



GOVERNMENT OF  
NEWFOUNDLAND AND LABRADOR  
Department of Environment and Climate Change

**CERTIFICATE OF APPROVAL**

Pursuant to the Environmental Protection Act, SNL 2002 c E-14.2 Section 83

Issue Date: *June 30, 2022*

Approval No. AA22-065671

Expiration: *June 30, 2027*

File No. 716.008, 716.050.1

Proponent: **Newfoundland and Labrador Hydro**  
P.O. Box 29  
Holyrood, NL  
A0A 2R0

Attention: **Rod Healey, Manager Environment Operations**

Re: **Holyrood Thermal Generating Station**

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Approval is hereby given for the operation of the Holyrood Thermal Generating Station, including a power house with three thermal generating units, one combustion turbine, six diesel generating units, wastewater treatment plant, hazardous waste landfill, storage of used oil and used glycol in containers and associated works located at Holyrood, NL.

This Certificate of Approval does not release the proponent from the obligation to obtain appropriate approvals from other concerned provincial, federal and municipal agencies. Nothing in this Certificate of Approval negates any regulatory requirement placed on the proponent. Where there is a conflict between conditions in this Certificate of Approval and a regulation, the requirements in the regulation shall take precedence. Approval from the Department of Environment and Climate Change shall be obtained prior to any significant change in the design, construction, installation, or operation of the facility, including any future expansion of the works. This Certificate of Approval shall not be sold, assigned, transferred, leased, mortgaged, sublet or otherwise alienated by the proponent without obtaining prior approval from the Minister.

This Certificate of Approval is subject to the terms and conditions as contained therein, as may be revised from time to time by the Department. Failure to comply with any of the terms and conditions may render this Certificate of Approval null and void, may require the proponent to cease all activities associated with this Certificate of Approval, may place the proponent and its agent(s) in violation of the *Environmental Protection Act*, and will make the proponent responsible for taking such remedial measures as may be prescribed by the Department. The Department reserves the right to add, delete or modify conditions to correct errors in the Certificate of Approval or to address significant environmental or health concerns.

**MINISTER**

TERMS AND CONDITIONS FOR APPROVAL No. AA22-065671

June 30, 2022

**General**

1. This Certificate of Approval is for the operation of the Holyrood Thermal Generating Station including a power house with three thermal generating units, one combustion turbine and six diesel generating units as outlined in Table 1, wastewater treatment plant, hazardous waste landfill, storage of used oil and used glycol in containers and associated works located at Holyrood, NL. Extensive future expansion or change of activities will require a separate Certificate of Approval.

<b>Table 1: Generating Units</b>			
<b>Thermal Generating Units</b>			
Unit No.	Commissioned/Upgraded	Power Rating (MW)	Manufacturer
1	1969/1988/89	150/175	Combustion Engineering
2	1969/1988/89	150/175	Combustion Engineering
3	1980	150	Badcock & Wilcox
<b>Combustion Turbine (CT)</b>			
1	2014	123	Siemens - D5A
<b>Diesel Generating Units</b>			
1	2014	2.00	Caterpillar - XQ 2000 Mobile
2	2014	2.00	Caterpillar - XQ 2000 Mobile
3	2014	2.00	Caterpillar - XQ 2000 Mobile
4	2014	2.00	Caterpillar - XQ 2000 Mobile
5	2014	2.00	Caterpillar - XQ 2000 Mobile
6	2014	2.00	Caterpillar - XQ 2000 Mobile

2. Any inquiries concerning this Approval shall be directed to the St. John's office of the Pollution Prevention Division (telephone: (709) 729-2556; or facsimile: (709) 729-6969).
3. In this Certificate of Approval:
  - **accredited** means the formal recognition of the competence of a laboratory to carry out specific functions;
  - **acutely lethal**, in respect of an effluent, means that the effluent at 100% concentration kills more than 50% of the rainbow trout subjected to it for a period of 96 hours, when tested in accordance with Reference Method EPS 1/RM/13; or more than 50% of the Daphnia magna subjected to it for a period of 96 hours, when tested in accordance Reference Method EPS 1/RM/14;
  - **administrative boundary** means the boundary surrounding the Holyrood Thermal Generating Station outside of which the ambient air quality standards, outlined in Schedule A of the *Air Pollution Control Regulations, 2022*, apply;
  - **air contaminant** means any discharge, release, or other propagation into the air and includes, but is not limited to, dust, fumes, mist, smoke, particulate

matter, vapours, gases, odours, odorous substances, acids, soot, grime or any combination of them;

- **ALT (acute lethality test)** means a test conducted to determine whether an effluent is acutely lethal;
- **associated product** means petroleum or a derivative of it, except gasoline, which is in a liquid state at ambient temperature and pressure;
- **BOD<sub>5</sub>** means biochemical oxygen demand (5 day test);
- **CEMS** means the continuous emissions monitoring system used to measure gaseous releases of SO<sub>2</sub>, NO<sub>x</sub>, CO<sub>2</sub>, CO and O<sub>2</sub> from each boiler;
- **CO** means carbon monoxide;
- **CO<sub>2</sub>** means carbon dioxide;
- **Combustion Turbine (CT)** means the 123 MW combustion turbine;
- **Department** means the Department of Environment and Climate Change and its successors;
- **DGSNL** means Digital Government and Service NL and its successors;
- **EDMS** means Environmental Data Management System;
- **effluent discharge criteria (EDC)** means the maximum allowable levels for the parameters listed in Table 4;
- **grab sample** means a quantity of undiluted sample collected at any given time. In this Approval it refers to used oil and effluent;
- **hazardous waste** means a product, substance or organism that is intended for disposal or recycling, including storage prior to disposal or recycling, and that:
  - (a) is listed in Schedule III of the *Export and Import of Hazardous Waste Regulations under the Canadian Environmental Protection Act, 1999*;
  - (b) is included in any of Classes 2 to 6, and 8 and 9 of the *Transportation of Dangerous Goods Regulations under the Transportation of Dangerous Goods Act, 1992*; or
  - (c) exhibits a hazard classification of a gas, a flammable liquid, an oxidizer, or a substance that is dangerously reactive, toxic, infectious, corrosive or environmentally hazardous;
- **HYDRO** means Newfoundland and Labrador Hydro;
- **landfill operations manual** means the Hydro Procedure Manual for the Controlled Waste Landfill (most recent version);
- **leak or leakage** means any discharge of gasoline, associated product or used glycol from a storage tank system, pipeline, tank vessel, tank car or tank vehicle, other than through the usual function for which the storage tank system, pipeline, tank vessel, tank car or tank vehicle was designed;

