FACILITY

- four (4) top-mounted pressure relief valves and four (4) bottom drain valves, with associated discharge piping from the following four (4) tanks located in the Tritium Removal Facility Annex:
  - two (2), 4.5 cubic metre Domestic Hot Water Tanks;
  - one (1), 4.5 cubic metre Demineralized Water Tank; and

- one (1), 11.3 cubic metre Air Receiver Tank.

conveying, on occasion, effluent to a common Low Pressure Service Water Drain Tundish, RMA-355, which is connected to the Heavy Water Management Building roof and yard drainage system with the final discharge being through a section of 900 millimetre diameter corrugated steel pipe to Lake Ontario;

ELECTRICAL CABLE DUCT DRAINAGE

- eighteen (18) electrical cable duct manholes extending from the SF6 Building to the Powerhouse, collecting groundwater seepage, to be pumped out as required using a portable submersible pump to the Yard Drainage System to Lake Ontario.

D2O BUILDING FOUNDATION

- collecting groundwater seepage from the D2O Storage Building foundation, to be pumped out as required using a portable submersible pump to the Yard Drainage system to Lake Ontario.

MISCELLANEOUS

- as required, pump out of accumulated groundwater or precipitation from steam pits, low areas or spill catch containment structures to existing yard drainage system to Lake Ontario.

Commissioning, Testing and Maintenance for Firewater Systems

- commissioning, testing and maintenance of firewater systems, including piping, using unchlorinated Emergency Service Water, discharging to an existing manhole or catch basin of the yard drainage system, to Lake Ontario.

Retube Waste Processing Building

- discharge of condensate from breathing air compressor to yard drainage system using temporary hose from condensate tank to nearby catch basin to Lake Ontario.

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

1. "Approval" means this entire Environmental Compliance Approval and any Schedules attached to it;

2. "Boiler Blowdown" means an effluent stream from the boiler (steam generator) and associated Feedwater systems;

3. "CWDD" means Cooling Water Discharge Duct;

4. "Composite sample" is defined in Section 3.1.2 of the Ministry publication, ‘Protocol for the

Sampling and Analysis of Industrial/Municipal Waste Water', dated January 1999, and as amended;

5. "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;

6. "District Manager" means the District Manager of the appropriate local District Office of the Ministry, where the Works are geographically located;

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

8. "Grab sample" is defined in Section 3.1.1 of the Ministry publication 'Protocol for the Sampling and Analysis of Industrial/Municipal Waste Water', dated January 1999, and as amended;

9. "mg/L" means milligrams per litre;

10. "Existing Works" means those portions of the Works included in the Approval that have been constructed previously;

11. "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;

12. "Temporary Works" means the temporary Works, described in this Approval and that are to be used for short-term purposes only in accordance with this Approval, until otherwise approval for an extension of this period has been granted;

13. "Operating Unit" means a Unit that is in Standard versus Non-Standard condition. Non-Standard condition includes Start-Up/Upset, Outage, Layup and Refurbishment;

14. "Owner" means Ontario Power Generation Inc. and its successors and assignees;

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

16. "Process material" means any raw material, product, by-product, intermediate product, oil, solvent, waste material or any other chemical used in the works approved by this Approval;

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

18. "Provincial Water Quality Objectives" (PWQOs) means numerical and narrative ambient surface water quality criteria defined in Table 1- General Narrative Objectives and Table 2 – Table of PWQOs and Interim PWQOs, provided in the MOE publication entitled, Water Management, Policies, Guidelines Provincial Water Quality Objectives of the Ministry of Environment and Energy, dated July 1994, as amended;

19. "Works" means the approved sewage works, and includes Proposed Works and Existing Works

described in this Approval.

The following symbols are abbreviations for the monitoring frequencies indicated:

"C" means continuously throughout the year, or in the case of failure or unavailability of an on-line monitor, at a grab sample frequency of 3 times per 12 hours with at least 3 hours between successive samples. In terms of continuous flow measurement, whenever flow measurement is unavailable at the nominal, specified control point location, an alternative measurement location, upstream or downstream of the specified location, and which closely monitors the same flow over a similar reporting period, with an acceptable uncertainty bound, can provide the nominal flow data. During periods of instrument unavailability, where no direct monitoring location is available, flows may be estimated. The statistical basis for calculating the estimate should be verified and provided in written reports;

"D" means daily, i.e. one sample over a 24 hour period;

"W" means weekly, i.e. one sample per week, with at least 4 days between successive samples;

"M" means monthly, i.e. one sample in a calendar month, with at least 15 days between successive samples; and

"Q" means quarterly, i.e. one sample per calendar quarter with at least 45 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 CONDITION

(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.

(4) The issuance of, and compliance with the conditions of, this Approval does not:

(a) relieve any person of any obligation to comply with any provision of any applicable statute, regulation or other legal requirement, including, but not limited

to, the obligation to obtain approval from the local conservation authority necessary to construct or operate the Works; or

(b) limit in any way the authority of the Ministry to require certain steps be taken to require the Owner to furnish any further information related to compliance with this Approval.

2. LIMITS OF OPERATIONAL FLEXIBILITY

(1) The Owner may make modifications to the Works without seeking approval for such modifications under Section 53 of the OWRA, where the modifications will not:

(a) change the treatment process or change or relocate the method of sewage transmission, such that the change would result in the effluent exceeding the Ministry Provincial Water Quality Objectives (PWQOs) or being in non-compliance with the Effluent Requirements in this Approval, or with Regulation 215, as amended, or

(b) increase the rated hydraulic capacity of the Works, or

(c) add a new discharge stream or an alternate discharge point, or

(d) significantly jeopardize the designed reliability or built-in redundancy of the Works, or

(e) affect compliance monitoring requirements or the ability to take samples at the established locations identified in this Approval.

(2) The Owner shall notify the District Manager of any modifications to the Works under Subsection (1), in accordance with the requirements of Condition 7(3).

3. OPERATIONS

(1) The Owner shall ensure that the Works and related equipment and appurtenances, which are installed or used to achieve compliance with this Approval, are properly operated and maintained.

(2) The Owner shall use best effort to immediately identify and clean-up all losses of process material from the Works.

(3) The Owner shall, upon identification of process material loss, take immediate action to prevent the further occurrence of such loss.

(4) In furtherance of, but without limiting the generality of, the obligation imposed by Subsection (1), the Owner shall ensure that equipment and material for the containment, cleanup and disposal of process materials are kept on hand and in good repair for

immediate use in the event of:

(a) loss of process material from the Works, or

(b) a spill within the meaning of Part X of the EPA.

(5) In furtherance of, but without limiting the generality of the obligation imposed by Subsections (1) to (4) above, the Owner shall prepare an operations manual(s) prior to the commencement of operation of the Works.

(6) The Owner shall ensure that the manual(s) includes:

(a) operating procedures for routine operation of the Works;

(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 frequency of repair and maintenance, for the Works;

(d) a spill prevention, control and countermeasures plan including notification procedures; and

(e) procedures for dealing with environmentally related concerns from the public.

(7) The Owner shall maintain the operations manual(s) current, at the location of the Works for as long as they are in operation, and shall make it available for inspection by Ministry staff upon request.

4. EFFLUENT OBJECTIVES

COOLING WATER

(1) The Owner shall use best efforts to design, construct and operate the Works with the objective that:

(a) the Total Residual Chlorine (TRC) concentration in the CWDD, prior to entering Lake Ontario does not exceed 0.002 milligrams per litre.

(b) at a given Reactor Unit during the zebra and quagga mussel season, the continuous chlorination of the Low Pressure Service Water (LPSW) and the continuous chlorination of the Emergency Service Water (ESW) systems (including the fire protection water system, the water supply to the vault coolers, steam generator (boiler) emergency cooling system, and post accident water coolers), are both carried out in such a manner as to maintain a TRC concentration of approximately 0.5 milligrams per litre at the end of the

respective LPSW and ESW systems.

(c) the concentration of tritium in the discharge from the Building Effluent Lagoons does not exceed 4000 Becquerels per litre as measured at the Lagoon 2 effluent and in the event of an exceedance of the 4000 Becquerels per litre objective, the Owner shall:

(i) notify the District Manager as soon as possible during normal working hours;

(ii) take immediate action to identify the source of the contamination; and

(iii) take action to reduce the level of tritium to meet the objective.

(d) the concentration of oil and grease does not exceed 15 milligrams per litre in the effluent from the Oil/Water Separator.

(e) during the operation of the condenser tube cleaning (CTC) process, the loss of sponge balls to the CWDD is kept to a minimum, a record of ball losses is maintained and in the event of a complete loss of balls to Lake Ontario, the Owner shall:

(i) notify the District Manager as soon as possible during normal working hours;

(ii) take immediate action to identify the cause of the loss of balls, and

(iii) take immediate action to prevent any further losses.

(2) The Owner may start chlorination of the Low Pressure Service Water and the Emergency Service Water Systems when any intake water temperature in the Forebay exceeds 12 degrees Celsius or veligers or later life stages of zebra or Quagga mussels are present in the plant or immediate area of the water intake or when the thermal transfer efficiency in the moderator heat exchangers indicate biofilm build-up or fouling conditions. Chlorination shall end by the later of 30 days after the day on which any intake water temperature first drops to less than 12 degrees Celsius or veligers or pediveliger life stages are no longer present.

(3) The Owner shall use best efforts to design, construct, operate and maintain the Works with the objective that safeguards are in place to shut off and stop the chlorination dosing of Low Pressure Service Water (LPSW) and the Emergency Service Water System if there is no flow in that Service Water System.

(4) The Owner may use, and consequently discharge to the CWDD and hence to Lake Ontario, sulphur hexafluoride (SF6) used for the purposes of periodic condenser leak detection tests to test for lake-water leaks into the condenser shell carrying boiler feedwater, under the following conditions:

(a) a maximum of eight (8) injections per day of SF6 may be made;

(b) each injection of SF6 is to be limited to approximately 30 seconds;

(c) each injection rate for SF6 is not to exceed approximately 28 grams per second; and

(d) the injection duration (b) and/or injection rate (c) may be increased, provided that the number of injections per day (a) is decreased, such that the total quantity of SF6 injected does not exceed 6.72 kilograms per day.

(5) The Owner shall use best efforts to determine and record a daily average temperature for the effluent in the CWDD at MISA Control Point 1800 either by direct measurement or through calculations based on recorded daily plant process flow and temperature data and the on-line CCW intake temperature readings.

