

AMENDED ENVIRONMENTAL COMPLIANCE APPROVAL

NUMBER 9120-BYYTZQ

Issue Date: April 9, 2021

Covanta Environmental Solutions Ontario, Inc.
260 Shoemaker Street
Kitchener, Ontario
N2E 3E1

Site Location: 244 & 260 Shoemaker Street
Kitchener City, Regional Municipality of Waterloo
N2E 3E1

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:

Building 1 - 260 Shoemaker Street

- One (1) packed tower type scrubber to control emissions from the solvent-repackaging fume hood, having a diameter of 0.75 metre and a height of 2.92 metres, using the 5-centimetre saddles as packing materials with a packing height of 1.85 metres with a liquid flow rate of 70 litres per minute, equipped with a mist eliminator, discharging into the air at a volumetric flow rate of 0.71 cubic metre per second through a stack, having an exit diameter of 0.2 metre, extending 2.92 metres above roof and 8.92 metres above grade;
- One (1) packed tower type scrubber to control fugitive emissions of total reduced sulphur compounds from the plant processes, having a diameter of 0.75 metre and a height of 2.92 metres, using the 5-centimetre saddles as packing materials with a packing height of 1.85 metres with a liquid flow rate of 70 litres per minute, equipped with a mist eliminator, discharging into the air at a volumetric flow rate of 0.71 cubic metre per second through a stack, having an exit diameter of 0.2 metre, extending 2.92 metres above roof and 8.92 metres above grade;
- one (1) laboratory fume hood serving a water analysis room with a maximum capacity of 480 litres per year, having a total surface of 0.90 square metre, complete with duct and fan, discharging into the air at a maximum volumetric flow rate of 0.14 actual cubic metre per second through a stack having an exit diameter of 0.30 metre, extending 0.5 metre above roof and 6.6 metres above grade;

- one (1) laboratory fume hood serving a gas chromatograph mass spectrometer, complete with duct and fan, discharging into the air at a maximum volumetric flow rate of 0.04 actual cubic metre per second, through a side-wall vent having an exit diameter of 0.1 metre, at 2.1 metres above grade;
- one (1) laboratory fume hood serving an inductively coupled plasma mass spectrometer, complete with duct and fan, discharging into the air at a maximum volumetric flow rate of 0.04 actual cubic metre per second, through a side-wall vent having an exit diameter of 0.1 metre, at 2.1 metres above grade;
- one (1) laboratory fume hood serving a sample prep apparatus, complete with duct and fan, discharging into the air at a maximum volumetric flow rate of 0.06 actual cubic metre per second, through a side-wall vent having an exit diameter of 0.1 metre, at 2.1 metres above grade;
- one (1) control system for reduced sulphur compounds emissions from the tank and equipment vapour collection system of the oil recovery plant, part of a waste processing and transfer site for waste emulsions and oily waters, consisting of:
 - one (1) air stripper, to reduce the release of liquid phase organics from the effluent treatment tanks, consisting of a series of perforated overflow boxes stacked vertically with at a maximum rate of 30 litres per minute. The air stripper vents to a scrubber, as described below;
 - one (1) impingement type scrubber, having a volumetric capacity of 0.44 normal cubic metre per second, a diameter of 0.30 metre, an overall height of 3.60 metres, a packing height of 2.80 metres, consisting of Tellerettes having a diameter of 2.54 centimetres, using water at a maximum rate of 1 litre per minute to humidify and cool the air stream from the above noted equipment. The scrubber vents through a fan to a biofilter, as described below;
 - one (1) biofilter, in series with the above noted scrubber, consisting of a 25,000 litres stainless steel tank retrofitted with a stainless steel support floor. The tank has a diameter of 2.7 metres and a height of 4.2 metres and is equipped with a bottom inlet distribution manifold and two layers of biofilter media, each having a height of 1.4 metres, and the media consisting of a coated low density aggregate blend of asymmetrical spherical solids ranging from 1 millimeter to 30 millimeters in diameter, with an empty bed residence time of 76 seconds. The discharge of the biofilter is mixed with the discharge of a vapour collection system of 1.05 cubic metres per second, as described below, such that the exhaust into the atmosphere has a total volumetric flow rate of 1.26 cubic metres per second, through a stack, having an exit diameter of 0.25 metre, extending 7.9 metres above roof and 14 metres above grade;
 - one (1) vapour collection system, mixed with the discharge of the biofilter for a total volumetric flow rate of 1.26 cubic meters per second. The vapour collection system common header is ducted to fume hoods located above the hazardous waste mixing bin and the non-hazardous waste solidification pit, and the articulating vent used for solvent re-packaging in the drum storage area.