- **licensed** means has a Certificate of Approval issued by the Minister to conduct an activity;
- **liquid waste** is defined by the *Slump Test* (Canadian Standards Association test method A23.2-5C for determining the slump of concrete). The liquid waste slump test involves placing the waste in a 30 cm open inverted cone. The cone is removed and the immediate decrease (slump) in height of the waste material is measured. If the material slumps such that the original height is reduced by 15 cm or more, the waste is considered liquid;
- **leachate holding pond** means the detention pond for leachate control prior to transfer to the on-site wastewater treatment plant;
- **malfunction** means any sudden, infrequent and not reasonably preventable failure of air pollution control equipment, wastewater treatment equipment, process equipment, or a process to operate in a normal or usual manner. Failures, caused in part by poor maintenance or careless operation, are not malfunctions;
- **Minister** means the Minister of the Department;
- **MW** means megawatt;
- **NO<sub>x</sub>** means oxides of nitrogen;
- **NO<sub>2</sub>** means nitrogen dioxide;
- **O<sub>2</sub>** means oxygen;
- **oil separator** means a device used to separate and remove oily wastes from oil and water mixtures;
- **Plan** means the specific plan as identified in the section of this Approval within which it is used. For example, in the *Waste Management Plan* section it refers to the Waste Management Plan;
- **PM<sub>2.5</sub>** means particulate matter with a diameter of 2.5 µm or less;
- **PPMV** means parts per million by volume;
- **proficiency testing** means the use of inter-laboratory comparisons to determine the performance of individual laboratories for specific tests or measurements;
- **QA/QC** means Quality Assurance/Quality Control;
- **register(ed)**, in the context of storage tanks, means that information regarding the storage tank system has been submitted to a DGSNL office and a registration number has been assigned to the storage tank system. In the context of dispersion modelling, registered means submitted to and approved by the Department in accordance with departmental policy and guidelines. In the context of environmental site assessment and impacted site management work, registered means approved by the Department in accordance with

departmental policy and guidelines;

- **regulated substance** means a substance subject to discharge limit(s) under the *Environmental Control Water and Sewage Regulations, 2003*;
- **Site Professional** means an individual who is registered with the Department to oversee environmental site assessment, remediation and contaminated site management work in Newfoundland and Labrador;
- **SO<sub>2</sub>** means sulfur dioxide;
- **spill or spillage** means a loss of gasoline, associated product or used glycol in excess of 70 litres from a storage tank system, pipeline, tank vessel or vehicle, or an uncontrolled release of any volume of a regulated substance onto or into soil or a body of water;
- **stack** means a chimney, flue, conduit or duct arranged to conduct an air contaminant into the environment;
- **storage tank system** means a tank and all vent, fill and withdrawal piping associated with it installed in a fixed location and includes a temporary arrangement;
- **TDS** means total dissolved solids;
- **TPH** means total petroleum hydrocarbons, as measured by the Atlantic PIRI method;
- **TPM** means total particulate matter with diameters less than 100µm;
- **TSS** means total suspended solids;
- **used glycol** means glycol that, through use, storage or handling, can no longer be used for its original purpose;
- **used oil** means oil that, through use, storage or handling, can no longer be used for its original purpose; and
- **wastewater treatment plant (WWTP)** means HYDRO's treatment plant for wastewater streams resulting from periodic cleaning of boiler fireside equipment, and includes the periodic basin, the batch reactor, filter press and all associated works.

4. All necessary measures shall be taken to ensure compliance with all applicable acts, regulations, policies, guidance documents and guidelines, including the following, or their successors:

- *Environmental Protection Act;*
- *Water Resources Act;*
- *Air Pollution Control Regulations, 2022;*
- *Environmental Control Water and Sewage Regulations, 2003;*
- *Halocarbon Regulations;*
- *Storage and Handling of Gasoline and Associated Products Regulations, 2003;*

- *Used Oil and Used Glycol Control Regulations;*
- *Storage of PCB Waste Regulations, 2003;*
- *Ambient Air Monitoring Guidance Document;*
- *Effluent Schedule Determination Policy for Industries;*
- *Sampling of Water and Wastewater - Industrial Effluent Applications Guidance Document;*
- *Accredited Laboratory Policy;*
- *Compliance Determination Guidance Document;*
- *Stack Emission Testing Guidance Document;*
- *Plume Dispersion Modelling Guidance Document; and*
- *Guidance Document for the Management of Impacted Sites.*

This Approval provides terms and conditions to satisfy various requirements of the above listed acts, regulations, policies, guidance documents and guidelines. If it appears that any of the pertinent requirements of these acts, regulations, policies and guidelines are not being met, then a further review of the works shall be conducted, and suitable pollution control measures may be required by the Minister.

5. All reasonable efforts shall be taken to minimize the impact of the operation on the environment. Such efforts include:
  - minimizing the area disturbed by the operation,
  - minimizing air, water or soil pollution,
  - finding alternative uses, acceptable to the Department, for waste or rejected materials,
  - removing equipment or structures when they no longer have further use, and
  - considering the requirement for the eventual rehabilitation of disturbed areas when planning the development of any area on the facility property.
6. HYDRO shall provide to the Department, within a reasonable time, any information, records, reports or access to data requested or specified by the Department.
7. HYDRO shall keep all records or other documents required by this Approval at the thermal generating station for a period of not less than three (3) years, beginning the day they were made. These records shall be made available for review by officials of the Department or DGSNL when requested.
8. Should HYDRO wish to deviate in any way from the terms and conditions of this Certificate of Approval, a written request detailing the proposed deviation shall be made to the Minister. HYDRO shall comply with the most current terms and conditions until the Minister has authorized otherwise. In the case of meeting a deadline requirement, the request shall be made at least 60 days ahead of the applicable date as specified in this Approval or elsewhere by the Department.