STEAM AND FEEDWATER

(6) The Owner shall use best efforts to design, construct and operate the Works with the objective that the discharge rates to the CWDD from the Reactor Unit Boilers and associated systems and their durations as set out in Table 1, are not exceeded for the Boiler operating conditions and the types of flows shown in the Table and provided that the concentration and minimum dilution flow requirements under Condition 5 are met:

Table 1 - Allowable Effluent Discharge Rates for Boilers and Associated Systems per Reactor Unit

Boiler Operating Condition	Boiler Operating Sub-Condition	Maximum Effluent Discharge (cubic metres/day)	Type of Flow	Maximum Flow Duration Objective
Standard	Normal	590	Continuous	ongoing
		1730	Intermittent	ongoing
Non-Standard	Start-up/Upset	3500	Intermittent	7 days/event
		590	Continuous	7 days/event
	Outage	1900	Intermittent	14 days/event
		590	Continuous	14 days/event
	Lay-up	1900	Intermittent	120 days/event
		590	Continuous	120 days/event

(7) Despite Subsection (6), the maximum flow duration objectives for Standard and Non-Standard Boiler Operating conditions may be extended upon the written approval of the District Manager.

VACUUM BUILDING DOUSING WATER

(8) The Owner shall keep records of analysis results, discharge rate and total discharge volume for every partial or complete vacuum structure dousing water drainage which are to be made available upon request.

(9) The Owner shall notify the District Manager prior to commencement and upon completion of each partial draining operation and each complete draining operation of dousing water.

YARD DRAINAGE SYSTEM

(10) The Owner may discharge collected storm/ground water in the Emergency Power Generator Buildings, the Emergency Power Generator Fuel Management Building, the Standby Generator Buildings, the Standby Generator Fuel Management Buildings and the Standby Generator Fuel Oil Storage Tank Dykes, and hydrostatic testing water from the Standby Generator Fuel Oil Storage Tanks, provided that a grab sample of the specific dyke/sump contents is analyzed for oil and grease prior to release, and provided that the oil and grease concentration of the sample is 15 milligrams per litre or less.

(11) 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 discolouration on the receiving waters.

CHLORINATION/DECHLORINATION - LOW PRESSURE SERVICE WATER (LPSW) AND EMERGENCY SERVICE WATER (ESW)

(12) The Owner may chlorinate the Low Pressure Service Water and the Emergency Service Water Systems at more than one Reactor Unit (up to a maximum of 4 Reactor Units), simultaneously, during the chlorination season, provided that the dechlorination system is in service to dechlorinate the discharge to meet the Ministry TRC limit of 0.01 milligram per litre.

CONTINGENCY MEASURES - DECHLORINATION

(13) The Owner may revert to chlorinating one (1) LPSW and/or ESW, as per Conditions 4(1)b, 4(2) and 4(3), when the dechlorination system is unavailable for service.

5. EFFLUENT DISCHARGE LIMITS AND MONITORING REQUIREMENTS

COMPLIANCE - GENERAL

(1) Notwithstanding Condition 4, the Owner shall design, construct and operate the Works such that the concentrations of the materials named in this Section in the following Tables as effluent parameters are not exceeded in the respective effluent streams named.

(2) Unless otherwise specified below, for the purposes of determining compliance with and enforcement of the established effluent requirements listed below, exceedance of a maximum effluent concentration/value is deemed to have occurred if any single grab sample and a second immediate confirmatory grab sample analyzed for a parameter/value for which an effluent requirement is listed below, are both greater than the corresponding concentration/value set out for that parameter as an effluent requirement or with respect to the parameter, pH, are both outside of the indicated range.

MONITORING - GENERAL

(3) The Owner shall ensure that samples and measurements taken for the purposes of this Approval are taken at a time and in a location characteristic of the quality and quantity of each designated effluent stream over the time period being monitored.

(4) The Owner shall establish and carry out, within **90 days** of the issue date of this Approval , a monitoring program for the effluent streams named below by collecting samples at the sampling points named, in accordance with the monitoring frequency and sample type specified for each parameter named, in its respective table below, unless otherwise required in writing by this Approval or by the District Manager.

(5) The methods and protocols for sampling, analysis, and recording shall conform, in order of precedence, to the methods and protocols specified in the following:

(a) Ministry of the Environment publication, "Protocol for the Sampling and Analysis of Industrial/Municipal Wastewater", January 1999, as amended from time to time by more recently published editions.

(b) the publication, "Standard Methods for the Examination of Water and Wastewater", 20th edition, 1998, as amended from time to time by more recently published editions.

(c) the Environment Canada publications entitled, "Biological Test Method: Reference Method for Determining Acute Lethality of Effluents to Rainbow Trout" and "Biological Test Method: Reference Method for Determining Acute Lethality of Effluents to Daphnia magna", both dated July, 1990 and as amended.

(d) American Society for Testing Materials, “Manual on Industrial Water and Industrial Wastewater, Publication 148F”, Second Edition, 1962, as amended from time to time by more recently published editions.

(e) U.S. Environmental Protection Agency monitoring procedures as published under Title 40, Part 136 of the Code of Federal Regulations

(f) any other published protocols for parameters not mentioned in the publications referred to in (a), (b) and (c) provided the written approval of the District Manager is obtained prior to sampling and analysis.

(6) The monitoring requirements specified in the tables below with respect to any parameter, which is not specifically included under **Schedule B**, as amended, may be modified by the District Manager in writing from time to time.

LIMITS AND MONITORING - COOLING WATER

(7) The Owner shall design, construct and operate the Works such that the concentrations of the effluent parameters named in:

(a) Table 2a are not exceeded in the CWDD at MISA Control Point 1800 as determined at the monitoring frequency and by the sample type specified in the Table 2a; and

(b) Table 2b are not exceeded in the CCW Discharge Structure as determined at the monitoring frequency and by the sample type specified in the Table 2b

Table 2a - Concentration Limits, Sampling and Analysis Requirements - effluent sampled at the Plant CWDD at MISA Control Point 1800

Effluent Parameters	Maximum Concentration In Effluent (mg/L)	Monitoring Frequency	Sample Type
Ammonia, un-ionized	0.02	W	Composite
Hydrazine	0.1	W	Composite
Morpholine*	0.5	W*	Composite*
Hydrogen ion (pH)	6.0 – 9.5 pH Units	W	Grab

*** Only required if morpholine is used for chemistry control in the boiler feedwater system**

Table 2b - Concentration Limits, Sampling and Analysis Requirements - effluent sampled at or upstream (i.e., MISA Control Point 1800) of the CCW Discharge Structure

Effluent Parameters	Maximum Concentration In Effluent (mg/L)	Monitoring Frequency	Sample Type
Total Residual Chlorine**	0.01	D**	Grab**

**** During the seasonal zebra and quagga mussel chlorination period only**

LIMITS AND MONITORING - STEAM CONDENSATE AND FEEDWATER

(8) The Owner may discharge from the Boiler and Feedwater system to the CWDD subject to the additional requirement of Subsection (9), provided that the Owner ensures that requirements of Tables 1, 2a, 2b and 3 are met.

(9) The Owner may use the chemicals ammonia, hydrazine and morpholine as a consequence of boiler feedwater system design and process and chemistry control requirements and discharge them to the CWDD and ultimately to Lake Ontario provided that:

(a) the effluent parameter concentrations for each discharge do not exceed the concentrations for each parameter shown in the ”Standard” and “Non-Standard” columns in Table 3, at a point prior to discharge to the CWDD, and

(b) the discharges are monitored for the parameters listed in Table 3, in accordance with the monitoring frequency and sample type listed in the Table

Table 3 - Boiler/Feedwater Blowdown Effluent Concentration Limits, Sampling and Analysis Requirements at Sampling Points for all Boilers

Effluent Parameter	Maximum Concentration (mg/L) in Boiler/Feedwater Effluents by Reactor Unit Condition		Monitoring Frequency	Sample Type
	Standard	Non-Standard		
Total Ammonia	20	40 / 80**	M*	Grab
Hydrazine	5	150	M*	Grab
Morpholine	25	25	M*	Grab
Hydrogen Ion (pH)	-	-	M*	Grab

*** The Monitoring Frequency and Sample Type in Table 3 refer to required monitoring of Boiler Blowdown effluent under Standard conditions of operation. For Non-Standard Reactor Unit operation sampling see Subsection (10) below.**

**** The Total Ammonia concentration in boiler blowdown effluent may be greater than 40 mg/L and up to 80 mg/L under non-standard conditions, provided that at least 2 CCW pumps are running across all Units and only 1 intermittent boiler blowdown is discharged at a maximum allowable rate of 10.13 litres per second at the refurbishment or outage Unit.**

(10) Where a Boiler Blowdown sample, required under Table 3, cannot be obtained from the designated primary sampling point on a continuous Boiler Blowdown line of a Reactor Unit boiler because the line has been temporarily isolated for maintenance or for safety reasons, the Owner may instead, for compliance purposes:

(a) report the average analysis results and pH range for the effluent parameters listed in Table 3 from the samples collected at the available blowdown lines at the Reactor Unit; and

(b) deem them to be the blowdown values for the unavailable blowdown line(s), as well.

provided that:

(c) sample data for averaging are available from a minimum of two (2) of the four (4) continuous blowdown lines at the Reactor Unit Boilers at the time, and

(d) the continuous blowdown line outage at a boiler at a Reactor Unit at any one time does not extend beyond three (3) consecutive months.

(11) Where under Subsection (10), three (3) or all four (4) continuous Boiler Blowdown lines for the boilers at a Reactor Unit are unavailable because the lines have been temporarily isolated for maintenance or for safety reasons, the Owner may instead:

(a) collect a sample from the Unit Boiler feedwater header, feeding the four (4) Unit Boilers, at a sampling point downstream of the boiler feedwater high pressure heaters, and deem the analysis results to be an estimate of the effluent parameter

concentrations that would have been measured in the respective continuous blowdown effluents, if they were available, provided that the continuous blowdown line outage at a boiler at a Reactor Unit at any one time does not extend beyond three (3) consecutive months.

(12) The Owner shall ensure that, over each calendar year sets of samples are collected from a minimum of four (4) boiler/feedwater system discharges during non-standard operational events such as start-up, upset, outage or lay-up, should these conditions occur during the year, and that the samples are analyzed for the parameters listed in Table 3.

CONSTRUCTION BOILERHOUSE

(13) The Owner shall, on each day that the Boilerhouse is in service during a 4 Reactor Unit outage, pick up a set of samples at the former MISA Control Point 2700 or the Unit 2 Condensate Tank prior to discharge to the CWDD and shall analyze the set of samples for pH and conductivity or the Owner may record pH and conductivity on-line on a daily basis.

