

ENVIRONMENTAL COMPLIANCE APPROVAL

NUMBER 2947-B8PSJL

Issue Date: April 24, 2019

Great Lakes Power Limited
243 Industrial Park Crescent
Sault Ste. Marie, Ontario
P6B 5P3

Site Location: MacKay Hydroelectric Generating Station
Unorganized Township of Home, Algoma District

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:

establishment, usage, and operation of industrial sewage Works for the collection, transmission, treatment and disposal of wastewater from the existing MacKay Hydroelectric Generating Station (the Station), with a powerhouse equipped with three (3) turbines and three (3) generators, with each generating unit (No. 1 – No. 3) equipped with a hydraulic power unit, turbine and generator bearing lubricating oil systems (total oil capacities of approximately 1,800 L for each of generating units No. 1 and No. 2, and 1,670 L for generating unit No. 3), and a double-walled, once-through cooling water system for a total generating capacity of 14.2 MW (No. 1.), 14.2 MW (No. 2), and 33.6 MW (No. 3), located on the Montreal River, consisting of the following:

Proposed Works:**Powerhouse Drainage System****• Turbine Pits**

three (3) existing 3.0 m diameter, 1.2 m deep concrete turbine pits, located below the turbine floor, for the collection of water leakage from the turbine head covers (including any leakage from cooling water supplied to the shaft seals), lubricating oil leakage from turbine/ generator bearings, and hydraulic oil leakage from hydraulic power units, each to be equipped with a proposed submersible pump rated at 151.2 LPM at 3.0 m total dynamic head (TDH), electronic level transmitters connected to the common effluent PLC, discharging to the proposed oil-water separator, and an eductor for emergency discharge to the tailrace;

• Oil-Water Separator

one (1) above-ground, oil-water separator unit (MSR-36 or Equivalent) approximately 2.6 m × 1.0 m × 1.8 m deep, equipped with corrugated coalescing plates, an inlet baffle, an oil collection tank, an overflow baffle, a 25 mm diameter oil drain pipe, and three (3) liquid level float switches connected to the common

effluent PLC, rated at 454 LPM and having a total oil storage volume of approximately 437 L, discharging through a 100 mm diameter outlet pipe via a roof drain to the tailrace;

and other controls, piping, valves, drains, and appurtenances essential for the proper operation of the aforementioned sewage works;
all in accordance with supporting documents listed in **Schedule A** .

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

1. "Approval" means this entire document and any schedules attached to it, and the Application;
2. "District Manager" means the District Manager of the Sault Ste. Marie Area Office/ Sudbury District Office of the Ministry;
3. "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;
4. "EPA" means the Environmental Protection Act, R.S.O. 1990, c.E.19, as amended;
5. "Equivalent Equipment" means a substituted equipment or like-for-like equipment that meets the required quality and performance standards of a named equipment;
6. "mg/L" means milligrams per Litre;
7. "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;
8. "Owner" means Great Lakes Power Limited and its successors and assignees;
9. "OWRA" means the Ontario Water Resources Act, R.S.O. 1990, c. O.40, as amended;
10. "Professional Engineer" means a person entitled to practice as a Professional Engineer in the Province of Ontario under a licence issued under the Professional Engineers Act;
11. "Quarterly" means four times over a year, relatively evenly spaced where possible, commencing with the start-up of the Works;

12. "µg/L" means micrograms per litre; and,

13. "Works" means the sewage works described in the Owner's Application, both proposed and existing, as described in this Approval.

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

2. 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.

3. Except as otherwise provided by these terms and conditions, the Owner shall design, build, install, operate and maintain the Works in accordance with this Approval.

4. Where there is a conflict between a provision of this environmental compliance approval and any document submitted by the Owner, the conditions in this environmental compliance approval shall take precedence. Where there is a conflict between one or more of the documents submitted by the Owner, the Application shall take precedence unless it is clear that the purpose of the document was to amend the Application.

5. Where there is a conflict between the documents listed in the Schedule A, and the application, the application shall take precedence unless it is clear that the purpose of the document was to amend the Application.

6. The terms and conditions of this Approval are severable. If any term and condition of this environmental compliance approval, or the application of any requirement of this environmental compliance approval to any circumstance, is held invalid or unenforceable, the application of such condition to other circumstances and the remainder of this Approval shall not be affected thereby.

7. 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 sewage 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.

8. EXPIRY OF APPROVAL

9. This Approval will cease to apply to those parts of the Works which have not been constructed within five (5) years of the date of this Approval.