### **Waste Management**

9. The management of waste generated at the facility is subject to compliance with the *Environmental Protection Act*. All non-industrial waste shall be stored in a manner acceptable to the Department and, on at least a weekly basis, be disposed of:
  - at an authorized waste disposal site, with the permission of the owner/operator of the site; or
  - by some other means acceptable to the Department.

If required, industrial waste shall be disposed of by a licensed operator.

10. HYDRO shall ensure that all volatile chemical and solvent wastes, if they cannot be reused, are placed in suitable covered containers for disposal in a manner acceptable to the Department. Disposal of liquid wastes at waste disposal sites in the province is not permitted.
11. Disposal of hazardous waste in a municipal or regional waste disposal site in this Province is prohibited. Transporters of hazardous waste shall have an approval issued by the Minister. Those generating hazardous waste shall have a waste generator's number issued by the Department and shall also complete the required information outlined in the Waste Manifest Form.

### **Waste Management Plan**

12. HYDRO shall continue to implement the Waste Management Plan dated *June 2019* for the operation of the Holyrood Thermal Generating Station, including all revisions. Every year the Plan shall be reviewed and revised as necessary, accounting for expanding or alteration of activities. All proposed revisions shall be submitted to the Department for review. The Department will acknowledge receipt of the Plan and/or revisions, and shall provide any review comments within a reasonable time frame.

### **Noise**

13. HYDRO shall continue to implement the Noise Management Plan dated *October 2019* for the operation of the Holyrood Thermal Generating, including all revisions. Every year the Plan shall be reviewed and revised as necessary. All proposed revisions shall be submitted to the Department for review. The Department will acknowledge receipt of the Plan and/or revisions, and shall provide any review comments within a reasonable time frame.

### **Chemical Operations**

14. All chemical loading and blending shall be done inside the facility, with no chemical containers being opened outside. All vessels will be blanketed to eliminate vapour or odour releases.

### **Spill Prevention and Containment**

15. Areas in which chemicals are used or stored shall have spill containment systems constructed with impermeable floors, walls, dykes or curbs as applicable and be configured, maintained, inspected and repaired as follows:
  - they shall not discharge to the environment;
  - they shall have an effective secondary containment capacity of at least 110% of the chemical storage tank capacity, in the case of a single storage container;
  - if there is more than one storage container, the spill containment system shall be able to retain no less than 110% of the capacity of the largest container or

- 100 % of the capacity of the largest container plus 10% of the aggregate capacity of all additional containers, whichever is greater;
- they shall be kept clear of material that may compromise the containment capacity;
- they may include a floor drain system provided that the floor drains, and the place or device to which they drain, are configured in such a manner that the required effective secondary containment capacity is maintained;
- every year they shall be visually inspected for their liquid containing integrity, and repairs shall be made when required; and
- once every ten years, spill containment systems shall be inspected, by a means other than visual inspection, for their liquid containing integrity, and repairs shall be made when required.

### **Contingency Plan**

16. HYDRO shall continue to implement the Contingency Plan dated *October 19, 2019* for the operation of the Holyrood Thermal Generating Station, including all revisions. This Plan describes the actions to be taken in the event of a spill of a toxic or hazardous material. Copies of the Plan shall be placed in convenient areas throughout the facility so that employees can easily refer to it when needed. HYDRO shall ensure that all employees are aware of the Plan and understand the procedures and the reporting protocol to be followed in the event of an emergency. An annual response exercise is recommended for response personnel. Every year, as a minimum, the Plan shall be reviewed and revised as necessary. Any proposed significant revisions shall be submitted to the Department for review. Changes which are not considered significant include minor variations in equipment or personnel characteristics which do not affect implementation of the Plan.
17. Every time HYDRO implements the Contingency Plan, information shall be recorded for future reference. This will assist in reviewing and updating the Plan. The record is to consist of all incidents with environmental implications, and include such details as:
  - date;
  - time of day;
  - type of incident (i.e. liquid spill, gas leak, granular chemical spill, equipment malfunction, etc.);
  - actions taken;
  - problems encountered; and
  - other relevant information that would aid in later review of the Plan performance.

Each incident report shall be submitted to the Department as per the *Reporting* section.

### **Decommissioning and Restoration**

18. A preliminary Decommissioning Plan, entitled "*Decommissioning and Demolition of the Holyrood Thermal Generating Station, dated July 29, 2016*" was submitted to the Department on February 23, 2018. A detailed Decommissioning Plan that includes measures to restore areas disturbed by the operation shall be submitted to the Department for review at least six (6) months prior to the cessation of operations at



the Thermal Generating Station. For guidance on the preparation of the Decommissioning Plans, refer to Appendix A.

19. As part of the site decommissioning and restoration process, HYDRO shall employ a registered Site Professional to complete a site-wide environmental site assessment, as defined in the *Guidance Document for the Management of Impacted Sites*. Should impacts be identified, HYDRO shall proceed through the process outlined in the Guidance Document to achieve regulatory site closure.