- one (1) natural gas fired steam boiler, having maximum heat input of 8,440,000 kilojoules per hour, discharging into the air through a stack having an exit diameter of 0.25 metre, extending 1.68 metres above roof and 7.8 metres above grade;

Building 2 - 244 Shoemaker Street

- one (1) dust collector serving three shredders, discharging into the air at a maximum volumetric flow rate of 1.79 cubic metres per second through a stack having an equivalent diameter of 0.39 metre, and 4.6 metres above grade;
- two (2) non-hazardous waste solidification pits in a room discharging air through two wall exhaust fans with a volumetric flow rate of 1.77 cubic metres per second each, having an exit diameter of 0.46 metre and 7.5 metres above grade.

all in accordance with the Application for Approval (Air) submitted by Covanta Environmental Solutions Ontario Inc., dated April 2, 2020, and signed by Edward Vago, Direction of Operations; and the supporting information, including the Emission Summary and Dispersion Modelling Report, submitted by Adomait Environmental Solutions, dated April 3, 2020, and signed by Andrew Lane-Smith, updated Emission Summary and Dispersion Modelling Report, submitted by Adomait Environmental Solutions, dated February 26, 2021, and signed by Andrew Lane-Smith, and e-mails submitted by Adomait Environmental Solutions, dated February 8, February 11, March 4, March 11, March 19, and March 31, 2021, and provided by Andrew Lane-Smith.

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

1. "AERMOD" means the dispersion model developed by the American Meteorological Society/U.S. Environmental Protection Agency Regulatory Model Improvement Committee (AERMIC) including the PRIME (Plume Rise Model Enhancement) algorithm;
2. "Approval" means this Environmental Compliance Approval, including the application and supporting documentation listed above;
3. "Company" means Covanta Environmental Solutions Ontario, 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. "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;
5. "District Manager" means the District Manager of the appropriate local district office of the Ministry, where the Facility is geographically located;
6. "EPA" means the *Environmental Protection Act*, R.S.O. 1990, c.E.19;

7. "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;
8. "ESDM Report" means the Emission Summary and Dispersion Modelling Report which was prepared in accordance with section 26 of O. Reg. 419/05 and the Procedure Document by Andrew Lane-Smith, P.Eng., Adomait Environmental Solutions Inc. and dated February 26, 2021 submitted in support of the application, and includes any changes to the report made up to the date of issuance of 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 the Ontario Regulation 419/05, Air Pollution – Local Air Quality;
14. "Point of Impingement" has the same meaning as in section 2 of O. Reg. 419/05;
15. "Pre-Test Plan" means a plan for the Source Testing including the information required in Section 5 of the Source Testing Code;
16. "Procedure Document" means Ministry guidance document titled "Procedure for Preparing an Emission Summary and Dispersion Modelling Report" dated March 2018, as amended;
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. "Sensitive Receptor" means any location where routine or normal activities occurring at reasonably expected times would experience adverse effect(s) from odour discharges from the Facility, including one or a combination of:
 - a. private residences or public facilities where people sleep (e.g.; single and multi-unit dwellings, nursing homes, hospitals, trailer parks, camping grounds, etc.),

- b. institutional facilities (e.g; schools, churches, community centres, day care centres, recreational centres, etc.),
 - c. outdoor public recreational areas (e.g.; trailer parks, play grounds, picnic areas, etc.), and
 - d. commercial areas where there are continuous public activities (e.g.; commercial plazas and office buildings);
19. "Source Testing" means site-specific sampling and testing to measure odour emission resulting from operating the biofilter under operating conditions that will derive an emission rate that, for the relevant averaging period of the contaminant, is at least as high as the maximum emission rate that the source of contaminant is reasonably capable of, or a rate approved by the Manager within the approved operating range of the biofilter which satisfies paragraph 1 of subsection 11(1) of O. Reg. 419/05; and
20. "Source Testing Code" means the Ontario Source Testing Code, dated June 2010, prepared by the Ministry, as amended.

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. OPERATION AND MAINTENANCE

1. The Company shall ensure that the Equipment is properly operated and maintained at all times. The Company shall:
- a. prepare, not later than three (3) months after the date of this Approval, 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;
- b. implement the recommendations of the Manual.

2. MONITORING

1. The Company shall monitor and record the physical parameters of the biofilter as outlined in Schedule A.

3. SOURCE TESTING

1. The Company shall perform Source Testing in accordance with the procedures in Schedule B to determine the rates of emissions of odour at the biofilter stack, downstream of the exhaust fan.

4. 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.

5. 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.

6. 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.

SCHEDULE A

Biofilter Parameters, to be monitored and recorded

The Company shall monitor and record the operating parameters of the biofilter, through a combination of sensors, meters, physical probes or equivalent means, as recommended by the supplier of the biofilter. In the development of the monitoring program for the biofilter, the following physical parameters shall be monitored either at a minimum frequency of once per month, or as specified in the manual of the biofilter manufacturer:

1. pressure drop across the biofilter bed (kilopascals);
2. temperature of the filter beds media (degrees Celcius);
3. temperature of the air stream (degrees Celcius);
4. relative humidity of the air streams (percent);
5. moisture content of the filter beds media (percent);
6. pH of the filter beds media;
7. total microbial counts of the media;
8. exhaust flow rate of the biofilter (cubic metres per second).

