

AMENDED ENVIRONMENTAL COMPLIANCE APPROVAL

NUMBER 5284-DE9RW3

Issue Date: June 23, 2025

Orion Eco Solutions Inc.
4 Cardico Dr
Gormley, Ontario
L0H 1G0

Site Location: Orion Eco Solution Inc.
94 Vibert Rd
Oliver Paipoonge Municipality, District of Thunder Bay

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:

A facility that converts woodchips into diesel oil, consisting of the following processes and support units:

- one (1) woodchips dryer with a maximum throughput of 13,300 kilograms per hour equipped with a emission control unit consisting of two cyclones in parallel and a wet scrubber, discharging to the air at a maximum volumetric flow rate of 4.32 cubic metres per second, at a temperature of 25 degrees Celsius, through a stack (A-001/A) having an exit diameter of 0.55 metre, extending 14.02 metres above grade;
- one (1) shredding line with a maximum throughput of 17,500 kilograms of woodchips per hour equipped with an emission control unit consisting of two cyclones in parallel and a wet scrubber, discharging to the air at a maximum volumetric flow rate of 6.39 cubic metres per second, at a temperature of 25 degrees Celsius, through a stack (A-001/B) having an exit diameter of 0.65 metre, extending 14.02 metres above grade;
- two (2) natural gas fired boilers, each having a maximum heat input rating of 1,370,000 kilojoules per hour, discharging to the air at a volumetric flow rate of 0.22 cubic metre per second through a single stack (A-005) having an exit diameter of 0.15 metre in diameter, extending 5.49 metres above the roof and 15.85 metres above grade;

- two (2) natural gas fired thermal oxidizers, controlling emissions from the conversion process, each with a maximum thermal input of 10.8 million kilojoules per hour, each equipped with a selective non-catalytic reduction system for nitrogen oxide control. Exhaust from each unit passes through a heat recovery system followed by a dry scrubbing system consisting of a venturi scrubber, a neutralizing agent and a fabric filter before discharging to the air at a volumetric flow rate of 3.39 cubic metres per second through individual stacks (A-002/A and A-002/B) each having an exit diameter of 0.48 metre, extending 15.85 metres above grade;
- one (1) activated carbon adsorption unit, for relief of overpressure inside the conversion process, exhausting to the exhaust of thermal oxidizer D-003/B upstream of the dry scrubbing system;

A biomass gasification and power generation system consisting of the following process and support units:

- one (1) biomass gasifier for the production of syngas;
- one (1) syngas conditioning system including a ceramic filter, an acid wash scrubber and an alkaline wash scrubber;
- one (1) natural gas fired catalytic oxidizer, with a maximum thermal input of 180,000 kilojoules per hour, and one (1) activated carbon adsorption unit, for the treatment of exhaust gases from the gasifier during start up and shut down; and
- two (2) syngas fired generators, each having a rating of 600 kilowatts, equipped with an emission control system consisting of a syngas fired catalytic oxidizer with selective catalytic reduction, followed by a cyclone and an electrostatic filter, exhausting into the atmosphere at a maximum volumetric flow rate of 1.76 cubic metres per second, through a single stack with an exit diameter of 0.4 metre and extending 14 metres above grade.

all in accordance with the Environmental Compliance Approval Application submitted by Orion Eco Solutions Inc., dated November 14, 2022 and signed by Eugene Garritano, Owner and all supporting information associated with the application including the Emission Summary and Dispersion Modelling Report provided by GHD Limited, dated April 22, 2024 and signed by Matthew Griffin, additional information provided by Matthew Griffin by email dated September 30, 2024, additional information provided in an email from Ugo Carnevale on January 9, 2025 and , the Acoustic Assessment Report, prepared by GHD, dated November 15, 2022 and signed by Michael Masschaele.

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

1. "Approval" means this Environmental Compliance Approval, including the application and supporting documentation listed above;
2. "Catalytic Oxidizers" means the natural gas-fired catalytic oxidizers, serving the biomass gasification and power generation system, described in the Company's application, this Approval and in the supporting documentation submitted with the application, to the extent approved by this Approval.