BUILDING EFFLUENT MANAGEMENT SYSTEM

(14) The stream named below shall be sampled at the sampling point named, in accordance with the monitoring frequency and sample type specified for each parameter named in Table 4 below, unless otherwise required in writing by this Approval or by the District Manager:

Table 4 - Building Effluent Lagoon Discharge - sampled at MISA Control Point 5000

Effluent Parameters	Monitoring Frequency	Sample Type
Hydrazine	Q	Composite
Total Ammonia	Q	Composite
Total Organic Carbon	Q	Composite
Total Phosphorus	Q	Composite
Total Suspended Solids	Q	Composite
Copper	Q	Composite
Oil and Grease	Q	Composite
pH	Q	Grab
Total Residual Chlorine	Q	Grab
Tritium	Q	Composite
Acute Lethality: Rainbow Trout and Daphnia Magna	Q	Grab

(15) The Owner shall install and maintain a continuous flow measuring device for the effluent stream referred to under Subsection (14), with an accuracy to within plus or minus 20 percent of the actual flow rate.

WATER TREATMENT PLANT / DEMINERALIZED WATER PLANT

(16) The Owner may pump the Neutralization Sump effluent into the CWDD regardless of the cooling water flow rate only when the effluent will meet the requirements of Schedule B.

(17) The Owner shall operate and maintain the Works such that the concentrations of each listed effluent parameter at the Demineralized Water Plant (DWP) effluent do not exceed the concentrations listed in Table 5 at the monitoring frequency and for the sample type specified.

Table 5 - Concentration Limits, Sampling and Analysis Requirements - effluent sampled at the DWP Effluent

Effluent Parameters	Maximum Concentration In Effluent (mg/L)	Monitoring Frequency	Sample Type
Total Suspended Solids (TSS)	70 (Daily) 25 (Monthly Average)	W[1]	Composite
Turbidity	35 NTU (Daily Average) [2][3] 12.5 NTU (Monthly Average) [2]	C	online
Iron	2.5 (Daily) [4] 1 (Monthly Average) [4]	W	Composite
pH	6.0 – 9.5 pH Units	C	online
Toxicity - Acute	<50% Mortality	M[5]	Grab
Toxicity - Chronic		SA[6]	Grab

Notes:

(1) Weekly for the first two (2) years of operation. The Owner may after the first two (2) years of effluent monitoring with no exceedence of the TSS limits specified in Table 5, request in writing from the Director that the monitoring frequency for TSS be removed. The Owner shall not stop the monitoring frequency unless an approval is granted in writing by the Director.

(2) Turbidity limits are to be made equivalent to TSS parameter limits. The proposed turbidity limits of 12.5 NTU (monthly average) and 35 NTU (daily), equivalent to 25 mg/L (monthly average) and 70 mg/L (daily) of TSS limits, are set at an estimated ratio of 1:2, and is to be verified during onsite testing and commissioning

(3) Daily Average Turbidity = Sum of (Turbidity datapoints x Flowrate Datapoints) /

Sum of Flowrate Datapoints.

Select 5-minute data reporting time intervals and average the turbidity and flowrate data over the 5-minute intervals to compute moving average turbidity data throughout the entire 24-hr period.

(4) Monitoring of iron is required only if iron-based coagulant is used.

(5) The sampling frequency can be changed from monthly to quarterly when the samples have passed the acute toxicity for 12 consecutive months. When the samples do not pass the acute toxicity test, the sampling frequency shall be reverted to monthly for a further 12 consecutive months.

(6) Chronic Toxicity is required only when Acute Toxicity is performed quarterly.

(18) During commissioning, the water from performance testing of the new DWP can be discharged into the CWDD at a maximum volume of 14774.4 cubic metres per day .

(19) During commissioning, the Owner shall operate and maintain the Works such that the concentrations of each listed effluent parameter at the Demineralized Water Plant (DWP) effluent do not exceed the concentrations listed in Table 6 at the monitoring frequency and for the sample type specified.

Table 6 - Concentration Limits, Sampling and Analysis Requirements - effluent sampled at the DWP Effluent during Commissioning

Effluent Parameters	Maximum Concentration In Effluent (mg/L)	Monitoring Frequency	Sample Type
Total Suspended Solids	70 (Daily) 25 (Monthly Average)	W	Grab
Turbidity	35 NTU (Daily) (1) 12.5 NTU (Monthly Average) (1)	C	online
Iron	2.5 (Daily) (2) 1 (Monthly Average) (2	W	Composite
pH	6.0 – 9.5 pH Units	C	online

Notes:

(1) Turbidity limits are to be made equivalent to TSS parameter limits. The proposed turbidity limits of 12.5 NTU (monthly average) and 35 NTU (daily), equivalent to 25 mg/L (monthly average) and 70 mg/L (daily) of TSS limits, are set at an estimated ratio of 1:2, and is to be verified during onsite testing and commissioning

(2) Monitoring of iron is required only if iron-based coagulant is used.

CHILLED WATER SYSTEM

(20) The Chilled Water System (CWS) discharge is limited to a maximum cumulative total of 50 litres in any single **twenty-four (24) hour** period.

(21) The Owner may use and discharge the conditioning chemicals for the CWS consisting of a corrosion inhibitor solution containing morpholine, tolytriazole and a biocide solution containing derivatives of isothiazolinones as active ingredients.

(22) The CWS system dosage concentrations are not to exceed 6000 parts per million of the corrosion inhibitor solution and 200 parts per million of the biocide solution at any time.

6. RECORDS RETENTION

The Owner shall retain for a minimum of **five (5) years** from the date of their creation, or longer if requested in writing by the District Manager, all records and information related to or resulting from the monitoring activities required by this Approval including all calibration and maintenance records.

7. NOTIFICATION AND REPORTING

(1) The Owner shall notify the District Manager verbally, forthwith, to be followed by a written report within **fifteen (15) working days**, of any exceedances of the established performance requirements as stated in Condition 5.

(2) In addition to the obligations under Part X of the EPA, the Owner shall, within **fifteen (15) working days** of the occurrence of any reportable spill as defined in Ontario Regulation 675/98, bypass or loss of any product, by-product, intermediate product, oil, solvent, waste material or any other polluting substance into the environment, submit a full written report of the occurrence to the District Manager describing the cause and discovery of the spill or loss, clean-up and recovery measures taken, preventive measures to be taken and schedule of implementation.

(3) The Owner shall notify the District Manager, in writing, using a standard notification form, within **thirty (30) days** of making any modifications to the Works under Condition 2, and shall provide an annual written update, no later than by the first of June of the

following year, including supporting information suitable for addition to the Supporting Information Document, covering all such modifications to the Works undertaken for the reporting year, in a format acceptable to the District Manager.

(4) The Owner shall prepare and submit a monitoring report of the results of the sampling of the Building Effluent Lagoon discharge as per Condition 5.(14), to the District Manager on a quarterly basis, within **forty-five (45) days** following the end of the quarter. The report shall contain, but shall not be limited to, a summary and interpretation of all monitoring and analytical data collected relative to the Works during the reporting period in a format acceptable to the District Manager.

(5) The Owner shall prepare and submit an annual **performance report** to the District Manager no later than by the **1st of June** of the following year. The report shall contain, but shall not be limited to, the following information in a format acceptable to the District Manager:

(a) an executive summary of all monitoring and compliance data collected as required by this Approval in the reporting period;

(b) a comprehensive interpretation of all monitoring, analytical and flow data collected relative to the Works during the reporting period including a comparison to the effluent objectives and limits in Conditions 4 and 5, respectively;

(c) a description of any operating problems encountered and corrective actions taken during the reporting period;

(d) an evaluation of the calibration and maintenance procedures conducted on all monitoring equipment;

(e) a summary of the number of condenser leakage tests performed during the year and an estimate in kilograms of the annual amount of SF6 used for the purposes of leakage testing; and

(f) any other information the District Manager requires from time to time.

8. EXPIRY OF APPROVAL

1. This Approval to the **Temporary Works** shall expire and become null and void upon twelve (12) months after the completion and commissioning of the new Demineralized Water Plant (DWP).

2. The Owner shall decommission or remove from service the **Temporary Works** on or before the expiry date mentioned in subsection 1.

9. ADDITIONAL REQUIREMENTS

In addition to the requirements outlined in the above conditions, the Owner shall also comply with requirements listed in Schedule B.

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

1. Condition 1 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. This condition is also included to emphasize the precedence of conditions in the Approval and the practice that the Approval is based on the most current document, if several conflicting documents are submitted for review. Condition 1.4 is included to emphasize that the issuance of this Approval does not diminish any other statutory and regulatory obligations to which the Owner is subject in the construction, maintenance and operation of the Works. The Condition specifically highlights the need to obtain any necessary conservation authority approvals. The Condition also emphasizes the fact that this Approval doesn't limit the authority of the Ministry to require further information.

2. Condition 2 is included to define conditions under which the Owner may make limited modifications to already approved sewage works.

3. Condition 3 is included to ensure that the Works will be operated, maintained, and equipped in a manner enabling compliance with the terms and conditions of this Approval , such that the environment is protected. Comprehensive operations and maintenance manuals governing all significant areas of operation, maintenance and repair are an integral part of the operation and maintenance of the Works. Their compilation and use should assist the Owner in staff training, in proper plant operation and maintenance and in identifying and planning for contingencies during possible abnormal conditions. The manuals and procedures will also act as a bench-mark for Ministry staff when reviewing the Owner's operation of the Works.

4. Condition 4 is imposed to establish non-enforceable effluent quality objectives, which the Owner is obligated to use best efforts to strive towards on an ongoing basis. It is the Ministry's experience that the setting of such objectives, coupled with best efforts of an Owner to achieve them, assists the Owner in complying with the effluent requirements in Condition 5.

5. Condition 5 is imposed to ensure that the effluent discharged from the Works to Lake Ontario meets the Ministry's effluent quality requirements, as specified, on a continuing basis thus minimizing environmental impact on the receiver. In addition, it requires the Owner to demonstrate on a continual basis that the quality and quantity of the effluent from the Works are consistent with the design objectives and effluent limits specified in the Approval and that the Works are not causing any impairment to Lake Ontario.

6. Condition 6 is included to set out the required record keeping 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.

7. Condition 7 is included to set out the required 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 . This condition emphasizes the necessity for care and accuracy in reporting the required information.

8. Condition 8 is included to ensure that the Temporary Works will meet the standards that apply at the time of decommissioning to ensure the ongoing protection of the environment.

