

**AMENDED ENVIRONMENTAL COMPLIANCE APPROVAL**

NUMBER 2200-B8ULUU

Issue Date: February 8, 2019

Waste Management of Canada Corporation  
2301 Carp Rd  
Ottawa, Ontario  
K0A 1L0

Site Location: West Carleton Environmental Centre  
2301 Carp Road  
Part of Lots 2-5, Concessions 2 and 3  
Ottawa City  
K0A 1L0

*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 landfill site and a waste transfer/processing facility, consisting of the following processes and support units:

- one (1) existing capped landfill mound, identified as Source LM\_EX;
- one (1) proposed landfill mound, used for the landfilling of solid waste materials, identified as Source LM\_PP; including the Active Stage (Source ACTSTG) and Working Face (WRKFCE) of the proposed landfill mound;
- five (5) 1,600 kilowatts landfill gas-fired reciprocating engine-generator sets for a total power rating of 8.0 megawatts and a maximum landfill gas (LFG) firing rate of 0.28 cubic metres per second, discharging into the air through five (5) stacks, identified as Sources E1, E2, E3, E4 and E5, as outline in Schedule "A";
- one (1) enclosed flare system, used to incinerate the landfill gases from a landfill gas collection system at a maximum volumetric gas flow rate of 0.57 standard cubic metre per second. The landfill flare has a maximum heat input of 41.7 gigajoules per hour, discharging into the air through a stack, identified as Source F1, as outlined in Schedule "A";

- one (1) enclosed flare system, used to incinerate the landfill gases from an expanded landfill gas collection system at a maximum volumetric gas flow rate of 1.04 standard cubic metre per second. The landfill flare has a maximum heat input of 70.7 gigajoules per hour, discharging into the air through a stack, identified as Source F2, as outlined in Schedule "A";
- one (1) open candlestick flare system, used as a contingent back-up to incinerate the landfill gases from a landfill gas collection system at a maximum volumetric gas flow rate of 1.0 standard cubic metre per second, discharging into the air through a stack, identified as Source F3, as outlined in Schedule "A";
- one (1) Leachate Pre-treatment System, having a maximum treatment capacity of 205 cubic metres of raw leachate per day, for treatment of raw leachate generated in the lined portion of the landfill, consisting of the following equipment and supporting accessories:
  - one (1) outdoor, above-ground, covered and insulated Raw Leachate Equalization Tank, having a maximum storage capacity of 568 cubic metres, discharging to an activated carbon adsorption system common with the Treated Leachate Equalization Tank described below;
  - two (2) raw leachate transfer pumps, one (1) on duty and one (1) on standby, each having a transfer capacity of 28.4 litres per second, to transfer the raw leachate in the Raw Leachate Equalization Tank to the SBR described below;
  - one (1) outdoor, above-ground, covered and insulated Sequencing Batch Reactor (SBR), having a capacity of 1,325 cubic metres, to treat the raw leachate biologically and aerobically by aerobic micro-organisms in the reactor. The SBR operates on a 5-phase cycle, 24 hours per cycle basis: Fill, React, Settle, Decant and De-sludge. Aeration to the content in the SBR during the React phase is provided by two (2) aeration blowers, one (1) on duty and one (1) on stand-by, each blower having a maximum aeration rate of 0.6 cubic metre per second. The content of the SBR is mixed by two (2) SBR mixing pumps, one (1) on duty and one (1) on standby, each having a capacity of 251 litres per second at a TDH of 8 metres. After the Settle phase, the treated leachate is decanted to the Treated Leachate Equalization Tank during the Decant phase and a portion of the sludge, if required, is pumped by one (1) waste activated sludge pump having a capacity of 50.5 litres per second at a TDH of 6.4 m to the Sludge Storage Tank during the De-sludge phase. The content of the SBR is heated in winter periods in a boiler/heat exchanger/recirculation pump combination to maintain at a minimum 32 degrees Celsius. The exhausts of the SBR are piped to an activated carbon adsorption system common with the Sludge Storage Tank described below;
  - one (1) outdoor, above-ground, covered Treated Leachate Equalization Tank, having a storage capacity of 568 cubic metres, for temporary storage of the treated leachate decanted from the SBR. The treated leachate is periodically pumped to the sanitary sewers for disposal. The Treated Leachate Equalization Tank exhausts to the activated carbon adsorption system common with the Raw Leachate Equalization Tank;