### Fuel Usage, Fuel Storage & Offloading

20. HYDRO is permitted to accept and combust ultra-low sulfur diesel oil in the CT.
21. HYDRO shall not combust heavy fuel oil with sulfur content greater than 0.7% by weight in the thermal generating station.
22. HYDRO is permitted to accept and burn alternative fuel only with the written approval of the Department.
23. The diesel fuel offloading, storage and handling area for the CT shall have an impermeable surface with an oil containment or collection system routed towards an oil separator. Care shall be taken to prevent spillage on the ground and to the surrounding environment, particularly streams and other water bodies.
24. HYDRO shall maintain, and submit to the Department on a monthly basis as per the *Reporting* section, the following information:
  - Name of supplier, date and volume of each shipment of ultra-low sulfur diesel oil received; and
  - Hourly diesel oil usage of CT in litres per hour.
25. HYDRO shall analyze each delivery of heavy fuel oil for the parameters listed in Table 2. Analysis shall be on a representative sample of the heavy fuel oil received.

<b>Table 2: Heavy Fuel Oil Analysis Program</b>			
Parameters			Frequency
A.P.I Gravity @60 °F Pour Point Sulfur% by Weight Sediment % by Weight Aluminum Sodium	Density (kg/m <sup>3</sup> @ 15 °C) Viscosity cSt @ 50 °C BTU's per US Gallon Water % by Volume Nickel Vanadium	Flash Point Ash % by Weight Asphaltenes % by Weight Silicon	<b>Every Batch Delivered</b>

26. HYDRO shall maintain, and submit to the Department as per *Reporting* section, a record of all heavy fuel oil received. The record shall include:
  - name of the supplier;
  - date and volume of the heavy fuel oil offloaded;
  - the certificate of analysis for each batch of heavy fuel oil delivery received; and
  - the name of the laboratory where analysis was performed.

## Combustion Turbine Operations

27. HYDRO shall maintain, and submit to the Department on a monthly basis as per the *Reporting* section, the following information:
- date and hours of operation of the CT;
  - date and time of start-up and shutdown of the CT;
  - specification of all maintenance performed on the CT and/or associated water injection system, including the date and time the work commenced and completed; and
  - total litres of water flow per hour for each hour of the day when the CT is in operation.
28. The CT facility shall have an impermeable surface with an oil containment or collection system routed to an oil separator.
29. All floor drains from the main building of the CT shall be directed to the oil separator prior to release into the Indian Pond.
30. HYDRO shall operate the CT water treatment plant as per manufacturer standards.

## Diesel Generators

31. HYDRO shall operate no more than any five (5) of the six (6) diesel generators at **87% load** from **6:00 AM** to **10:00 AM** and from **4:00 PM** to **8:00 PM** to generate up to **8 MW** of power from *November 1* to *April 30* for peaking purposes.
32. HYDRO shall operate no more than any five (5) of the six (6) diesel generators at **67% load**, 24 hours a day, 365 days a year to generate up to **6 MW** of power for emergency purposes.

## Storage Tanks

33. All on site storage of petroleum shall comply with the *Storage and Handling of Gasoline and Associated Products Regulations, 2003*, or its successor. Storage tank systems shall be registered with DGSNL.
34. HYDRO shall implement the API Standard 653, "*Tank Inspection, Repair, Alteration and Reconstruction*" in accordance with common industry practice.
35. HYDRO shall submit an inventory of all petroleum and chemical storage tanks located at Holyrood Thermal Generating Station at Holyrood, NL to the Department for review by *August 31, 2023*. This inventory shall include the following information:
- site plan showing tank location,
  - storage tank system photos, including manufacturer's labels,
  - registration number (where applicable),
  - identification number,

- material stored,
- capacity,
- annual throughput,
- tank material,
- tank type,
- tank diameter,
- tank height,
- tank colour,
- roof type,
- year of manufacture,
- date of installation,
- date of last inspection,
- failure history,
- maintenance history,
- secondary containment capacity, and
- date of next planned inspection.

An update of the complete storage tank inventory including any changes to it shall be submitted to the Department within three (3) months of the change having occurred.

### **Used Oil and Used Glycol**

36. Used oil and used glycol shall not be mixed and shall be stored in separate:
- closed containers;
  - registered tanks; or
  - tanks that have an active approval from DGSNL.
37. Used oil and used glycol shall be disposed of by a company licensed for the handling and disposal of such products.
38. Information on used oil and used glycol that is generated at the facility shall be submitted to the Department for review by *January 31* of each year. This shall include a description of:
- the type(s) of oil and/or glycol used;
  - the approximate total volume of used oil and/or used glycol generated during the previous year; and
  - the method of disposal for the used oil and/or used glycol.
39. In the event that used oil and/or used glycol generated off-site is stored in the on-site storage tank(s), the information listed above shall also be required for the off-site systems.
40. The use or operation of an oil separator requires registration under the *Used Oil and Used Glycol Control Regulations*. Applications for registration shall be submitted to, and registration numbers are assigned by, DGSNL.
41. All oil separators shall be checked routinely and maintained in accordance with the manufacturer's instructions to ensure they are working properly. A log of these checks shall be maintained by HYDRO.

## **Wastewater Flows and Treatment**

42. The Thermal Generating Station's once-through cooling water shall be obtained from Indian Pond, and shall be discharged directly to Conception Bay.
43. The Thermal Generating Station's south-east floor drains shall be routed through an oil separator (OS-1) and then to Indian Pond through the storm water collection system.
44. The Thermal Generating Station's south-west floor drains shall be routed through a grease trap and an oil separator (OS-2) and then to the cooling water discharge piping associated with Unit No. 1 & 2.
45. The Thermal Generating Station's north-east and north-west floor drains shall be routed through a grease trap and oil separator (north-east OS-4 & north-west OS-3) and then to a 900 m<sup>3</sup> equalization basin (Continuous Basin).
46. All wastewater generated from backwashing in the CT water treatment plant from the backwashing shall be routed to the CT oil separator (CT-OS) prior to discharge into Indian Pond.
47. Wastewater streams resulting from the Thermal Generating Station's daily operations, including raw water clarification, filter backwashes, boiler blowdown and other similar activities shall be directed to the Continuous Basin. Any flow or drainage from the Continuous Basin shall be routed to the new oil separator (OS-5) before discharging into Indian Pond.
48. Demineralizer regeneration wastewater flows may be directed to the seal pit associated with Units No. 1 & 2, during such times at least one cooling water pump shall be active.
49. Wastewater streams resulting from periodic events where water is used to clean the Thermal Generating Station's boiler fireside equipment, including air pre-heater wash flows, fireside boiler wash flows and boiler acid wash flows, shall be directed to a 900 m<sup>3</sup> equalization basin (Periodic Basin). Any flow or drainage from the Periodic Basin shall be directed to the wastewater treatment plant.
50. Any flow or drainage from the wastewater treatment plant shall be discharged to the cooling water intakes for Units No. 1 & 2 or Unit 3.
51. Effluent from the dewatering of filter cake shall be re-cycled through the wastewater treatment plant.
52. All solid waste generated from the CT water treatment plant and the Thermal Generating Station wastewater treatment plant operations shall be directed to the hazardous waste landfill.