9. Condition 9 is imposed (with Schedule B) to provide for the substantially equivalent requirements that were set out in Ontario Regulation 215/95 as it read prior to its revocation on July 1, 2021 such that there is a continued protection of the environment.

Schedule A

1. Application for Approval of Industrial Sewage Works dated January 6, 2023, and received on January 9, 2023, submitted by Ontario Power Generation Inc., including all supporting documentation and information.

2. Application for Approval of Industrial Sewage Works dated September 1, 2022 and received on September 2, 2022, submitted by Ontario Power Generation Inc., including supporting documentation including design report, drawings, and specifications.

Schedule B

Notice due to MISA Revocation.

This Schedule is to provide for the substantially equivalent requirements that were set out in Ontario Regulation 215/95 as it read prior to its revocation on July 1, 2021 such that there is a continued protection of the environment.

This Schedule applies both to effluent streams that discharge continuously and to effluent streams that discharge intermittently.

This Schedule shall come into force on the day it is issued.

For the purpose of Schedule B, the following definitions apply:

1. "Building Effluent" means effluent that has been collected within a building from equipment drains, floor drains or trenches, whether or not it is combined with cooling water;

2. "Building Effluent Monitoring Stream" means a building effluent stream on which a sampling point is maintained as referenced under Condition 4 of Schedule B;

3. "Building Effluent Sampling Point" means a sampling point maintained on a building effluent stream as referenced under Condition 4 of Schedule B;

4. "Building Parameter" means a parameter that is listed in Condition 24(1) of Schedule B;

5. "Event Process Effluent Monitoring Stream" means an event process effluent stream on which a sampling point is maintained as referenced under Condition 4 of Schedule B;

6. "Event Process Effluent Sampling Point" means a sampling point maintained on an event process effluent stream under Condition 4 of Schedule B;

7. "Limited Parameter",

    a. means a parameter for which a limit is specified in the Table titled “Types of Non-event Process Effluent Streams, Limits, Monitoring Frequency” in **Table A** of Schedule B, and

    b. means a parameter for which a limit is specified in the Table titled “Types of Event Process Effluent Streams, Limits, Monitoring Frequency” in **Table B** of Schedule B;

8. "Non-event Process Effluent Monitoring Stream" means a Non-event Process Effluent Stream on which a sampling point is maintained under Condition 4 of Schedule B;

9. "Non-event Process Effluent Sampling Point" means a sampling point maintained on a Non-event

Process Effluent Stream under Condition 4 of Schedule B;

10. "Pick Up" means pick up for the purpose of storage, including storage within an automatic sampling device, and transportation to and analysis at a laboratory;

11. "Plant" means an industrial facility and the developed property, waste disposal sites and wastewater treatment facilities associated with it;

12. "Process Change" means a change in equipment, production processes, process materials or treatment processes;

13. "Quarter" means all or part of a period of three consecutive months beginning on the first day of January, April, July or October;

14. "Semi-annual Period" means all or part of a period of six (6) months beginning on the first day of January or July;

15. "Storm Water Effluent" means run-off from a storm event or thaw that is not used in any industrial process.

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

TERMS AND CONDITIONS

1. GENERAL

1. The following are types of **non-event process** effluent streams:

   a. a stream of effluent that is discharged from a water treatment plant at the Plant, whether or not it is combined with cooling water or Storm Water Effluent **(WTPE)**.

2. The following are types of **event process** effluent streams:

   a. a stream of effluent that is discharged from a radioactive liquid waste management system tank at the Plant, whether or not it is combined with cooling water or Storm Water Effluent **(RLWMSTE)**.

   b. a stream of effluent that results from any cleaning or maintenance operations at the Plant, whether or not it is combined with cooling water or Storm Water Effluent **(ECE)**.

   c. a stream of effluent that is discharged from an oily water separator on other than a continuous basis at the Plant, whether or not it is combined with cooling water or Storm Water Effluent **(OWSE)**.

3. Despite paragraph (c) of subsection (2) of this condition, a stream of effluent that is discharged from an oily water separator and consists only of Storm Water Effluent is not a type of non-event

process effluent or event process effluent stream.

2. BYPASSES

1. The Owner shall not permit effluent that would ordinarily flow past a sampling point maintained under this Schedule to be discharged from the Plant without flowing past that sampling point, regardless of whether it would be convenient to do so because of a maintenance operation, a breakdown in equipment or any scheduled or unscheduled event.

3. SAMPLING AND ANALYTICAL PROCEDURES

1. The Owner shall carry out the maintenance of sampling point obligations of this Schedule and the sampling and analysis obligations of this Schedule, including quality control sampling and analysis obligations, in accordance with the procedures described in the Ministry publication entitled "Protocol for the Sampling and Analysis of Industrial/Municipal Wastewater", as amended from time to time.

2. The Owner maintains the sampling equipment used at the Owner's Plant for sampling required by this Schedule in a way that ensures that the samples collected at the Plant under this Schedule accurately reflect the level of discharge of each Limited Parameter and Building Parameter from the Plant.

4. SAMPLING POINTS

1. The Owner maintains a sampling point on each non-event process effluent stream and event process effluent stream at the Owner's Plant, as necessary so that the concentrations determined under Condition 8 and 9 and the Plant loadings calculated under Condition 10 and 11 for each limited parameter accurately reflect the level of discharge of each such parameter from the Plant.

2. If circumstances change so that a new sampling point is necessary at a Owner's Plant in order to permit the calculation of concentrations under Condition 8 and 9 and the calculation of loadings under Condition 10 and 11 for each Limited Parameter that accurately reflect the level of discharge of each such parameter from the Plant, the Owner shall, within thirty (30) days of the change, establish the new sampling point and notify the District Manager in writing.

3. The Owner may, after notifying the District Manager in writing, eliminate a sampling point maintained under subsection (1) or established under subsection (2) of this condition if the sampling point is no longer necessary to permit the calculation of concentrations under Condition 8 and 9 and the calculation of loadings under Condition 10 and 11 for each Limited Parameter that accurately reflect the level of discharge of each such parameter from the Plant.

4. For the purposes of this condition, except for subsection (5) of this condition, a concentration for a parameter or a loading for a parameter that is based on analytical results that are significantly affected by dilution or masking due to the merging of streams upstream of a sampling point at the Plant is not a concentration or a loading that accurately reflects the level of

discharge of the parameter from the Plant.

5. The Owner shall maintain a sampling point on each Building Effluent stream at the Owner's Plant, as necessary so that no Building Effluent is discharged from the Plant to surface water without flowing past a sampling point.

5. REPORTS ON SAMPLING POINTS

1. The Owner shall keep an updated list and plot plan showing the sampling points maintained under this Schedule at the Owner's Plant and submit to the Ministry upon request.

6. USE OF SAMPLING POINTS

1. Except as permitted under Conditions 18, 20, 21 and 23, the Owner shall use the sampling points referenced in this Schedule for all sampling required by this Schedule.

7. CALCULATION OF LOADINGS — GENERAL

1. For the purposes of performing a calculation under Conditions 8 to 12, the Owner shall use the actual analytical result obtained by the laboratory.

2. Despite subsection (1) of this condition, where the actual analytical result is less than one-tenth of the analytical method detection limit set out in the Ministry publication entitled "Protocol for the Sampling and Analysis of Industrial/Municipal Wastewater", as amended from time to time, the Owner shall use the value zero for the purpose of performing a calculation under Conditions 8 to 12.

3. The Owner shall ensure that each calculation of a concentration required by Conditions 8 or 9 is performed as soon as reasonably possible after the analytical results on which the calculation is based become available to the Owner.

4. The Owner shall ensure that each calculation of a loading required by Conditions 10, 11 or 12 is performed in time to comply with Condition 32(4).

8. CALCULATION OF CONCENTRATIONS — NON-EVENT PROCESS EFFLUENT

1. The Owner shall calculate, in milligrams per litre, a monthly average concentration for each Limited Parameter in each Non-event Process Effluent Monitoring Stream of the Owner for each month.

2. For the purposes of subsection (1) of this condition, a monthly average concentration for a parameter for a month is the arithmetic mean of the analytical results obtained for the parameter from the samples collected under Condition 16 or 17, as the case may be, from the stream for the month.

9. CALCULATION OF CONCENTRATIONS — EVENT PROCESS EFFLUENT

1. The Owner shall calculate, in milligrams per litre, a monthly average concentration for each Limited Parameter in the stream of a type described in paragraph (a) of Condition 1(2) at the Owner's Plant for each month.

2. For the purposes of subsection (1) of this condition, a monthly average concentration for a parameter for a month is the arithmetic mean of the analytical results obtained for the parameter from the samples collected under Condition 18 from the stream or from a tank that discharges into the stream for the month.

10. CALCULATION OF LOADINGS — NON-EVENT PROCESS EFFLUENT

1. The Owner shall calculate, in kilograms, a daily non-event process effluent stream loading for each Limited Parameter in each non-event process effluent monitoring stream of the Owner for each day on which a sample is collected under this Schedule from the stream for analysis for the parameter.

2. When calculating a daily stream loading under subsection (1) of this condition, the Owner shall multiply, with the necessary adjustment of units to yield a result in kilograms, the analytical result obtained from the sample for the parameter by the daily volume of effluent, as determined under Condition 25, for the stream for the day.

3. The Owner shall calculate, in kilograms, a daily non-event process effluent Plant loading for each Limited Parameter for each day for which the Owner is required to calculate a daily non-event process effluent stream loading for the parameter under subsection (1) of this condition.

4. For the purposes of subsection (3) of this condition, a daily non-event process effluent plant loading for a parameter for a day is the sum, in kilograms, of the daily non-event process effluent stream loadings for the parameter calculated under subsection (1) of this condition for the day.

5. Where the Owner calculates only one daily non-event process effluent stream loading for a parameter for a day under subsection (1) of this condition, the daily non-event process effluent plant loading for the parameter for the day for the purposes of subsection (3) of this condition is the single daily non-event process effluent stream loading for the parameter for the day.

6. The Owner shall calculate, in kilograms, a monthly average non-event process effluent plant loading for each Limited Parameter for each month in which a sample is collected under this Schedule more than once from a Non-event Process Effluent Monitoring Stream at the Owner's Plant for analysis for the parameter.

7. For the purposes of subsection (6) of this condition, a monthly average non-event process effluent plant loading for a parameter for a month is the arithmetic mean of the daily non-event process effluent plant loadings for the parameter calculated under subsection (3) of this condition

for the month.