10.

CHANGE OF OWNER

11. The Owner shall notify the District Manager and the Director, in writing, of any of the following changes within thirty (30) days of the change occurring:

- a. change of Owner or operating authority, or both;
- b. change of address of Owner or operating authority or address of new Owner or operating authority;
- c. change of partners where the Owner or operating authority is or at any time becomes a partnership, and a copy of the most recent declaration filed under the *Business Names Act, R.S.O. 1990, c. B.17*; and
- d. change of name of the corporation where the Owner or operator is or at any time becomes a corporation, and a copy of the "Initial Return" or "Notice of Change" filed under the *Corporations Information Act, R.S.O. 1990, c. C.39*, shall be included in the notification to the District Manager.

12. In the event of any change in ownership of the Works, the Owner shall notify in writing the succeeding owner of the existence of this Approval, and a copy of such notice shall be forwarded to the District Manager.

13. The Owner shall ensure that all communications made pursuant to this condition will refer to this Approval's number.

14. CONSTRUCTION

15. The Owner shall ensure that the design and construction of the Works is supervised by a Professional Engineer.

16. Upon construction of the Works, the Owner shall prepare a statement, certified by a

Professional Engineer, that the Works are constructed in accordance with this Approval, and upon request, shall make the written statement available for inspection by Ministry staff.

17.

OPERATION AND MAINTENANCE

18. 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. The Owner shall check the Works on a monthly basis, as a minimum, and keep a record of the inspections in a log-book at the Station. Upon the request of the Owner, the District Manager may reduce the frequency of inspection, in writing.

19. The Owner shall check the turbine pits and the oil-water separator on a monthly basis, as a minimum, for signs of oil loss and shall keep a record of the inspections and findings.

20. The Owner shall carry out on a regular basis specific maintenance requirements and scheduling to ensure proper operation of the Works.

21. The Owner shall use best efforts to immediately identify and clean up all losses of oil.

22. The Owner shall, upon identification of a loss of oil, take immediate action to prevent the further occurrence of such loss.

23. 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, clean-up and disposal of oil and materials contaminated with oil are kept on hand and in good repair for immediate use in the event of:

- a. loss of oil from the powerhouse equipment and from the sewage works in the powerhouse;
- b. a spill within the meaning of Part X of the *Environmental Protection Act*; or,
- c. the identification of an abnormal amount of oil in the turbine pits or the oil-water separator.

24. OIL SPILL COUNTERMEASURES

25. The Owner shall install, operate and maintain, as a minimum, the following process

instruments with level alarms and interlocks with accompanying 24/7 on-call operator response, for the equipment described below:

- a. an oil level sensor in each of the lubricating oil tanks serving the three (3) turbines and the three (3) generators, set to provide:
 - i. a low oil level alarm signal to a 24/7 on-call operator;
 - ii. an automatic stoppage of both turbines and their associated systems; and,
 - iii. an automatic interlock of the Turbine Pit pumps.
- b. an oil level sensor in each of the hydraulic oil tanks serving the turbines, set to provide:
 - i. a low oil level alarm signal to a 24/7 on-call operator; and,
 - ii. an automatic stoppage of the affected turbine and its associated systems.

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26. OPERATIONS MANUAL

27. In furtherance of, but without limiting the generality of the obligation imposed by Condition 5, the Owner shall update/ prepare an operations manual within 6 months of the issuance of this approval.

28. The Owner shall ensure that the manual 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 the frequency of repair and maintenance, for the works, and
- d. a spill prevention, control and countermeasures plan including a procedure for District Manager notification

29. The Owner shall ensure that the station operators are familiar with the operations manual.

30. The Owner shall maintain the operations manual current and keep a copy 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.

31.

EFFLUENT OBJECTIVES

32. The Owner shall use best efforts to design, construct and operate the Works in accordance with the objectives listed in Table 1 and Table 2 of Schedule B.

33. In the event of an exceedance of any of the objectives as set out in Subsection 1, the Owner shall:

- a. notify the District Manager as soon as possible during normal working hours;
- b. take immediate action to identify the source of the exceedance;
- c. take immediate action to prevent further exceedance; and
- d. record the date of each exceedance and its cause in a log book, located at the Station or at the local operations office of the Owner.

34. EFFLUENT - VISUAL OBSERVATIONS

35. Notwithstanding any other Condition in this Approval, the Owner shall ensure, by periodic visual inspection and recording in a log-book, 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.