- o one (1) outdoor, above-ground, covered Sludge Storage Tank, having a storage capacity of 568 cubic metres, for storage of the waste sludge de-sludged from the SBR. The content in the Sludge Storage Tank is aerated by two (2) aeration blowers, one (1) on duty and one (1) on stand-by, each blower having an aeration rate of 0.26 cubic metre per second. The Sludge Storage Tank exhausts to the activated carbon adsorption system common with the SBR;
- o one (1) activated carbon adsorption system, used for the treatment of passive exhausts from the Raw Leachate Equalization Tank and Treated Leachate Equalization Tank, consisting of about 80 kilograms of coal-based activated carbon impregnated with 5% potassium hydroxide contained in a steel vessel, exhausting into the atmosphere through a stack, having an exit diameter of 0.05 metre, extending 1.5 metres above grade;
- o one (1) activated carbon adsorption system, used for the treatment of exhausts from the SBR and the Sludge Storage Tank, consisting of about 668 kilograms of coal-based activated carbon impregnated with 5% potassium hydroxide and 500 kilograms of alumina-based activated carbon impregnated with 8% potassium permanganate contained in a fiber reinforced plastic vessel complete with a mist/grease eliminator at the outlet, exhausting into the atmosphere at a maximum total volumetric flow rate of 0.87 cubic metre per second, through a stack, having an exit diameter of 0.36 metre, extending 3 metres above grade;
- o one (1) landfill gas-fired boiler, having a maximum heat input capacity of 2,111,000 kilojoules per hour, in combination with a heat exchanger and a recirculation pump having a capacity of 22 litres per second at a TDH of 9.4 metres, to provide heating to the content of the SBR in winter periods to maintain a minimum 32 degrees Celsius, exhausting into the atmosphere through a stack, having an exit diameter of 0.35 metre, extending 0.6 metre above the roof and 5.4 metres above grade;
- o one (1) standby diesel generator set, having a prime rating of 320 kilowatts, to provide power for the Leachate Pre-treatment System during emergency situations, discharging into the air through a stack, identified as LEACHGEN, as outlined in Schedule "A";
- o supporting accessories as follows:
  - o one (1) submersible well pump having a capacity of 2.4 litres per second at a TDH of 22 metres complete with level transmitter in the North leachate well,
  - o replacement of existing South leachate well pump (P-030) with one (1) submersible well pump having a capacity of 2.4 litres per second at a TDH of 22 metres complete with level transmitter,
  - o two (2) effluent pumps, one (1) on duty and one (1) on standby, each having a capacity of 2.4 litres per second at a TDH of 10 metres pumping the treated leachate from the Treated Leachate Equalization Tank to a final polyethylene effluent tank in the GDT Building before its discharge to the sanitary sewer,

- o one (1) sampling pump for raw equalization pump, one (1) sampling pump for the Treated Leachate Equalization Tank and one (1) sampling pump for the SBR, each feeding online monitoring instruments and each having a capacity of 1.4 litres per second at a TDH of 9 metres,
- o chemical feed system for the SBR, including one (1) duty and one (1) standby alum metering pumps each having a capacity of 6 litres per hour, one (1) defoamer metering pump having a capacity of 132 litres per hour, one (1) sodium hydroxide metering pump having a capacity of 6 litres per hour, each of the chemical feed pumps has a weight scale and indicator under the chemical storage drums,
- o instrumentation equipment, HVAC equipment and various piping and valves, and
- o one (1) 22 metres by 17 metres pre-fabricated steel building housing pumps, blowers, boiler, chemical feed system and miscellaneous instruments;
- one (1) contaminated soil processing area, to treat petroleum hydrocarbon impacted soil received at the site, consisting of:
  - o one (1) contaminated soil stockpile (Source ID: CONTSOIL);
  - o one (1) trommel screen, powered by one (1) diesel-fired engine rated at 130 kilowatts (Source ID: TR\_ENG), used to process contaminated soil (Source ID: TROMMEL);
  - o two (2) clean soil stockpiles (Source ID's: SOIL1, SOIL2);
- one (1) exhaust, to serve the gas stripper in the Blower Building used to remove methane and non-methane organic compounds from the wastewater before its discharge to sanitary sewer, discharging into the atmosphere at a volumetric flow rate of 0.42 cubic metre per second, through a stack, having an exit diameter of 0.1 metre, extending 1.2 metres above grade;
- one (1) impact crusher, processing aggregate at a maximum rate of 200 tonnes per hour, equipped with a diesel fired engine rated 224 kilowatts, discharging products of combustion into the air through a stack, identified as CR-ENG, as outlined in Schedule "A";
- fugitive emissions resulting from the crushing activities;
- fugitive emissions resulting from the loading, unloading and bulldozing activities at the contaminated soil processing area, the overburden stockpile, the construction working face, the landfill working face;