11. CALCULATION OF LOADINGS — EVENT PROCESS EFFLUENT

1. The Owner shall calculate, in kilograms, a 24-hour event process effluent stream loading for each Limited Parameter in each Event Process Effluent Monitoring Stream of the Owner for each 24-hour period ending at noon in which a sample is collected under this Schedule from the stream or from a tank that discharges into the stream for analysis for the parameter.

2. When calculating an event process effluent stream loading under subsection (1) of this condition, the Owner shall multiply, with the necessary adjustment of units to yield a result in kilograms, the analytical result obtained from the sample for the parameter by the 24-hour volume of effluent, as determined under Condition 25, for the stream for the 24-hour period.

3. The Owner shall calculate, in kilograms, a 24-hour event process effluent plant loading for each Limited Parameter for each 24-hour period ending at noon for which the Owner is required to calculate a 24-hour event process effluent stream loading for the parameter under subsection (1) of this condition.

4. For the purposes of subsection (3) of this condition, a 24-hour event process effluent plant loading for a parameter for a 24-hour period ending at noon is the sum, in kilograms, of the 24-hour event process effluent stream loadings for the parameter calculated under subsection (1) of this condition for the period.

5. Where the Owner calculates only one 24-hour event process effluent stream loading for a parameter for a 24-hour period ending at noon under subsection (1) of this condition, the 24-hour event process effluent plant loading for the parameter for the period, for the purposes of subsection (3) of this condition, is the single 24-hour event process effluent stream loading for the parameter for the period.

6. The Owner shall calculate, in kilograms, a monthly average event process effluent stream loading for each Limited Parameter for each Event Process Effluent Monitoring Stream of the type described in paragraph (a) of Condition 1 (2) at the Owner's Plant for each month in which a sample is collected under this Schedule more than once from the stream or from a tank that discharges into the stream for analysis for the parameter.

7. For the purposes of subsection (6) of this condition, a monthly average event process effluent stream loading for a parameter for a stream for a month is the arithmetic mean of the 24-hour event process effluent stream loadings for the parameter calculated under subsection (1) for the stream for the month.

12. CALCULATION OF LOADINGS — BUILDING EFFLUENT

1. The Owner shall calculate, in kilograms, a daily Building Effluent stream loading for each Building Parameter in each Building Effluent Monitoring Stream of the Owner for each day on

which a sample is collected under this Schedule from the stream for analysis for the parameter.

2. When calculating a daily stream loading under subsection (1) of this condition, the Owner shall multiply, with the necessary adjustment of units to yield a result in kilograms, the analytical result obtained from the sample for the parameter by the daily volume of effluent, as determined under Condition 25, for the stream for the day.

3. The Owner shall calculate, in kilograms, a quarterly Building Effluent plant loading for each Building Parameter for each Quarter in which the Owner is required to calculate a daily Building Effluent stream loading for the parameter under subsection (1) of this condition.

4. For the purposes of subsection (3) of this condition, a quarterly effluent plant loading for a parameter for a Quarter is the sum of the daily Building Effluent stream loadings for the parameter calculated under subsection (1) of this condition for the Quarter.

13. PARAMETER LIMITS

1. The Owner shall ensure that each analytical result obtained for each Limited Parameter from each sample collected from each Non-event Process Effluent Monitoring Stream at the Owner's Plant does not exceed the daily concentration limit specified for the parameter in the Table titled "Types of non-event process effluent streams, limits, monitoring frequency" in **Table A** in this Schedule.

2. The Owner shall ensure that each monthly average concentration calculated for a Limited Parameter under Condition 8(1) in connection with each Non-event Process Effluent Monitoring Stream at the Owner's Plant does not exceed the monthly average concentration limit specified for the parameter in the Table titled "Types of non-event process effluent streams, limits, monitoring frequency" in **Table A** in this Schedule.

3. Despite subsections (1) and (2) of this condition, where the non-event process effluent stream is of the type described in paragraph (a) of Condition 1(1) and aluminum-based or iron-based water treatment chemicals are not used to treat effluent in the water treatment plant that discharges into the stream, the Owner need not ensure,

    a. that the analytical result obtained for the parameter aluminum or iron does not exceed the daily concentration limit specified for the parameter in the Table titled "Types of non-event process effluent streams, limits, monitoring frequency" in **Table A** in this Schedule; or

    b. that the monthly average concentration calculated for the parameter aluminum or iron does not exceed the monthly average concentration limit specified for the parameter in the Table titled "Types of non-event process effluent streams, limits, monitoring frequency" in **Table A** in this Schedule.

4. The Owner shall ensure that each analytical result obtained for each Limited Parameter from each sample collected from each Event Process Effluent Monitoring Stream at the Owner's Plant does not exceed the daily concentration limit specified for the parameter in the Table titled

"Types of event process effluent streams, limits, monitoring frequency" in **Table B** in this Schedule.

5. The Owner shall ensure that each monthly average concentration calculated for a Limited Parameter under Condition 9 in connection with each Event Process Effluent Monitoring Stream at the Owner's Plant does not exceed the monthly average concentration limit specified for the parameter in the Table titled "Types of event process effluent streams, limits, monitoring frequency" in **Table B** in this Schedule.

6. The Owner shall control the quality of each Non-event Process Effluent Monitoring Stream and each Event Process Effluent Monitoring Stream at the Owner's Plant to ensure that the pH value of any sample collected at a Non-event Process Effluent Sampling Point or Event Process Effluent Sampling Point at the Plant is within the range of 6.0 to 9.5.

14. LETHALITY LIMITS

1. The Owner shall control the quality of each Non-event Process Effluent Monitoring Stream, each Event Process Effluent Monitoring Stream and each Building Effluent Monitoring Stream at the Owner's Plant to ensure that each rainbow trout acute lethality test and each *Daphnia magna* acute lethality test performed on any grab sample collected at a Non-event Process Effluent Sampling Point, Event Process Effluent Sampling Point or Building Effluent Sampling Point at the Plant results in mortality for no more than fifty (50) per cent of the test organisms in hundred (100) per cent effluent.

15. MONITORING - GENERAL

1. Despite Condition 16 to 24, the Owner need not collect samples from any stream at the Owner's Plant on a day on which there is no discharge from any non-event process effluent stream, event process effluent stream or building effluent stream at the Plant.

2. Where the Owner is required by this Schedule to Pick Up a set of samples and analyze it for certain parameters, the Owner shall Pick Up a set of samples sufficient to allow all the analyses to be performed.

3. The Owner shall use all reasonable efforts to ensure that all analyses required by this Schedule are completed as soon as reasonably possible and that the results of those analyses are made available to the Owner as soon as reasonably possible.

4. Subject to subsection (5) of this condition, the Owner shall Pick Up all sets of samples required to be picked up at the Owner's Plant under Conditions 16, 17, 20 and 24 between the hours of 9 a.m. and 12 noon.

5. If the District Manager is satisfied, on the basis of written submissions from the Owner, that the circumstances at the Owner's Plant are such that it would be impractical to Pick Up a set of samples from each sampling point maintained at the Plant under this Schedule within the time period specified in subsection (4), the District Manager may give the Owner a written notice in

respect of the Plant, varying the time period specified in subsection (4).

6. Subject to subsection (7) of this condition, where the Owner is required by Conditions 16, 17, 20 or 24 to Pick Up a set of samples, the Owner shall Pick Up a set collected over the 24-hour period immediately preceding the Pick Up.

7. The 24-hour period referred to in subsection (6) of this condition may be shortened or enlarged by up to three hours to permit the Owner to take advantage of the three-hour range specified in subsection (4) of this condition.

16. MONITORING – NON-EVENT PROCESS EFFLUENT – DAILY

1. The Owner shall, on each day, Pick Up a set of samples collected from each Non-event Process Effluent Monitoring Stream at the Owner's Plant and shall analyze each set of samples for the parameters for which the frequency of monitoring, as set out in the Table titled "Types of non-event process effluent streams, limits, monitoring frequency" in **Table A** in this Schedule, is daily.

2. The Owner need not meet the requirements of subsection (1) of this condition where it is impossible to do so because of sampling by a provincial officer.

17. MONITORING – NON-EVENT PROCESS EFFLUENT – WEEKLY

1. Subject to subsections (2) to (4) of this condition, the Owner shall, on one day in each week, Pick Up a set of samples collected from each Non-event Process Effluent Monitoring Stream at the Owner's Plant and shall analyze each set of samples for the parameters for which the frequency of monitoring, as set out in the Table titled "Types of non-event process effluent streams, limits, monitoring frequency" in **Table A** in this Schedule, is weekly.

2. Despite subsection (1) of this condition, the Owner need not analyze a sample collected from a stream to which Condition 13 (3) applies for a parameter listed in Condition 13 (3).

3. There shall be an interval of at least four days between successive Pick Up days at the Plant under subsection (1) of this condition.

4. All samples picked up under subsections (1) of this condition in a week shall be picked up on the same day in the week.

18. MONITORING –EVENT PROCESS EFFLUENT – DAILY AND WEEKLY

1. The Owner shall, in each 24-hour period ending at noon, Pick Up a set of samples collected from each Event Process Effluent Monitoring Stream at the Owner's Plant and shall analyze each set of samples for the parameters for which the frequency of monitoring, as set out in the Table titled "Types of event process effluent streams, limits, monitoring frequency" in **Table B** in this Schedule, is daily.

2. A set of samples collected at a sampling point under subsection (1) of this condition in a 24-hour period ending at noon shall be collected,

    a. throughout the entire 24-hour period, where effluent flows past the sampling point throughout the entire 24-hour period; and

    b. throughout any portions of the 24-hour period during which effluent flows past the sampling point, where effluent does not flow past the sampling point throughout the entire 24-hour period.

3. The Owner shall Pick Up each set of samples collected under subsection (1) of this condition during a 24-hour period by the end of that period.

4. The Owner need not meet the requirements of subsections (1) to (3) of this condition where it is impossible to do so because of sampling by a provincial officer.

5. Subsections (1) to (3) of this condition do not apply in relation to a sampling point on an Event Process Effluent Monitoring Stream of a type described in paragraph (a) of Condition 1(2).

6. The Owner shall, during each discharge at the Owner's Plant of effluent from a radioactive liquid waste management system tank at the Owner's Plant into a stream referred to in subsection (5) of this condition, collect a grab sample from the sampling point on the stream.

7. Instead of collecting a grab sample from a sampling point during a discharge as required by subsection (6) of this condition, the Owner may collect a grab sample from the tank immediately before the discharge.

8. The Owner shall combine all grab samples collected during each 24-hour period ending at noon at the Owner's Plant under subsections (6) and (7) of this condition, in proportion to the volumes of the discharges in respect of which the grab samples were collected, and shall immediately Pick Up the combined sample.