36. SAMPLES AND MEASUREMENTS

37. The Owner shall ensure that all 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 the effluent stream, over the time period being monitored.

38. MONITORING AND RECORDING

39. The Owner shall establish and carry out, upon commencement of operation of the works the following monitoring program unless otherwise required in writing by this Approval or by the District Manager:

- a. The oil-water separator effluent shall be sampled in accordance with the monitoring frequency, sample location(s), and sample type(s) specified in Table 3 of Schedule B and analyzed for the parameter(s) named; and,
- b. The cooling water shall be sampled in accordance with the monitoring frequency, sample location(s), and sample type(s) specified in Table 4 of Schedule B and

analyzed for the parameter(s) named.

40. In the event of a spill or an exceedance of the objective(s) as set out in Subsection 1 of Condition, the Owner shall increase the frequency of sampling of the effluent from the Works to once every month until it is demonstrated to the District Manager that the effluent complies with the objective(s).

41. 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 2016, as amended from time to time by more recently published editions, and
- b. the publication "Standard Methods for the Examination of Water and Wastewater", 21st edition, 2005, as amended from time to time by more recently published editions.

42. The Owner shall retain for a minimum of five (5) years from the date of their creation, all records and information related to, or resulting from, the monitoring, inspection, testing and maintenance activities required by this Approval, including a record of all alarm-initiated operator trips to the Station.

43.

REPORTING

44. One (1) week prior to the start up of the operation of the Works, the Owner shall notify the District Manager (in writing) of the pending start up date.

45. The Owner shall prepare, and upon request, submit to the District Manager, a performance report, on an annual basis, within ninety (90) days following the end of the period being reported upon. The first such report shall cover the first annual period following the issuance of this Approval and subsequent reports shall be submitted to cover successive annual periods following thereafter. The reports shall contain, but shall not be limited to, the following information:

- a. a summary and comprehensive interpretation of all monitoring data and analytical data collected relative to the Works during the reporting period, including an overview of the success and adequacy of the Works;
- b. a description of any operating problems encountered and corrective actions taken;
- c. a summary of all maintenance carried out on any major structure, equipment,

- apparatus, mechanism or thing forming part of the Works;
- d. a summary of any effluent quality assurance or control measures undertaken in the reporting period;
 - e. a summary of the efforts made and results achieved in comparison to the effluent quality objectives in accordance with Condition 8;
 - f. an evaluation of the calibration and maintenance procedures conducted on all monitoring equipment; and,
 - g. any other information the District Manager requires from time to time.

46. In addition to the obligations under Part X of the EPA, the Owner shall, within ten (10) working days of the occurrence of any reportable spill as defined in *Ontario Regulation 675/98*, loss of any product, by-product, intermediate product, oil, solvent, waste material or any other polluting substance into the environment, or discovery thereof, 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, preventative measures to be taken and schedule of implementation. The District Manager may by written notice waive the requirement of a written report, on a case-by-case basis, when the respective oral report is made.

47. The Owner shall immediately notify the Ministry's Spills Action Centre of any Works failure or potential Works failure, including any spills.

48. The Owner shall, upon request, make all manuals, plans, records, data, procedures and supporting documentation available to Ministry staff.

49. Reporting in accordance with subsections 3 or 4 does not relieve the Owner of any other regulatory or statutory obligations, including its reporting obligations pursuant to Part X of the EPA, nor does it relieve the Owner of any other obligations imposed by this Approval.

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

1. Condition 1 is imposed to ensure that the works are built and operated in the manner in which they were described for review 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.

2. Condition 2 is included to ensure that, when the Works are constructed, the Works will meet the standards that apply at the time of construction to ensure the ongoing protection of the environment.