all in accordance with the Application for Approval (Air & Noise) submitted by Waste Management of Canada Corporation, dated April 6, 2018 and signed by Reid Cleland, Area Director of Disposal Operations, and all supporting information, including the Emission Summary and Dispersion Modelling Report, submitted by RWDI Air Inc., dated May 1, 2018 and signed by Brad Bergeron, additional information provided by RWDI AIR Inc. dated January 3, 2019 and signed by Brad Bergeron, and the Acoustic Assessment Report dated April 28, 2018, prepared by Brad Bergeron of RWDI AIR Inc.

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

1. "*Approval* " means this Environmental Compliance Approval and any Schedules to it, including the application and supporting documentation listed above;
2. "*CEM System* " means the continuous monitoring and recording system, one for each of the flare system, used to optimize the operation of the flare systems, as described in this *Approval* , including Schedule "B", to the extent approved by this *Approval* ;
3. "*Company* " means Waste Management of Canada Corporation, that is responsible for the construction or operation of the *Facility* and includes any successors and assigns;
4. "*Director* " means any *Ministry* employee appointed by the Minister pursuant to Section 5 of the *EPA* ;
5. "*District Manager* " means the District Manager, Ottawa District Office, Eastern Region of the Ministry;
6. "*EPA* " means the Environmental Protection Act, R.S.O. 1990, c.E.19, as amended;
7. "*Equipment* " means the equipment and processes 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. "*Exhausted* " means the capacity of the activated carbon to absorb or adsorb contaminant emissions is reached and the activated carbon system is no longer able to effectively reduce emissions;
9. "*Facility* " means the entire operation located on the property where the Equipment is located;
10. "*Manual* " means a document or a set of documents that provide written instructions to staff of the Company;
11. "*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;
12. "*Noise Guidelines for Landfill Sites* " means *Ministry* draft publication Noise Guidelines for Landfill Sites, October 1998, as amended;



13. "*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.

*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

1. The *Company* shall operate the two (2) enclosed flare systems in such a manner that a minimum temperature, as recorded by the *CEM System*, shall be 900 degrees Celsius at a point representing a minimum retention time of 0.75 second, at all times when the landfill gas incineration is in progress.

### 2. OPERATION AND MAINTENANCE

1. The *Company* shall ensure that the *Equipment, and CEM System* are 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, CEM System*. The *Manual* shall include, as a minimum, the following:
    - i. routine operating and maintenance procedures in accordance with good engineering practices and as recommended by the *Equipment* and the *CEM System* suppliers;
    - ii. emergency procedures and procedures to prevent upset conditions;
    - iii. procedures to devise and adjust, as necessary, the five (5) phases of the SBR operation cycle, for example the operational times of the phases, procedures and frequency of monitoring to confirm that the design basis of the SBR is met, procedures to determine the frequency of de-sludging from the SBR, etc.
    - iv. procedures to monitor the performance of the activated carbon in the activated carbon adsorption systems associated with the Leachate Pre-treatment System and the criteria of the replacement of the activated carbon;
    - v. procedures to monitor and record the quantity and quality of the landfill gas fed to the boiler, when it is in operation;
    - vi. criteria when the open candlestick flare shall be operated;