SCHEDULE B

Source Testing Procedures

1. The Company shall submit, not later than three (3) months after the date of this Approval, 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 (3) months after the Manager has approved the Pre-Test Plan, or within a period agreed to or directed by the Manager.
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:
 1. an executive summary;
 2. an identification of the applicable North American Industry Classification System code (NAICS) for the Facility;
 - c. records of weather conditions such as ambient temperature and relative humidity, wind speed and direction, and any environmental complaints if received, at the time of the Source Testing;
4. 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 biofilter;
 - c. description of the emission sources controlled by the biofilter at the time of testing;
5. results of Source Testing, including the emission rate, emission concentration, and relevant emission factor of odour from the biofilter;
6. a tabular comparison of calculated emission rates and emission factors based on Source Testing results for odour to relevant estimates described in the ESDM Report, and

7. the results of dispersion calculations, taking into account all odour sources at the Facility, using the average of the results of the Source Testing, to indicate the maximum 10-minute concentration of odour at the Point of Impingement and the most impacted Sensitive Receptor computed in accordance with Schedule C.
6. The Director may not accept the results of the Source Testing if:
 1. the Source Testing Code or the requirement of the Manager were not followed;
 2. the Company did not notify the Manager, the District Manager and Director of the Source Testing; or
 3. the Company failed to provide a complete report on the Source Testing.
7. If the Director does not accept the result 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. The Company shall update their ESDM Report in accordance with Section 26 of O. Reg. 419/05 and the Procedure Document with the results from the Source Testing if any of the calculated emission factors or calculated emission rates are higher than the predicted rates in the ESDM Report, not later than three (3) months after the submission of the Source Testing report and make these records available for review by staff of the Ministry upon request.

SCHEDULE C

Procedure to calculate and record the 10-minute average concentration of odour at the Point of Impingement and at the most impacted Sensitive Receptor

1. Calculate and record one-hour average concentration of odour at the Point of Impingement and at the most impacted Sensitive Receptor, employing the AERMOD atmospheric dispersion model or any other model acceptable to the Director, that employs at least five (5) years of hourly local meteorological data and that can provide results reported as individual one-hour average odour concentrations;
2. Convert and record each of the one-hour average concentrations predicted over the five (5) years of hourly local meteorological data at the Point of Impingement and at the most impacted Sensitive Receptor to 10-minute average concentrations using the One-hour Average to 10-Minute Average Conversion described below;
3. Record and present the 10-Minute Average concentrations predicted to occur over a five (5) year period at the Point of Impingement and at the most impacted Sensitive Receptor in a histogram. The histogram shall identify all predicted 10-minute average odour concentration occurrences in terms of frequency, identifying the number of occurrences over the entire range of predicted odour concentration in increments of not more than 1/10 of one odour unit. The maximum 10-minute average concentration of odour at the Sensitive Receptor will be considered to be the maximum odour concentration at the most impacted Sensitive Receptor that occurs and is represented in the histogram, disregarding outlying data points on the histogram as agreed to by the Director;
4. Use the following formula to convert and record one-hour average concentrations at the Point of Impingement and at the most impacted Sensitive Receptor to 10-minute average concentrations:

$$X_{10min} = X_{60min} * 1.65$$

where X_{10min} = 10-minute average concentration
 X_{60min} = one-hour average concentration

(Equation: X Subscript 10min Baseline equals X Subscript 60min Baseline times 1.65, where X Subscript 10min Baseline equals 10-minute average concentration and X Subscript 60min Baseline equals one-hour average concentration.)

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

1. Condition No. 1 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.

2. Conditions No. 2 and 3 are included to require the Company to gather accurate information so that the environmental impact and subsequent compliance with the EPA, the regulations and this Approval can be verified.
3. Condition No. 4 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.
4. Condition No. 5 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.
5. Condition No. 6 is included to provide the minimum performance requirements considered necessary to prevent an adverse effect resulting from the operation of the Facility.

Upon issuance of the environmental compliance approval, I hereby revoke Approval No(s). 8459-9YMP6S issued on December 7, 2015.

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

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

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

The Notice should also include:

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

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

This Notice must be served upon:

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

AND

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

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

M5G 1E5

M7A 2J3

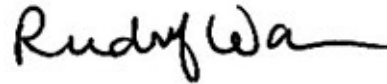
Toronto, Ontario
M4V 1P5

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

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

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

DATED AT TORONTO this 9th day of April, 2021



Rudolf Wan, P.Eng.

Director

appointed for the purposes of Part II.1 of the
Environmental Protection Act

ML/

c: District Manager, MECP Guelph District Office
Andrew Lane-Smith, Adomain Environmental Solutions Inc.