9. For the purposes of subsections (11), (12), (14) and (19) of this condition, where only one grab sample is collected at the Owner's Plant under subsections (6) and (7) of this condition during a 24-hour period ending at noon, the single grab sample shall be deemed to be a combined sample prepared under subsection (8) of this condition.

10. The Owner shall Pick Up a single grab sample to which subsection (9) applies by noon of the 24-hour period.

11. The Owner shall analyze each combined sample prepared under subsection (8) for the parameters for which the frequency of monitoring, as set out in the Table titled "Types of event process effluent streams, limits, monitoring frequency" in **Table B** in this Schedule described in paragraph (a) of Condition 1(2), is daily.

12. Once in each week, the Owner shall analyze one combined sample prepared under subsection (8)

of this condition for the parameters for which the frequency of monitoring, as set out in the Table titled "Types of event process effluent streams, limits, monitoring frequency" in **Table B** in this Schedule described in paragraph (a) of Condition 1(2), is weekly.

13. Subsection (12) of this condition does not apply to require analysis for the parameter oil and grease.

14. There shall be an interval of at least four full periods of 24 hours ending at noon between Pick Up times at the Plant of the combined samples used for successive weekly analyses under subsection (12) of this condition.

15. Once in each week, throughout one 24-hour period ending at noon, the Owner shall collect a duplicate sample for each grab sample collected under subsections (6) and (7) of this condition, shall combine the duplicate grab samples in equal volumes and shall immediately Pick Up the combined sample.

16. For the purposes of subsection (15) of this condition, the Owner shall not choose a 24-hour period during which only one grab sample is collected under subsections (6) and (7) of this condition at the Owner's Plant.

17. The Owner shall analyze each combined sample prepared under subsection (15) of this condition for the parameter oil and grease.

18. There shall be an interval of at least four full periods of 24 hours ending at noon between Pick Up times at the Plant of the combined samples used for successive analyses under subsection (17) of this condition.\

19. All combined samples picked up under subsection (15) of this condition in a week and all combined samples picked up in the week to meet the analysis requirements of subsection (12) of this condition shall be picked up on the same day in the week.

19. MONITORING – NON-EVENT PROCESS EFFLUENT – QUALITY CONTROL

1. On one day in each year, on a day on which samples are picked up at the Plant under Condition 17 (1), the Owner shall collect and Pick Up a duplicate sample for each sample picked up on that day under Condition 17 (1) at one Non-event Process Effluent Sampling Point at the Owner's Plant and shall analyze each duplicate sample for the parameters for which the frequency of monitoring, as set out in the Table titled "Types of non-event process effluent streams, limits, monitoring frequency" in **Table A** in this Schedule, is daily.

2. On one day in each year, on the day on which samples are picked up at the Plant under subsection (1) of this condition, the Owner shall collect and Pick Up a duplicate sample for each sample picked up on that day under Condition 17 (1) at one Non-event Process Effluent Sampling Point at the Owner's Plant and shall analyze each duplicate sample for the parameters for which the frequency of monitoring, as set out in the Table titled "Types of non-event process

effluent streams, limits, monitoring frequency" in **Table A** in this Schedule, is weekly.

3. In each year, the Owner shall use the same Non-event Process Effluent Sampling Point for the purposes of subsections (1) and (2) of this condition.

4. The Owner shall prepare a travelling blank and travelling spiked blank sample for each sample for which a duplicate sample is picked up at the Plant under subsection (1) of this condition and shall analyze the travelling blank and travelling spiked blank samples in accordance with the directions set out in the Ministry publication entitled "Protocol for the Sampling and Analysis of Industrial/Municipal Wastewater", as amended from time to time.

5. There shall be an interval of at least six months between successive Pick Up days at the Plant under subsection (1) of this condition.

20. MONITORING – NON-EVENT AND EVENT PROCESS EFFLUENT – pH MEASUREMENT

1. The Owner shall, on each day during the time period applicable to the Plant under Condition 15(4) or (5), collect a grab sample from each Non-event Process Effluent Monitoring Stream at the Owner's Plant and shall analyze each sample for the parameter pH.

2. The Owner shall, within each 24-hour period beginning with the collection of the first grab sample at the Plant under subsection (1) of this condition on each day, collect two more grab samples from each Non-event Process Effluent Monitoring Stream at the Owner's Plant and shall analyze each sample for the parameter pH.

3. There shall be an interval of at least four hours between each of the three collections at a stream under subsections (1) and (2) of this condition in each 24-hour period.

4. Each grab sample collected under subsections (1) and (2) of this condition shall be picked up within 24 hours of when it was collected.

5. Each grab sample picked up under subsection (4) of this condition shall be analyzed within 24 hours of when it was picked up.

6. Instead of complying with subsections (1) to (4) of this condition with respect to a stream, the Owner may use an on-line analyzer at the sampling point on the stream and analyze the effluent at the sampling point for the parameter pH once in each day during the time period applicable to the Plant under Condition 15(4) or (5), and two more times in each 24-hour period beginning with the first analysis at the Plant under this subsection in each day.

7. There shall be an interval of at least four hours between each of the three analyses at a sampling point under subsection (6) of this condition in each 24-hour period.

8. The Owner shall, in each 24-hour period ending at noon, collect a grab sample from each Event Process Effluent Monitoring Stream at the Owner's Plant and shall analyze each sample for the

parameter pH.

9. For the purposes of subsection (8) of this condition, in relation to a stream of the type described in paragraph (a) of Condition 1(2), the Owner may collect a grab sample from a radioactive liquid waste management system tank immediately before a discharge into the stream instead of collecting a grab sample from the sampling point on the stream.

21. MONITORING – ACUTE LETHALITY TESTING – RAINBOW TROUT

1. Where the Owner is required by this condition to perform a rainbow trout acute lethality test, the Owner shall perform the test according to the procedures described in the Environment and Climate Change Canada publication entitled "Biological Test Method: Reference Method for Determining Acute Lethality of Effluents to Rainbow Trout", as amended from time to time.

2. Each rainbow trout acute lethality test required by this condition shall be carried out as a single concentration test using hundred (100) per cent effluent.

3. On one day in each month, on a day on which samples are picked up at the Plant under Condition 17(1) the Owner shall collect and immediately Pick Up a grab sample at each Non-event Process Effluent Sampling Point, at each Event Process Effluent Sampling Point other than a sampling point on an event process effluent stream of the type described in paragraph (a) of Condition 1(2) and at each sampling point on the event process effluent stream of the type described in paragraph (a) of Condition 1(2) at the Owner's Plant and shall perform a rainbow trout acute lethality test on each sample.

4. There shall be an interval of at least fifteen (15) days between successive Pick Up days at the Plant under subsection (3) of this condition.

5. All samples picked up under subsection (3) of this condition in a month shall be picked up on the same day in the month.

6. Where the Owner has performed tests under subsection (3) of this condition for twelve (12) consecutive months, in accordance with MISA Regulation 215/95 before this Approval is issued, on samples collected from the same sampling point and the mortality of the rainbow trout in each test did not exceed fifty (50) per cent, the Owner is relieved of the obligations under subsection (3) of this condition relating to the sampling point and shall instead collect and immediately Pick Up a grab sample at the sampling point on one day in each Quarter and perform a rainbow trout acute lethality test on each sample.

7. Samples picked up at the Plant under subsection (6) of this condition shall be picked up on a day on which samples are picked up at the Plant under subsection (3) of this condition.

8. If no samples are being picked up at the Plant under subsection (3) of this condition during a Quarter, samples picked up at the Plant during the Quarter under subsection (6) of this condition shall be picked up on a day on which samples are picked up at the Plant under Condition 17(1).

9. There shall be an interval of at least forty-five (45) days between successive Pick Up days at the Plant under subsection (6) of this condition.

10. All samples picked up under subsection (6) of this condition in a Quarter shall be picked up on the same day in the Quarter.

11. If a rainbow trout acute lethality test performed under subsection (6) of this condition on any sample from a sampling point results in mortality of more than fifty (50) per cent of the test rainbow trout, subsections (6) to (10) of this condition cease to apply in respect to samples from that sampling point, and the Owner shall instead comply with the requirements of subsection (3) of this condition relating to the sampling point, until the tests performed under subsection (3) of this condition on all samples collected from the sampling point for a further twelve (12) consecutive months result in mortality for no more than fifty (50) per cent of the rainbow trout for each test.

12. The Owner shall notify the District Manager in writing of any change in the frequency of acute lethality testing under this Schedule at the Owner's Plant, within thirty (30) days after the day on which the change begins.

13. Instead of collecting a grab sample from the sampling point on the event process effluent stream of the type described in paragraph (a) of Condition 1(2) as required by subsection (3) of this condition, the Owner may collect a grab sample from a radioactive liquid waste management system tank at the Plant immediately before a discharge into the stream.

14. On one day in each Quarter, the Owner shall collect and immediately Pick Up a grab sample at each Building Effluent Sampling Point at the Owner's Plant and shall perform a rainbow trout acute lethality test on each sample.

15. Each sample collected under subsection 14 of this condition from a sampling point shall be collected on a day on which a sample is collected from that sampling point under Condition 24(1).

22. MONITORING – ACUTE LETHALITY TESTING – *DAPHNIA MAGNA*

1. Where the Owner is required by this condition to perform a *Daphnia magna* acute lethality test, the Owner shall perform the test according to the procedures described in the Environment and Climate Change Canada publication entitled "Biological Test Method: Reference Method for Determining Acute Lethality of Effluents to *Daphnia magna* ", as amended from time to time.

2. Conditions 21(2) to (15) apply with necessary modifications to *Daphnia magna* acute lethality tests and, for the purpose, a reference to rainbow trout shall be deemed to be a reference to *Daphnia magna* .

3. The Owner shall Pick Up each set of samples required to be collected from a sampling point at the Owner's Plant under this condition on a day on which the Owner collects a sample from the sampling point under Condition 21, to the extent possible having regard to the frequency of

monitoring required at the sampling point under this section and Condition 21.

23. MONITORING – CHRONIC TOXICITY TESTING – FATHEAD MINNOW AND *CERIODAPHNIA DUBIA*

1. Where the Owner is required to perform a seven-day fathead minnow growth inhibition test, the Owner shall perform the test according to the procedure described in the Environment and Climate Change Canada publication entitled "Biological Test Method: Test of Larval Growth and Survival Using Fathead Minnows", as amended from time to time.