## **Effluent Monitoring and Discharge**

53. HYDRO shall perform an effluent monitoring program as per Table 3. All results shall be submitted to the Department as per the *Reporting* section.

Table 3: Effluent Monitoring Program								
Location	EDMS Location Code	Parameters					Frequency	
WWTP	00068	Aluminum	Iron	Magnesium	Nickel	Vanadium	Grab sample prior to each batch release †	
		pH	TSS					
		ALT					Grab sample from each batch following new addition of wastewater to the periodic basin	
Continuous Basin Outfall	00069	Iron	Nickel	Vanadium	pH	TSS	Weekly Grab	
		TPH						
		ALT					Monthly Grab	
OS-1	00070	Iron	Nickel	Vanadium	pH	TSS	TPH	Weekly Grab
OS-2	00071	Iron	Nickel	Vanadium	pH	TSS	TPH	Weekly Grab
CT-OS (Prior to discharge into Indian Pond)	00072	TPH	TDS	TSS	BOD <sub>5</sub>	pH		Weekly (Whenever there is discharge)
† Grab samples for all parameters shall be taken from the batch reactor at the same time.								

54. If effluent from wastewater treatment plant fails the ALT, HYDRO shall collect a grab sample from the next batch of effluent from the wastewater treatment plant and conduct an ALT, even if there has been no addition to the Periodic Basin.
55. HYDRO shall record on a continuous basis the volume of influent to the Periodic Basin. The results shall be submitted to the Department as per the *Reporting* section.
56. Refer to Table 4 for the effluent discharge criteria.

Table 4: Effluent Discharge Criteria	
Parameter	Allowable Limits *
Arsenic	0.50
Barium	5.00
Boron	5.00
BOD	20.00
Cadmium	0.05
Chromium	1.00
Copper	0.30
Iron	10.00
Lead	0.20

Mercury	0.005
Nitrates	10.00
Nitrogen (ammoniacal)	2.00
Nickel	0.50
Phenol	0.10
Phosphates (total as P <sub>2</sub> O <sub>5</sub> )	1.00
pH	5.5 – 9.0 pH units
Selenium	0.01
Silver	0.05
TDS	1000.00
TSS	30.00
TPH	15.00
Vanadium	0.50
Zinc	0.50
* All units are expressed in mg/L unless otherwise stated.	

57. If effluent is determined to be acutely lethal for three consecutive ALTs, HYDRO shall implement a Toxicity Identification Evaluation (TIE) to identify the toxin, and from this develop measures to prevent or reduce the toxin. The report, written as a result of these identification activities, shall be submitted to the Department for review, *within 60 days* of the third consecutive failed ALT result. After review of the report, the Department may place additional requirements upon the proponent for treatment of effluent prior to discharge.

### Water Chemistry Analysis

58. HYDRO shall perform a water chemistry analysis program for the thermal generating station four times per calendar year and not less than thirty (30) days apart, as per Table 5. All results shall be submitted to the Department as per the *Reporting* section.
59. HYDRO shall perform a water chemistry analysis program for the CT on a monthly basis, whenever the CT water treatment plant and/or CT is in operation, as per Table 5. All results shall be submitted to the Department as per the *Reporting* section.

Location	EDMS Location Code	Parameters
Cooling Water Intake at Indian Pond (Grab Sample)	00073	<b>General Parameters – must include the following:</b> nitrate + nitrite    colour    magnesium    reactive silica nitrate    TDS (calculated)    sodium    alkalinity nitrite    orthophosphate    phenolics    ammonia pH    potassium    sulfate    phosphorous TSS    carbonate (CaCO <sub>3</sub> )    calcium    chloride DOC    hardness (CaCO <sub>3</sub> )    sulphide    turbidity conductance    bicarbonate (CaCO <sub>3</sub> )    BOD <sub>5</sub>
Cooling Water Outfall Stream, Prior to Release into Conception Bay (Grab Sample)	00074	
Continuous	00069	<b>Metals Scan - must include the following:</b>

Basin Outfall Stream, Prior to Release into Indian Pond (Grab Sample)		Aluminium antimony arsenic barium beryllium bismuth	boron cadmium chromium cobalt copper	iron lead manganese molybdenum mercury	nickel selenium silver strontium thallium	tin titanium uranium vanadium zinc
CT Effluent Prior to Discharge into Indian Pond	00072					
OS-1	00070					

60. HYDRO shall inform the Department of the date and duration of any usage of the **Copper Ion Injection** in their system, as per *Reporting Section*.

### Environmental Effects Monitoring

61. HYDRO shall continue to conduct an Environmental Effects Monitoring study to monitor the impacts of the discharge of cooling water, the continuous basin's water and the wastewater treatment plant treated water on Conception Bay. The study design shall be submitted to the Department for review by **June 30, 2023**. The results of the completed study shall be submitted to the Department for review by **June 30, 2025**.