3. "Company" means Orion Eco Solution Inc. operating as Orion Eco Solution Inc. that is responsible for the construction or operation of the Facility and includes any successors and assigns in accordance with section 19 of the EPA;
4. "Date of Commissioning" means the first day on which the Power Generators are used to generate electrical energy;
5. "Director" means a person appointed for the purpose of section 20.3 of the EPA by the Minister pursuant to section 5 of the EPA;
6. "District Manager" means the District Manager of the appropriate local district office of the Ministry, where the Facility is geographically located;
7. "EPA" means the Environmental Protection Act, R.S.O. 1990, c.E.19;
8. "Equipment" means the equipment described in the Company's application, this Approval and in the supporting documentation submitted with the application, to the extent approved by this Approval;
9. "Facility" means the entire operation located on the property where the Equipment is located;
10. "Manager" means the Manager, Technology Standards Section, Technical Assessment and Standards Development Branch, or any other person who represents and carries out the duties of the Manager, Technology Standards Section, Technical Assessment and Standards Development Branch, as those duties relate to the conditions of this Approval;
11. "Manual" means a document or a set of documents that provide written instructions to staff of the Company;
12. "Ministry" means the ministry of the government of Ontario responsible for the EPA and includes all officials, employees or other persons acting on its behalf;
13. "O. Reg. 419/05" means Ontario Regulation 419/05, Air Pollution – Local Air Quality, as amended;
14. "Organic Matter" means organic matter having carbon content expressed as equivalent methane;
15. "Power Generators" means the syngas fired power generators, described in the Company's application, this Approval and in the supporting documentation submitted with the application, to the extent approved by this Approval;
16. "Pre-Test Plan" means a plan for the Source Testing including the information required in Section 1.1 of the Source Testing Code;

17. "Publication NPC-300" means the Ministry Publication NPC-300, "Environmental Noise Guideline, Stationary and Transportation Sources – Approval and Planning, Publication NPC-300", August 2013, as amended;
18. "Source Testing" means sampling and testing to measure emissions resulting from operating the equipment under conditions which yield the worst case emissions, as practically possible, within the approved operating range of the equipment and satisfies paragraph 1 of subsection 11(1) of O. Reg. 419/05, as determined in consultation with the Manager;
19. "Source Testing Code" means the Source Testing Code, dated June 2010, prepared by the Ministry, as amended;
20. "Test Contaminants" means the contaminants listed in Schedule C;
21. "Thermal Oxidizers" means the natural gas-fired thermal oxidizers, exhausting through stacks A-002/A and A-002/B described in the Company's application, this Approval and in the supporting documentation submitted with the application, to the extent approved by 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. PERFORMANCE REQUIREMENTS

1. The Company shall operate each of the Thermal Oxidizers in such a manner that:
 - a. The combustion chamber shall be preheated to a minimum of 960 degrees Celsius prior to introducing the emissions for destruction.
 - b. The temperature in the combustion chamber, is maintained at a minimum of 960 degrees Celsius at all times, when the Thermal Oxidizer is in operation.
 - c. The residence time of the combustion gases in the combustion chamber of the Thermal Oxidizer shall not be less than 3.0 seconds at a temperature of 960 degrees Celsius minimum.
 - d. The concentration of Organic Matter in the flue gas of the Thermal Oxidizer, being an average of ten measurements taken at approximately one minute intervals, shall not be greater than 100 parts per million by volume, measured on an undiluted basis.
2. The Company shall operate each of the Catalytic Oxidizers in such a manner that:

- a. The combustion chamber shall be preheated to a minimum of 960 degrees Celsius prior to introducing the emissions for destruction.
 - b. The temperature in the combustion chamber, is maintained at a minimum of 960 degrees Celsius at all times, when the Catalytic Oxidizer is in operation.
 - c. The residence time of the combustion gases in the combustion chamber of the Catalytic Oxidizer shall not be less than 3 second at a temperature of 960 degrees Celsius minimum.
 - d. The concentration of Organic Matter in the flue gas of the Catalytic Oxidizer, being an average of ten measurements taken at approximately one minute intervals, shall not be greater than 100 parts per million by volume, measured on an undiluted basis.
3. The Company shall ensure that the Power Generators are designed and operated to comply, at all times during normal operating conditions, except during start-up and shutdown, with the following performance requirements:
 - a. The emissions emitted from the exhaust stack of each Power Generator are not greater than the applicable limit specified in Schedule A.

2. OPERATION AND MAINTENANCE

1. The Company shall ensure that the Equipment is properly operated and maintained at all times. The Company shall:
 - a. prepare, before commencement of operation of the Equipment, and update, as necessary, a Manual outlining the operating procedures and a maintenance program for the Equipment, including:
 - i. routine operating and maintenance procedures in accordance with good engineering practices and as recommended by the Equipment suppliers;
 - ii. emergency procedures, including spill clean-up procedures;
 - iii. procedures for any record keeping activities relating to operation and maintenance of the Equipment;
 - iv. all appropriate measures to minimize noise and odorous emissions from all potential sources; and
 - v. the frequency of inspection and replacement of the filter material in the Equipment;
 - vi. the frequency of inspection and replacement of the activated carbon in the Activated Carbon Adsorption Unit;

- b. implement the recommendations of the Manual.
- 2. The Company shall ensure that the activated carbon in the Activated Carbon Adsorption Unit is replaced before it is Exhausted.