2. Where the Owner is required to perform a seven-day *Ceriodaphnia dubia* reproduction inhibition and survivability test, the Owner shall perform the test according to the procedure described in the Environment Canada publication entitled "Biological Test Method: Test of Reproduction and Survival Using the Cladoceran *Ceriodaphnia dubia* ", as amended from time to time.

3. On one day in each Semi-annual Period, on a day on which samples are picked up at the Plant under Condition 17(1) the Owner shall collect and immediately Pick Up a grab sample from each Non-event Process Effluent Sampling Point at the Owner's Plant and shall perform a seven-day fathead minnow growth inhibition test and a seven-day *Ceriodaphnia dubia* reproduction inhibition and survivability test on each sample.

4. On one day in each Semi-annual Period, on a day on which samples are picked up at the Plant for analysis under Condition 18(12) the Owner shall,

    a. collect and immediately Pick Up a grab sample from the event process effluent stream of the type described in paragraph (a) of Condition 1(2)at the Owner's Plant; and

    b. perform a seven-day fathead minnow growth inhibition test and a seven-day *Ceriodaphnia dubia* reproduction inhibition and survivability test on the sample.

5. Instead of collecting a grab sample from the sampling point on the stream as required by subsection (4) of this condition, the Owner may collect a grab sample from a **radioactive liquid waste management** system tank at the Plant immediately before a discharge into the stream.

6. There shall be an interval of at least ninety (90) days between successive Pick Up days at the Plant under subsections (3) and (4) of this condition.

7. All samples picked up under subsections (3) and (4) of this condition in a Semi-annual Period shall be picked up on the same day in the Semi-annual Period.

8. The Owner need not collect a sample from a sampling point in accordance with subsections (3) and (4) of this condition until twelve (12) consecutive monthly rainbow trout acute lethality tests and twelve (12) consecutive monthly *Daphnia magna* acute lethality tests performed on samples collected at the sampling point at the Owner's Plant result in mortality for no more than fifty (50) per cent of the test organisms in hundred (100) per cent effluent.

24. MONITORING – BUILDING EFFLUENT – QUARTERLY

1. The Owner shall, on one day in each Quarter, Pick Up a grab sample at each Building Effluent Sampling Point at the Owner's Plant and shall analyze each sample for the following parameters:

    a. Total Suspended Solids (TSS), referred to as Analytical Test Group 8 in the Ministry publication entitled "Protocol for the Sampling and Analysis of Industrial/Municipal Wastewater", as amended from time to time.

    b. Oil and grease, referred to in Analytical Test Group 25 in the Ministry publication entitled "Protocol for the Sampling and Analysis of Industrial/Municipal Wastewater", as amended from time to time.

2. There shall be an interval of at least forty-five (45) days between successive Pick Up days at the Plant under subsection (1).

25. FLOW MEASUREMENT

1. For the purposes of this condition, a volume of effluent for a non-event process effluent stream for a day is the volume that flowed past the sampling point maintained under Condition 4 on the stream during the 24-hour period preceding the Pick Up of the first sample picked up from the stream for the day.

2. For the purposes of this condition, a volume of effluent for a Building Effluent stream for a day is the volume that flowed past the sampling point maintained under Condition 4 on the stream during a 24-hour period beginning at any time between 9 a.m. and noon on that day.

3. For the purposes of this Condition, a 24-hour volume of effluent for an event process effluent stream for a 24-hour period ending at noon is the volume that flowed past the sampling point maintained under Condition 4 on the stream during the 24-hour period.

4. The Owner shall determine in cubic metres a daily volume of effluent for each non-event process effluent stream at the Owner's Plant for each day on which a sample is collected under this Schedule from the stream, by integration of continuous flowrate measurements.

5. Despite subsection (4) of this condition, where a non-event process effluent stream discharges on an intermittent basis, the daily volumes for the stream may be determined either by integration of continuous flowrate measurements or by the summation of individual batch volume measurements.

6. The Owner shall use flow measurement methods that allow the daily volumes for non-event process effluent streams to be determined to an accuracy of within plus or minus fifteen (15) per cent.

7. The Owner shall determine in cubic metres a 24-hour volume of effluent for each event process effluent stream at the Owner's Plant for each 24-hour period ending at noon in which a sample is

collected under this Schedule from the stream or from a tank that discharges into the stream.

8. For the purposes of subsection (7) of this condition, the Owner need not use continuous flowrate measurements.

9. The Owner shall use flow measurement methods that allow the daily volumes for event process effluent streams to be determined to an accuracy of within plus or minus fifteen (15) per cent.

10. The Owner shall determine in cubic metres a daily volume of effluent for each Building Effluent Monitoring Stream at the Owner's Plant for each day.

11. The Owner shall use flow measurement methods that allow the daily volumes for Building Effluent streams determined under subsection (10) of this condition to be determined to an accuracy of within plus or minus twenty (20) per cent.

12. The Owner shall determine by calibration or confirm by means of a certified report of a registered professional engineer of the Province of Ontario that,

    a. each flow measurement method used under subsections (4) and (5) of this condition meets the accuracy requirements of subsection (6) of this condition;

    b. each flow measurement method used under subsections (7) and (8) of this condition meets the accuracy requirements of subsection (9) of this condition; and

    c. each flow measurement method used under subsection (10) of this condition meets the accuracy requirements of subsection (11) of this condition.

13. Where the Owner uses a new flow measurement method or alters an existing flow measurement method, the Owner shall determine by calibration or confirm by means of a certified report of a registered professional engineer of the Province of Ontario that each new or altered flow measurement method meets the accuracy requirements of subsection (6), (9), or (11) of this condition, as the case may be, within two (2) weeks after the day on which the new or altered method or system is used.

14. The Owner shall develop and implement a maintenance schedule and a calibration schedule for each flow measurement system installed at the Owner's Plant and shall maintain each flow measurement system according to good operating practices.

15. The Owner shall use reasonable efforts to set up each flow measurement system used for the purposes of this condition in a way that permits inspection by a provincial officer.

26. CALCULATION OF STREAM AND PLANT VOLUMES

1. The Owner shall calculate, in cubic metres, a daily non-event process effluent plant volume for each day.

2. For the purposes of subsection (1) of this condition, a non-event process effluent plant volume for a day is the sum of the daily non-event process effluent volumes for each Non-event Process Effluent Monitoring Stream determined under Condition 25 for the day.

3. The Owner shall calculate, in cubic metres, a monthly average non-event process effluent plant volume for each month by taking the arithmetic mean of the daily non-event process effluent plant volumes for each Non-event Process Effluent Monitoring Stream calculated under subsection (1) for the month.

4. The Owner shall calculate, in cubic metres, a monthly average volume for each non-event process effluent stream at the Owner's Plant for each month, by taking the arithmetic mean of the daily volumes determined under Condition 25 for the stream for the month.

5. The Owner shall calculate, in cubic metres, a monthly average volume for each event process effluent stream of the type described in paragraph (a) of Condition 1(2) at the Owner's Plant for each month by taking the arithmetic mean of the 24-hour volumes determined under Condition 25 for each 24-hour period ending at noon during which a sample is collected from the stream, or from a tank that discharges into the stream, in the month.

6. The Owner shall calculate, in cubic metres, a monthly average volume for each Building Effluent stream at the Owner's Plant for each month, by taking the arithmetic mean of the daily volumes determined under Condition 25 for the stream for the month.

27. STORMWATER CONTROL STUDY

1. The Owner shall complete a storm water control study in respect of the Owner's Plant, in accordance with the requirements of the Ministry publication entitled "Protocol for Conducting a Storm Water Control Study" dated August, 1994 as amended from time to time.

2. Despite subsection (1) of this condition, instead of analysing storm water samples for the parameters referred to in the protocol cited in subsection (1) of this condition, the Owner shall analyze storm water samples for the following parameters:

    a. Hydrogen ion (pH), referred to as Analytical Test Group 3 in the Ministry publication entitled "Protocol for the Sampling and Analysis of Industrial/Municipal Wastewater", as amended from time to time.

    b. Total Suspended Solids (TSS), referred to as Analytical Test Group 8 in the Ministry publication entitled "Protocol for the Sampling and Analysis of Industrial/Municipal Wastewater", as amended from time to time.

    c. Iron, referred to in Analytical Test Group 9a in the Ministry publication entitled "Protocol for the Sampling and Analysis of Industrial/Municipal Wastewater", as amended from time to time.

    d. Oil and grease, referred to in Analytical Test Group 25 in the Ministry publication entitled

"Protocol for the Sampling and Analysis of Industrial/Municipal Wastewater", as amended from time to time.

e. Polychlorinated Biphenyls, referred to as Analytical Test Group 27 in the Ministry publication entitled "Protocol for the Sampling and Analysis of Industrial/Municipal Wastewater", as amended from time to time.

3. The Owner need not comply with subsection (1) of this condition in respect of the Owner's Plant if,

   a. the Plant meets the exemption criteria set out in the Ministry publication entitled "Protocol for Conducting a Storm Water Control Study" dated August, 1994 as amended from time to time; and

   b. the Owner had notified the Director in writing, before April 12, 1996, that the Plant meets the exemption criteria referred to in paragraph (a) of this subsection.

4. The Owner shall ensure that a copy of each study completed under this section is available to Ministry staff at the Owner's Plant on request during the Plant's normal office hours.

28. RECORD KEEPING

1. The Owner shall keep records of all analytical results obtained under Conditions 16, 17, 18, 20 and 24, all calculations performed under Conditions 8, 9, 10, 11 and 12 and all determinations and calculations made or performed under Condition 25 and 26.

2. The Owner shall keep records of all sampling and analytical procedures used in meeting the requirements of Condition 3, including, for each sample, the date, the time of Pick Up, the sampling procedures used and any incidents likely to affect the analytical results.

3. The Owner shall keep records of the results of all monitoring performed under Condition 19 and 21 to 26.

4. The Owner shall keep records of all maintenance and calibration procedures performed under Condition 25.

5. The Owner shall keep records of all problems or malfunctions, including those related to sampling, analysis, acute lethality testing, chronic toxicity testing or flow measurement, that result or are likely to result in a failure to comply with a requirement of this Schedule, stating the date, duration and cause of each malfunction and including a description of any remedial action taken.

6. The Owner shall keep records of any incident in which effluent that would ordinarily flow past a Non-event Process Effluent Sampling Point or an Event Process Effluent Sampling Point is discharged from the Owner's Plant without flowing past that sampling point, stating the date,

duration, cause and nature of each incident.