### Hazardous Waste Landfill Operations

62. HYDRO shall operate the hazardous waste landfill in the manner as described in the *Landfill Operations Manual*. Any revision or changes to the *Landfill Operations Manual* shall be submitted to the Department for review and approval prior to such revision or changes being made.
63. Only waste identified in the *Landfill Operations Manual* shall be placed in the hazardous waste landfill. These include: bottom and fly ash, periodic basin sludge, continuous basin sludge, wastewater treatment plant filter-cake, filter sand, raw-water treatment ion exchange resins, and clean-up from chemical spills.
64. Liquid waste shall not be disposed of in the hazardous waste landfill, unless otherwise authorized in writing by the Department.
65. The Department reserves the right to require some form of pre-treatment of waste before placement in the site.
66. HYDRO shall periodically review opportunities for reuse and/or recycling of the waste types disposed of in the landfill.
67. HYDRO shall maintain a landfill security fence with a sign affixed to the fence identifying the site as a hazardous waste containment system. This sign shall identify the owner of the landfill and a contact phone number. The sign and its placement shall be acceptable to the Department.
68. No activities shall occur within the fenced area of the landfill, except for the deposition of waste; extraction of leachate; or other maintenance requirements of

the landfill cap or the landfill.

- 69. HYDRO shall conduct an annual inspection program as per the *Landfill Operations Manual*.
- 70. Leachate accumulated in each of the hazardous waste landfill collection systems, including the leachate holding pond, shall be removed as required so that leachate does not overflow the collection system.
- 71. Any flow or drainage from the leachate holding pond shall be directed to the Periodic Basin. Leachate shall not be discharged directly to the environment without prior authorization by the Department.

### Hazardous Waste Landfill Monitoring

- 72. HYDRO shall perform an Environmental Monitoring Program as depicted in the *Landfill Operations Manual*, including monitoring of: groundwater quality and levels, surface water quality, leachate leakage, liner integrity and physical movement of the landfill.
- 73. HYDRO shall perform a Groundwater Monitoring Program as per Table 6. This monitoring program shall be performed throughout the operational life of the landfill, and during the twenty five (25) years following closure.

Table 6: Groundwater Monitoring Program			
Location	EDMS Location Code	Parameters	Frequency
<b>Monitoring Wells:</b>			
BH-1	00075	Aluminum Iron Magnesium Nickel Vanadium	Every Four Months
BH-2	00076		
BH-3	00077		
BH-4	00078		
BH-5	00079		
BH-6	00080		
BH-7	00081		
<b>Monitoring Wells:</b>			
BH-1	00075	Antimony Arsenic Barium	Annually
BH-2	00076	Beryllium Bismuth Cadmium	
BH-3	00077	Cobalt Calcium pH	
BH-4	00078	Chromium Copper Lead	
BH-5	00079	Manganese Mercury Molybdenum	
BH-6	00080	Phosphorus Potassium Selenium	
BH-7	00081	Silver Sodium Zinc VOC's TDS	

- 74. HYDRO shall perform a Surface Water Monitoring Program as per Table 7. This monitoring program shall be performed throughout the operational life of the landfill, and during the twenty five (25) years following closure.



<b>Table 7: Surface Water Monitoring Program</b>				
<b>Location</b>	<b>EDMS Location Code</b>	<b>Parameters</b>	<b>Frequency</b>	
Surface Well 1	00082	VOCs	Annually	
Surface Well 2	00083	Cadmium Iron Mercury Vanadium TDS	Monthly (provided water is flowing in the ditches during the month)	
Surface Well 3	00084			Chromium (total)
Surface Well 4	00085			Lead
Surface Well 5	00086			Nickel
Surface Well 6	00087			pH TSS

75. The total monthly flow:

- from the primary and secondary leachate collection systems;
- from the leachate holding pond to the Periodic Basin; and
- through the primary cell and holding pond leak detection manholes;

shall be accurately measured and recorded. This record and all results from the Groundwater and Surface Water Monitoring Programs shall be submitted to the Department as per the *Reporting* section.

76. HYDRO shall submit an Annual Landfill Operating Report to the Department by *February 28* of the subsequent year. This report shall include:

- results of the Environmental Monitoring Program; and
- summaries of all materials placed in the landfill site including:
  - waste characterization reports,
  - volumes of waste deposited in the landfill,
  - source(s) of the waste,
  - identification of contaminants of concern, and
  - copies of the hazardous waste manifest forms.

### Ambient Air

77. HYDRO shall operate an ambient air monitoring program as per the conditions in this Approval and its amendments. Approval shall be obtained from the Department prior to purchase or installation of any monitoring equipment.

78. Site locations and parameters to be monitored are outlined in Table 8.

Table 8: Ambient Air Monitoring Program		
Monitoring Sites	EDMS Location Code	Parameter
Butter Pot	00088	PM <sub>2.5</sub> , SO <sub>2</sub> , NO <sub>x</sub> , NO <sub>2</sub>
Green Acres	00089	TPM, PM <sub>2.5</sub> , SO <sub>2</sub> , NO <sub>x</sub> , NO <sub>2</sub>
Indian Pond	00090	TPM, PM <sub>2.5</sub> , SO <sub>2</sub> , NO <sub>x</sub> , NO <sub>2</sub>
Lawrence Pond	00091	TPM, PM <sub>2.5</sub> , SO <sub>2</sub> , NO <sub>x</sub> , NO <sub>2</sub>
Lower Indian Pond Drive	00092	TPM, PM <sub>2.5</sub> , SO <sub>2</sub> , NO <sub>x</sub> , NO <sub>2</sub>
Main Gate	00093	TPM, PM <sub>2.5</sub>

79. Ambient air monitoring shall be done in accordance with the *Ambient Air Monitoring Guidance Document (GD-PPD-065)*, or its successors.
80. Non-continuous TPM shall be determined by the United States EPA Test Method: "Reference Method for the Determination of Suspended Particulate Matter in the Atmosphere (High-Volume Method), or alternate method approved by the Department. The frequency of non-continuous TPM sampling shall coincide with the 6-day National Air Pollution Surveillance (NAPS) schedule. All results from the non-continuous TPM sampling shall be submitted to the Department as per the *Reporting* section.
81. HYDRO shall operate, calibrate and maintain a meteorological station at **Green Acres** site in accordance with the guidelines specified in the United States EPA document "Quality Assurance Handbook for Air Pollution Measurement Systems - Volume IV: Meteorological Measurements Version 2.0 (Final)," EPA- 454/B-08-002, or its successors. Parameters to be measured and recorded shall include as a minimum:
- wind speed,
  - wind direction,
  - ambient air temperature,
  - relative humidity,
  - barometric pressure, and
  - precipitation.