3. Condition 3 is included to ensure that the Ministry records are kept accurate and current with respect to approved works and to ensure that subsequent owners of the Works are made aware of the Approval and continue to operate the Works in compliance with it.
4. Condition 4 is included to ensure that the Works are constructed, and may be operated and maintained such that the environment is protected and deterioration, loss, injury or damage to any person or property is prevented.
5. Condition 5 is included to ensure that the Works will be operated and maintained in a manner enabling compliance with the terms and conditions of this Approval, such that the environment is protected and deterioration, loss, injury or damage to any person or property is minimized and/or prevented.
6. Condition 6 is included to ensure that a minimum level of spill protection is provided in the station, so that any oil leaks and spills are not discharged to the receiving watercourse.
7. Condition 7 is included to ensure that an operations manual governing all significant areas of operation, maintenance and repair is prepared, implemented and kept current by the Owner and made available to the Ministry upon request. Such a manual is an integral part of the operation of the works. Its compilation and use should assist the Owner in staff training and in identifying and planning for contingencies during possible abnormal conditions. The manual will also act as a bench-mark for Ministry staff when reviewing the Owner's operation of the works.
8. Condition 8 is imposed to establish effluent quality objectives which the owner is obligated to use best efforts to meet on an ongoing basis. Also imposed are procedures to be followed to minimize environmental impact in the event that the objectives are exceeded.
9. Condition 9 is imposed to ensure that the effluents discharged from the works meets the Ministry's effluent quality requirements, as specified, on a continuous basis, thus minimizing environmental impact on the receiver.
10. Conditions 10 and 11 are related to sampling, monitoring and record keeping. They have been imposed to require the Owner to demonstrate that the performance of the works is at a level consistent with the design and effluent objectives specified in the Approval, that the works are not causing any impairment of the receiving watercourse and that required operational information is available for review.
11. Condition 12 is included to provide a performance record for future references, to

ensure that the Ministry is made aware of problems as they arise, and to provide a compliance record for all the terms and conditions outlined in this Approval, so that the Ministry can work with the Owner in resolving any problems in a timely manner.

Schedule A

1. Environmental Compliance Approval Application for Industrial Sewage Works , submitted by Ryan Wilson, P. Eng., Kresin Engineering Corporation and signed by Andrew Punkari, Senior Technical Manager, Brookfield Renewable, dated May 14, 2018 and all supporting documentation and information.

Schedule B

Effluent Objective Tables

Table 1 – Effluent Objectives: Oil-Water Separator	
Parameter	Objective (maximum unless otherwise indicated)
Oil and Grease	15.0 mg/L
Phenolics (4AAP)	20.0 µg/L
Table 2 – Effluent Objectives: Cooling Water System	
Parameter	Objective (maximum unless otherwise indicated)
Oil and Grease	15.0 mg/L
Phenolics (4AAP)	20.0 µg/L
Temperature (out)	33 °C
Temperature Differential*	10 °C
*Difference between Temperature (in) and Temperature (out).	

Monitoring Tables

Table 3 – Effluent Monitoring: Oil-Water Separator (Sampling Location: Oil-Water Separator Outlet)		
Parameter	Sample Type	Minimum Frequency
Oil and Grease	Grab	Quarterly
Phenolics (4AAP)	Grab	Quarterly
Table 4 – Cooling Water Monitoring: Cooling Water System (Sampling Location: between outlet from heat exchanger and discharge point to receiver unless otherwise indicated)		
Parameter	Sample Type	Minimum Frequency
Oil and Grease	Grab	Quarterly
Phenolics (4AAP)	Grab	Quarterly
Temperature (in)*	Probe/ Analyzer	Quarterly

Temperature (out)	Probe/ Analyzer	Quarterly
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*Temperature (in) to be measured between cooling water system intake and the heat exchanger.

In accordance with Section 139 of the Environmental Protection Act, you may by written Notice served upon me, the Environmental Review Tribunal and in accordance with Section 47 of the Environmental Bill of Rights, 1993, S.O. 1993, c. 28 (Environmental Bill of Rights), the Environmental Commissioner, within 15 days after receipt of this Notice, require a hearing by the Tribunal. The Environmental Commissioner will place notice of your appeal on the Environmental Registry. Section 142 of the Environmental Protection Act provides that the Notice requiring the hearing shall state:

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

The Notice should also include:

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

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

This Notice must be served upon:

The Secretary* Environmental Review Tribunal 655 Bay Street, Suite 1500 Toronto, Ontario M5G 1E5	AND	The Environmental Commissioner 1075 Bay Street, Suite 605 Toronto, Ontario M5S 2B1	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
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*** Further information on the Environmental Review Tribunal's requirements for an appeal can be obtained directly from the Tribunal at: Tel: (416) 212-6349, Fax: (416) 326-5370 or www.ert.gov.on.ca**

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

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

DATED AT TORONTO this 24th day of April,
2019

Youssef Kalogo, P.Eng.
Director
appointed for the purposes of Part
II.1 of the *Environmental Protection
Act*

JW/

c: Area Manager, MECP Sault Ste. Marie Area Office

c: District Manager, MECP Sudbury District Office

Ryan Wilson, Kresin Engineering Corporation