3. CONTINUOUS MONITORING

- 1. The Company shall install, conduct and maintain a program to continuously monitor temperature in the combustion chamber of each Thermal Oxidizer and Catalytic Oxidizer. The continuous monitoring systems shall be equipped with continuous recording devices and shall comply with the requirements outlined in the attached Schedule B.

4. SOURCE TESTING

- 1. The Company shall perform Source Testing, in accordance with the procedures outlined in Schedule D to determine the rate of emission of the Test Contaminants from one of the Thermal Oxidizers, within twelve (12) months from the date of this approval.
- 2. The Company shall perform Source Testing, in accordance with the procedures outlined in Schedule D to determine the rate of emission of the Test Contaminants from the Power Generators, within six (6) months from the Date of Commissioning. The Source Testing at the Power Generators shall be repeated every two (2) calendar years thereafter.

5. RECORD RETENTION

- 1. The Company shall retain, for a minimum of two (2) years from the date of their creation, all records and information related to or resulting from the recording activities required by this Approval, and make these records available for review by staff of the Ministry upon request. The Company shall retain:
 - a. all records on the maintenance, repair and inspection of the Equipment; and
 - b. all records of any environmental complaints, including:
 - i. a description, time and date of each incident to which the complaint relates;
 - ii. wind direction at the time of the incident to which the complaint relates; and
 - iii. a description of the measures taken to address the cause of the incident to which the complaint relates and to prevent a similar occurrence in the future.

6. NOTIFICATION OF COMPLAINTS

1. The Company shall notify the District Manager, in writing, of each environmental complaint within two (2) business days of the complaint. The notification shall include:
 - a. a description of the nature of the complaint; and
 - b. the time and date of the incident to which the complaint relates.

7. NOISE

1. The Company shall, at all times, ensure that the noise emissions from the Facility comply with the limits set out in Ministry Publication NPC-300.

8. CHANGE OF OWNERSHIP

1. The Company shall notify the Director in writing, and forward a copy of the notification to the District Manager, within thirty (30) days of the occurrence of any of the following changes to Facility operations:
 - a. the ownership of the Facility;
 - b. the operator of the Facility;
 - c. the address of the Company;
 - d. the partners, where the Company is or 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, shall be included in the notification; or
 - e. the name of the corporation where the Company is or at any time becomes a corporation, other than a municipal corporation, and a copy of the most current information filed under the Corporations Information Act, R.S.O. 1990, c. C.39, shall be included in the notification.
2. In the event of any change in ownership of the Facility, the Company shall notify the successor of the existence of this Approval and provide the successor with a copy of this Approval, and the Company shall provide a copy of the notification to the District Manager and the Director.

SCHEDULE A

Emission Limits

Equipment	Parameter	Limit
Power Generators	Carbon monoxide	3.5 kilograms per Megawatt-hour
	Total Suspended Particulate Matter	0.02 kilograms per Megawatt-hour
	Total hydrocarbons excluding methane	0.19 kilograms per Megawatt-hour
	Nitrogen Oxides	0.4 kilograms per Megawatt-hour

(1) "Nitrogen oxides" means oxides of nitrogen, including nitric oxide (NO) and nitrogen dioxide (NO₂).

SCHEDULE B

Continuous Temperature Monitoring and Recording System Requirements

PARAMETER: Temperature

LOCATION:

The sample point for the continuous temperature monitoring and recording system shall be located at a location where the measurements are representative of the minimum temperature of the gases leaving the combustion chamber of the Thermal and Catalytic Oxidizers.

PERFORMANCE:

The continuous temperature monitoring and recording system shall meet the following minimum performance specifications for the following parameters:

Type: shielded "K" type thermocouple, or equivalent

Accuracy: ± 1.5 percent of the minimum gas temperature

DATA RECORDER:

The data recorder must be capable of registering continuously the measurement of the monitoring system without a significant loss of accuracy and with a time resolution of one (1) minute or better.

RELIABILITY:

The monitoring system shall be operated and maintained so that accurate data is obtained during a minimum of 95 percent of the time for each calendar quarter.

SCHEDULE C

Test Contaminants

1. Total Suspended Particulate Matter
2. Nitrogen Oxides reported as nitrogen dioxide as per O. Reg. 419/05
3. Total hydrocarbons excluding methane
4. Carbon monoxide
5. Sulphur Dioxide