All records shall be made available to the Department upon request.

82. Information regarding calibrations, site visits and maintenance for all continuous ambient air monitors shall be recorded into the DR DAS electronic logbook. Specific information regarding non-continuous TPM monitors, including but not limited to slopes, intercepts, initial and final masses, times, flows, etc. shall be submitted electronically, as per the *Reporting* section.

### Continuous Emissions Monitoring System

83. Emissions from each boiler at the Thermal Generating Station shall be measured and recorded using an automated CEMS that meets the requirements of Environment Canada's *Protocols and Performance Specifications for Continuous Monitoring of Gaseous Emissions from Thermal Power Generation (EPS 1/PG/7)*, or its successor. Notwithstanding this, application of specific requirements of EPS

1/PG/7 to the CEMS may be modified subject to approval by the Department.

84. Monthly CEMS data reports containing one-hour arithmetic averages of emission rates of SO<sub>2</sub>, NO<sub>x</sub>, CO (all three expressed in ppmv), CO<sub>2</sub> and O<sub>2</sub> (both expressed in %) shall be submitted in digital format, as per the *Reporting* section.

### **Pollution Control Equipment**

85. All pollution control equipment shall be maintained and operated as per manufacturer's specifications for best performance.
86. HYDRO shall not operate the CT unless the NO<sub>x</sub> control system associated with the CT is in full operation.

### **Administrative boundary**

87. The ambient air quality standards specified in Schedule A of the *Air Pollution Control Regulations, 2022* shall apply to all points outside of HYDRO's Holyrood Thermal Generating Station administrative boundary. The administrative boundary is defined as the area encompassed by the coordinates contained in Appendix B, a total area of approximately 0.2687 km<sup>2</sup>. All coordinates are referenced to NAD83 UTM Zone 22.

### **Stack Emissions Testing and Dispersion Modelling**

88. Stack emissions testing shall be done in accordance with the *Stack Emission Testing Guidance Document (GD-PPD-016.1)*. Dispersion modelling shall be done in accordance with the *Plume Dispersion Modelling Guidance Document (GD-PPD-019.2)*. Determination of frequency of stack emissions testing and dispersion modelling shall be done in accordance with the *Compliance Determination Guidance Document (GD-PPD-009.4)*.
89. HYDRO shall be required to complete the next stack emissions testing once every four years if it has been shown, via a registered dispersion model, that the operation is in compliance with section 3(2) and Schedule A of the *Air Pollution Control Regulations, 2022*. If it has been shown, via a registered dispersion model, that the operation is not in compliance with section 3(2) and Schedule A of the *Air Pollution Control Regulations, 2022*, then the facility shall complete stack emissions testing every two years.
90. Stack emissions testing results shall be submitted to the Department within *75 days* of completion of the sampling.
91. Plume dispersion modelling results shall be submitted to the Department within *120 days* of approval of the stack emissions testing results by the Department.

### **Annual Air Emissions Reporting**

92. HYDRO shall submit an annual Air Emission Report to the Department by *June 1*

of the subsequent year. This report shall include:

- total fuel consumption;
- the weighted average sulfur content of the fuel;
- the fuel specific gravity;
- the estimated, or, if available, the monitored annual emissions of the following flue gas constituents: SO<sub>2</sub>, NO<sub>x</sub>, NO<sub>2</sub>, CO and particulate; and
- the actual calculations including factors, formulae and/or assumptions used.

### **Analysis and QA/QC**

93. Unless otherwise stated herein, all solids and liquids analysis performed pursuant to this Approval shall be done by either a contracted commercial laboratory or an in-house laboratory. Contracted commercial laboratories shall have a recognized form of accreditation. In-house laboratories have the option of either obtaining accreditation or submitting to an annual inspection by a representative of the Department, for which HYDRO shall be billed for each laboratory inspection in accordance with Schedule 1 of the *Accredited Laboratory Policy (PD:PP2001-01.02)*. Recommendations of the Department stemming from an annual inspection shall be addressed within 6 months, otherwise further analytical results shall not be accepted by the Department.
94. If HYDRO wishes to perform in-house laboratory testing and submit to an annual inspection by the Department then a recognized form of proficiency testing recognition shall be obtained for compliance parameters for which this recognition exists. The compliance parameters are listed in the *Effluent and Monitoring* section. If using a commercial laboratory, HYDRO shall contact that commercial laboratory to determine and to implement the sampling and transportation QA/QC requirements for those activities.
95. The exact location of each sampling point shall remain consistent over the life of the monitoring programs, unless otherwise approved by the Department.
96. HYDRO shall bear all expenses incurred in carrying out the environmental monitoring and analysis required under conditions of this Approval.

### **Monitoring Alteration**

97. The Department has the authority to alter monitoring programs or require additional testing at any time when:
- pollutants might be released to the surrounding environment without being detected;
  - an adverse environmental effect may occur; or
  - it is no longer necessary to maintain the current frequency of sampling and/or the monitoring of parameters.
98. HYDRO may, at any time, request that monitoring programs or requirements of this Approval be altered by:
- requesting the change in writing to the Department; and
  - providing sufficient justification, as determined by the Department.

The requirements of this Approval shall remain in effect until altered, in writing, by the Department.