7. The Owner shall keep records of all Process Changes and redirections of or changes in the character of effluent streams that affect the quality of effluent at any sampling point maintained under this Schedule at the Owner's Plant.

8. The Owner shall keep records of the location of each sampling point maintained at the Owner's Plant under Condition 4.

9. The Owner shall make each record required by this condition as soon as reasonably possible and shall keep each such record for a period of three (3) years.

10. The Owner shall ensure that all records kept under this condition are available to Ministry staff at the Owner's Plant on request during the Plant's normal office hours.

29. RECORD AVAILABLE TO THE PUBLIC

1. On or before June 1 in each year, the Owner shall prepare a report relating to the previous calendar year and including,

   a. a summary of concentrations determined under Conditions 8 and 9;

   b. a summary of plant loadings calculated under Conditions 10, 11 and 15;

   c. a summary of the results of monitoring performed under Conditions 16, 17, 18 and 20 to 24;

   d. a summary of volumes determined under Condition 25(7) and calculations performed under Conditions 26(4), (5) and (6);

   e. a summary of the concentrations or other results that exceeded a limit prescribed by Condition 13 or 17; and

   f. a summary of the incidents in which effluent that would ordinarily flow past a non-event process effluent sampling or an Event Process Effluent Sampling Point is discharged from the Owner's Plant without flowing past that sampling point.

2. The Owner shall ensure that each report prepared under subsection (1) of this condition is available to any person at the Owner's Plant on request during the Plant's normal office hours.

3. The Owner shall provide the Director, upon request, with a copy of any report that the Owner has prepared under subsection (1) of this condition.

30. REPORTS TO THE DISTRICT MANAGER – GENERAL

1. The Owner shall notify the District Manager and the Director in writing of any change of name or ownership of the Owner's Plant occurring within thirty (30) days after the end of the month in

which the change occurs.

2. The Owner shall notify the District Manager in writing of any Process Change or redirection of or change in the character of an effluent stream that affects the quality of effluent at any sampling point at the Owner's Plant, within thirty (30) days of the change or redirection.

3. The Owner need not comply with subsection (2) of this condition where the effect of the change or redirection on effluent quality is of less than one week's duration.

31. REPORTS TO THE DISTRICT MANAGER

1. The Owner shall report any incident in which effluent that would ordinarily flow past a Non-event Process Effluent Sampling Point or an Event Process Effluent Sampling Point is discharged from the Owner's Plant without flowing past that sampling point.

2. The Owner shall report any concentration or other result that exceeds a limit prescribed by Condition 13 or 14.

3. A report required under subsection (1) or (2) of this condition shall be given orally, as soon as reasonably possible, and in writing, as soon as reasonably possible.

32. QUARTERLY REPORTS TO THE DISTRICT MANAGER

1. No later than forty-five (45) days after the end of each Quarter, the Owner shall submit a report to the District Manager containing information relating to the Owner's Plant throughout the Quarter as required by subsections (3) to (9) of this condition.

2. A report under this condition shall be submitted to the District Manager in the manner and form the District Manager specifies from time to time.

3. A report under this condition shall include all information included in a report given under Condition 31 during the Quarter.

4. The Owner shall report,

    a. for each month in the Quarter, the monthly average plant loadings and the highest and lowest daily plant loadings calculated for each Limited Parameter under Condition 10;

    b. each 24-hour event process effluent stream loading calculated for each Limited Parameter under Condition 11(1) that is based on analytical results obtained from a sample collected during the Quarter;

    c. each 24-hour event process effluent plant loading calculated for each Limited Parameter under Condition 11(3) that is based on 24-hour event process effluent stream loadings required to be reported under clause (b) in respect of the Quarter;

d. for each month in the Quarter, each monthly average event process effluent stream loading calculated for each Limited Parameter under Condition 11(6); and

e. each quarterly building effluent plant loading calculated under Condition 12 for each Building Parameter for the Quarter.

5. The Owner shall report, for each month in the Quarter, the monthly average concentrations calculated under Conditions 8 and 9 and the highest and lowest analytical results obtained under Conditions 16, 17, and 18 for each Limited Parameter in each Non-event Process Effluent Monitoring Stream and Event Process Effluent Monitoring Stream at the Owner's Plant.

6. The Owner shall report, for each month in the Quarter,

   a. each 24-hour volume determined for a stream, other than a stream described in paragraph (a) of Condition 1(2), under Condition 25(7) for a 24-hour period ending at noon during which a sample is collected from the stream in the month;

   b. the highest and lowest 24-hour volumes determined under Condition 25(7) for the stream described in paragraph (a) of Condition 1(2) of all the 24-hour volumes determined for the stream under Condition 25(7) for 24-hour periods ending at noon during which a sample is collected from the stream in the month;

   c. the monthly average non-event process effluent plant volume and the highest and lowest daily non-event process effluent plant volumes as calculated under Condition 26; and

   d. the monthly average volume for each event process effluent stream of the type described in paragraph (a) of Condition 1(2) at the Owner's Plant, as calculated under Condition 26.

7. The Owner shall report, for each month in the Quarter, the monthly average volume for each Building Effluent Monitoring Stream at the Owner's Plant, as calculated under Condition 26.

8. The Owner shall report, for each month in the Quarter, the highest and lowest pH results obtained under Condition 20 for each Non-event Process Effluent Monitoring Stream and Event Process Effluent Monitoring Stream at the Owner's Plant.

9. The Owner shall report, for each day in each month in the Quarter, the number of days on which effluent is discharged from,

   a. each Non-event Process Effluent Monitoring Stream at the Owner's Plant;

   b. each Event Process Effluent Monitoring Stream at the Owner's Plant; and

   c. each Building Effluent Monitoring Stream at the Owner's Plant.

33. REPORTS TO THE DISTRICT MANAGER – CHRONIC TOXICITY TESTING

1. A report under this condition shall be submitted to the District Manager in the manner and form the District Manager specifies from time to time.

2. A report under subsection (1) of this condition shall include a plot of percentage reduction in growth or reproduction against the logarithm of test concentration and shall include a calculation of the concentration at which a twenty five (25) per cent reduction in growth or reproduction would occur.

34. CONFLICT

1. Where there is a conflict between a limit in this Schedule and a limit in the Terms and Conditions of the body of this Approval, the most stringent of the two limits shall apply.

The reasons for this amendment to the Approval are as follows:

1. Conditions 1 to 33 in Schedule B are imposed to provide for substantially equivalent requirements as is currently provided in Ontario Regulation 215/95 *(Effluent Monitoring and Effluent Limits – Electric Power Generation Sector)* such that there is a continued protection of the environment in the event that Ontario Regulation 215/95 is revoked:

    a. Effluent limits are imposed to ensure that the effluent discharged from the Owner's Plant to the receiver meets the Ministry's effluent quality requirements thus minimizing environmental impact on the receiver.

    b. Monitoring and recording requirements are included to require the Owner to demonstrate on a continual basis that the quality and quantity of the effluent from the Owner's Plant is consistent with the effluent limits specified in in Schedule B and that the effluent does not cause any impairment to the receiving watercourse.

    c. Reporting requirements are included to provide a performance record for future references and to ensure that the Ministry is made aware of problems as they arise, so that the Ministry can work with the Owner in resolving the problems in a timely manner.

2. Condition 34 in Schedule B is included to emphasize the precedence of the most stringent limit, if there are conflicting limits between Schedule B and any other part of this Approval for the Plant.

TABLE A

TYPES OF NON-EVENT PROCESS EFFLUENT STREAMS, LIMITS, MONITORING FREQUENCY*

Item	Analytical Test Group	Column 1 Parameter	Column 2 Types of Non-Event Process Effluent Streams	Column 3 Monitoring Frequency	Column 4 Daily Concentration Limit mg/L	Column 5 Monthly Average Concentration Limit mg/L
1.	8	Total Suspended Solids	WTPE	Daily	70.0	25.0
2.	9	Aluminum	WTPE	Weekly	13.0	4.50
3.	9a	Iron	WTPE	Weekly	2.50	1.0

Explanatory Notes:

Types of Non-Event Process Effluent Streams in Column 2:

WTPE = a stream of the type described in paragraph (a) of Condition 1(1)

*Refer to Environmental Compliance Approval Table 5 for the revised monitoring requirements for the new Demineralized Water Plant (DWP)

TABLE B

TYPES OF EVENT PROCESS EFFLUENT STREAMS, LIMITS, MONITORING FREQUENCY

Item	Analytical Test Group	Column 1 Parameter	Column 2 Types of Event Process Effluent Streams	Column 3 Monitoring Frequency	Column 4 Daily Concentration Limit mg/L	Column 5 Monthly Average Concentration Limit mg/L
1.	6	Total Phosphorus	RLWMSTE	Weekly	Not applicable	1.0
2.	8	Total Suspended Solids	ECE	Daily	25.0	Not applicable
3.	8	Total Suspended Solids	RLWMSTE	Daily	73.0	21.0
4.	9	Zinc	RLWMSTE	Weekly	1.0	0.50
5.	9a	Iron	ECE	Daily	1.0	Not applicable
6.	9a	Iron	RLWMSTE	Weekly	9.0	3.0
7.	25	Oil and grease	RLWMSTE	Weekly	36.0	13.0
8.	25	Oil and grease	OWSE	Daily	15.0	Not applicable

Explanatory Notes:

Types of Event Process Effluent Streams in Column 2:

ECE = a stream of the type described in paragraph (b) of Condition 1(2)

RLWMSTE = a stream of the type described in paragraph (a) of Condition 1(2)

OWSE = a stream of the type described in paragraph (c) of Condition 1(2)

Upon issuance of the environmental compliance approval, I hereby revoke Approval No(s). 0827-CJANMM issued on November 22, 2022.

In accordance with Section 139 of the *Environmental Protection Act,* you may by written notice served upon me and the Ontario Land Tribunal within 15 days after receipt of this notice, require a hearing by the Tribunal. Section 142 of the *Environmental Protection Act* provides that the notice requiring the hearing ("the Notice") 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:

Registrar*
Ontario Land Tribunal
655 Bay Street, Suite 1500
Toronto, Ontario
M5G 1E5
OLT.Registrar@ontario.ca

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 Ontario Land Tribunal's requirements for an appeal can be obtained directly from the Tribunal at: Tel: (416) 212-6349 or 1 (866) 448-2248, or www.olt.gov.on.ca**

The above noted activity is approved under s.20.3 of Part II.1 of the *Environmental Protection Act.*

DATED AT TORONTO this 14th day of September, 2023

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

RU/

c: District Manager, MECP York-Durham
Ali Esmaeily, Ontario Power Generation Inc.