SCHEDULE D

Source Testing Procedures

1. The Company shall submit, at least sixty (60) days prior to the scheduled date of the Source Testing to the Manager a Pre-Test Plan for the Source Testing required under this Approval. The Company shall finalize the Pre-Test Plan in consultation with the Manager.
2. The Company shall not commence the Source Testing required under this Approval until the Manager has approved the Pre-Test Plan.
3. The Company shall complete the Source Testing not later than three months (3) after the commencement of operation of the Thermal Oxidizers or the Power Generators, as applicable, or three (3) months after the Manager has approved the Pre-Test Plan, whichever occurs later. The Source Testing at the Power Generators shall be repeated every two (2) calendar years thereafter.
4. The Company shall notify the Manager, the District Manager and the Director in writing of the location, date and time of any impending Source Testing required by this Approval, at least fifteen (15) days prior to the Source Testing.
5. The Company shall submit a report (electronic format) on the Source Testing to the Manager, the District Manager and the Director not later than three (3) months after completing the Source Testing. The report shall be in the format described in the Source Testing Code, and shall also include, but not be limited to:
 - a. an executive summary;
 - b. an identification of the applicable North American Industry Classification System code (NAICS) for the Facility;

- c. records of operating conditions at the time of Source Testing, including but not limited to the following:
 - a. production data and equipment operating rate as a percentage of maximum capacity;
 - b. Facility/process information related to the operation of the Thermal Oxidizer and Power Generators;
 - 4. results of Source Testing, including the emission rate, emission concentration, and relevant emission factor of the subject test contaminants from the targeted sources;
 - 5. a tabular comparison of calculated emission rates and emission factors based on Source Testing results for the subject test contaminants to relevant estimates described in the ESDM Report; and
 - 6. a tabular comparison of calculated emission rates and emission factors based on Source Testing results for the subject test contaminants to relevant emission limits specified in Schedule A.
6. The Director may not accept the results of the Source Testing if:
- a. the Source Testing Code or the requirements of the Manager were not followed;
 - b. the Company did not notify the Manager, the District Manager and Director of the Source Testing; or
 - c. the Company failed to provide a complete report on the Source Testing.
7. If the Director does not accept the results of the Source Testing, the Director may require re-testing. If re-testing is required, the Pre-Test Plan strategies need to be revised and submitted to the Manager for approval. The actions taken to minimize the possibility of the Source Testing results not being accepted by the Director must be noted in the revision.
8. If the Source Testing results are higher than the emission estimates in the Company's ESDM Report, the Company shall update their ESDM Report in accordance with Section 26 of O. Reg. 419/05 with the results from the Source Testing report and make these records available for review by staff of the Ministry upon request.
9. The District Manager may not require subsequent Source Testing for the Power Generators or relax the frequency of subsequent Source Testing if the results of the Source Testing indicate that the environmental impact from emissions are insignificant.

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

- 1. Condition No. 1 is included to provide minimum performance requirements considered necessary to prevent an adverse effect resulting from the operation of the Equipment.

2. Condition No. 2 is included to emphasize that the Equipment must be maintained and operated according to a procedure that will result in compliance with the EPA, the Regulations and this Approval.
3. Conditions No. 3 and 4 are included to require the Company to gather accurate information so that compliance with the operating requirements of this Approval can be verified.
4. Condition No. 5 is included to require the Company to keep records and to provide information to staff of the Ministry so that compliance with the EPA, the Regulations and this Approval can be verified.
5. Condition No. 6 is included to require the Company to notify staff of the Ministry so as to assist the Ministry with the review of the site's compliance.
6. Condition No. 7 is included to provide the minimum performance requirements considered necessary to prevent an adverse effect resulting from the operation of the Facility.
7. Condition No. 8 is included to require the Company to notify/report to the Ministry so that compliance with the EPA, the regulations and this Approval can be verified.

**Upon issuance of the environmental compliance approval, I hereby revoke Approval No(s).
5263-BRWP8N issued on August 6, 2020**

In accordance with Section 139 of the *Environmental Protection Act*, you may by written notice served upon me, the Ontario Land Tribunal and in accordance with Section 47 of the *Environmental Bill of Rights*, 1993, the Minister of the Environment, Conservation and Parks, within 15 days after receipt of this notice, require a hearing by the Tribunal. The Minister of the Environment, Conservation and Parks will place notice of your appeal on the Environmental Registry. Section 142 of the *Environmental Protection Act* provides that the notice requiring the hearing ("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 Minister of the Environment,
Conservation and Parks
777 Bay Street, 5th Floor
Toronto, Ontario
M7A 2J3

and

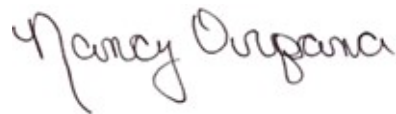
The Director appointed for the purposes of
Part II.1 of the *Environmental Protection Act*
Ministry of the Environment,
Conservation and Parks
135 St. Clair Avenue West, 1st Floor
Toronto, Ontario
M4V 1P5

*** Further information on the 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**

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

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

DATED AT TORONTO this 23rd day of June, 2025



Nancy E Orpana, P.Eng.
Director
appointed for the purposes of Part II.1 of the
Environmental Protection Act

SM/

c: District Manager, MECP Thunder Bay - District
Matthew Griffin, GHD