### **Reporting**

99. Monthly reports containing the environmental compliance monitoring and sampling information required in this Approval shall be received by the Department in digital format within 30 calendar days of the reporting month. All related laboratory reports shall be submitted with the monthly report in Extensible Markup Language (XML) format and Adobe Portable Document Format (PDF). Digital report submissions shall be uploaded through the EDMS web portal. The Pollution Prevention Division shall provide details of the portal web address and submission requirements.
100. Each monthly report shall include a summary of all environmental monitoring components and shall include an explanation for the omission of any requisite data. The monthly summary reports shall be in Microsoft Word or Adobe PDF and shall be uploaded through the EDMS web portal with the data submissions
101. All incidents of:
- *Contingency Plan* implementation; or
  - non-conformance of any condition within this Approval; or
  - spillage or leakage of a regulated substance; or
  - effluent discharge criteria being, or suspected of being, exceeded; or
  - verbal/written complaints of an environmental nature from the public received by HYDRO related to the Thermal Generating Station, whether or not they are received anonymously;

shall be immediately reported, within one working day, to the Department.

A written comprehensive incident report, including a detailed description of the incident, a summary of contributing factors, and an Action Plan to prevent future incidents of a similar nature, shall be prepared. The report shall include a description of actions already taken and future actions to be implemented, and shall be submitted to the Department within thirty days of the date of the initial incident.

102. Any spillage or leakage of gasoline, associated product or used glycol shall be reported immediately through the Environmental Emergencies 24-hour report line at 1-800-563-9089.

### **Liaison Committee**

103. The Department recognizes the benefits, and at times the necessity, of accurate, unbiased communication between the public and industrial operations, which have an impact on the properties and residents in the area. The Department encourages the formation and regular meeting of a Liaison Committee comprised of representatives of HYDRO, the Department and independent members of the general population of Holyrood and Conception Bay South. Regular meetings of the Liaison Committee will provide a clear conduit of communication between concerned citizens and HYDRO.

## Expiration

104. This Certificate of Approval expires *June 30, 2027*.
105. Should HYDRO wish to continue to operate the Holyrood Thermal Generating Station beyond this expiry date, a written request shall be submitted to the Department for the renewal of this Approval. Such request shall be made prior to *January 1, 2027*.

## APPENDIX A

### **Industrial Site Decommissioning and Restoration Plan Guidelines**

As part of the Department of Environment and Climate Change's ongoing commitment to minimize the residual impact of industrial activities on the environment of the province, the Department requires that HYDRO shall develop a Decommissioning and Restoration Plan for the Thermal Generating Station at Holyrood, Newfoundland and its associated property. The guidelines listed below are intended to provide some general guidance as to the expectations of the Department with regard to the development of the Plan, and to identify areas that are of particular concern or interest. The points presented are for consideration, and are open to interpretation and discussion.

Decommissioning and Restoration Plans are intended to present the scope of activities that a company shall undertake at the time of final closure and/or decommissioning of the industrial properties. Where it is useful and practical to do so the company is encouraged to begin undertaking some of the activities outlined in the Plan prior to final closure and decommissioning. The objectives of the restoration work to be undertaken can be summarized as follows:

- to ensure that abandoned industrial facilities do not endanger public health or safety;
- to prevent progressive degradation and to enhance the natural recovery of areas affected by industrial activities;
- to ensure that industrial facilities and associated wastes are abandoned in a manner that will minimize the requirement for long term maintenance and monitoring;
- to mitigate, and if possible prevent, the continued loadings of contaminants and wastes to the environment. The primary objective shall be to prevent the release of contaminants into the environment. Where prevention is not practical due to technical or economic limitations then activities intended to mitigate the consequence of such a release of contaminants shall become the objective of restoration work;
- to return affected areas to a state compatible with the original undisturbed condition, giving due consideration to practical factors including economics, aesthetics, future productivity and future use; and
- to plan new facilities so as to facilitate eventual rehabilitation.

The Decommissioning and Restoration Plan should:

- identify areas of known historical or current contamination;
- identify past or existing operational procedures and waste management practices that have, or may have, resulted in site contamination;
- highlight the issues or components to be addressed;
- identify operational procedures and waste management practices that can prevent or reduce site contamination;
- consider future land use, regulatory concerns and public concerns;
- enable estimation of the resources and time frame required to decommission the facility and restore the site to a condition acceptable to the Department;
- enable financial planning to ensure the necessary funds for decommissioning and restoration are set aside during the operational life of the facility, and;
- include arrangements for appropriate project management to ensure successful completion of the decommissioning and restoration program.



**APPENDIX B**

**HYDRO Administrative Boundary Coordinates**

341903.0	5257750.4
341925.9	5257759.4
341972.8	5257727.0
341962.6	5257711.0
342036.6	5257660.9
342232.8	5257494.1
342162.6	5257271.8
342095.8	5257245.3
341947.8	5257207.3
341949.6	5257201.9
341957.0	5257196.4
341949.3	5257185.4
341926.5	5257202.1
341918.4	5257200.3
341700.2	5257177.4
341694.0	5257177.7
341659.1	5257166.3
341593.5	5257072.8
341563.4	5257088.4
341513.5	5257117.4
341528.6	5257149.4
341509.6	5257158.7
341544.1	5257250.4
341563.9	5257298.8
341571.2	5257314.4
341584.6	5257339.8
341612.8	5257383.6
341662.4	5257454.4
341685.8	5257484.8
341704.4	5257507.1
341748.2	5257599.8
341750.0	5257614.9
341756.9	5257644.8
341770.7	5257678.4
341789.5	5257710.2
341844.4	5257789.4
341903.0	5257750.4

Cc: Mr. Gary Kennell  
Environment and Climate Change Canada  
6 Bruce Street  
Mount Pearl, NL  
A1N 4T3

Mr. Wayne Lynch - Regional Director  
Digital Government and Service NL  
McCurdy Complex  
P. O. Box 2222  
Gander, NL  
A1V 2N9

Chief Administrative Officer  
Town of Holyrood  
P.O. Box 100  
Holyrood, NL  
A1B 4J6

Chief Administrative Officer  
Town of Conception Bay South  
P.O. Box 280  
CBS, NL  
A1W 1M8