- vii. procedures to record the dates and times when the open candlestick flare is operated, and the quantity of landfill gas combusted when the open candlestick flare is operated, together with the operational status and details of other landfill gas combustion devices in the site at those times when the open candlestick flare is operated;
  - viii. the calibration procedures of the *CEM System*;
  - ix. procedures to determine, monitor and record the operation of the landfill gas-to-energy facility, for example the volumetric flow rate of landfill gas to the engine-generator sets when they are in operation, the electricity produced by the engine-generator sets, and the temperature and volumetric flow rate of the exhaust from the engine-generator sets;
  - x. the operator(s) and the training required and provided by an individual experienced with the *Equipment*;
  - xi. procedures for any record keeping activities relating to operation and maintenance of the *Equipment*;
  - xii. all appropriate measures to minimize noise, dust, and odorous emissions from all potential sources; and
  - xiii. procedures for recording and responding to complaints regarding the operation of the *Equipment*;
- b. implement the procedures of the *Manual*.
2. The *Company* shall not permit the activated carbon in either of the two (2) activated carbon adsorption systems associated with the Leachate Pre-treatment System to be *Exhausted* at any time during the operation of the *Equipment*.

### 3. MONITORING

1. The *Company* shall develop a monitoring program that monitors the parameters outlined in clauses (a) to (g) below to indicate whether discharges from the landfill gas engines and the soil bioremediation process facility are such that the cumulative impact of all discharges from the landfill are within acceptable limits, consistent with the requirements of Ontario Regulation 419/05.
  - a. The *Company* shall continuously monitor temperatures from each of the engine exhausts.
  - b. The *Company* shall continuously monitor the total amount of landfill gas flowing to the engines.

- c. The *Company* shall continuously monitor the methane content of the landfill gas going to the engines.
- d. The *Company* shall continuously monitor the volumetric exhaust rate from each engine.
- e. The *Company* shall maintain a log of all data generated by the monitoring program and provide the data to a *Ministry* provincial officer upon request.
- f. In the event that results obtained from the monitoring program indicate that operational parameters from the engines regularly exceed normal conditions, suggesting that landfill site emissions may exceed the regulatory POI limits prescribed by Ontario Regulation 419/05, the *Company* shall immediately retain qualified consultants to carry out an assessment of the engine emissions and carry out ambient air testing if necessary. If it is confirmed that an exceedance of the regulatory POI limits prescribed by Ontario Regulation 419/05 has probably occurred, the *Company* shall notify the *Director*.

#### 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 the *CEM System*;
  - b. all records on the inspection, maintenance and monitoring activities of the *Equipment*;
  - c. all records on operator(s) training;
  - d. all records produced by the *CEM System*;
  - e. all records on the operation of the landfill gas-to-energy facility, including the volumetric flow rate of landfill gas to the engine-generator sets when they are in operation, the schedule on start-up and shut-down of each engine-generator set, the electricity produced by the engine-generator sets, and the temperature and volumetric flow rate of the exhaust from the engine-generator sets; and,
  - f. 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, received by the *Company* through the *Company's* published phone number or email address established for the *Facility*, within two (2) business days of the complaint. The notification shall include:
  - a. this *Approval* number;
  - b. a description of the nature of the complaint;
  - c. the time and date of the incident to which the complaint relates; and,
  - d. a description of the measures taken to address the cause of the incident to which the complaint relates to and to prevent a similar occurrence in the future.

## 6. REPORTING

1. The *Company* shall prepare and submit to the *District Manager* a report, either quarterly or at a frequency directed by the *District Manager*, within thirty (30) working days after the end of that reporting period, on the operation of the *Facility* and the environmental complaints received by the *Company* in that reporting period. The report shall include, as a minimum, the following:
  - a. an executive summary,
  - b. a summary of the environmental complaints received by the *Company* or referred to the *Company* by the *Ministry* within the period and details of each of these complaints,
  - c. a summary of the monitoring data collected as required by Condition 3 above and an analysis of any trends demonstrated by the data; and
  - d. copy of the records retained under Condition 4 above.

## 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*.
2. The *Company* shall ensure that the noise emissions from the landfill site operations at the *Facility* comply with the limits set in *Noise Guidelines for Landfill Sites*.

## SCHEDULE "A"

Source ID	Description	Exhaust Conditions		Stack Parameters		
		Volumetric Flow Rate (cubic metre per second)	Temperature (degrees Celsius)	Exit Diameter (metre)	Height Above Roof (metre)	Height Above Grade (metre)
E1	LFG Engine #1	6.48	445	0.4	5.5	13.4
E2	LFG Engine #2	6.48	445	0.4	5.5	13.4
E3	LFG Engine #3	6.48	445	0.4	5.5	13.4
E4	LFG Engine #4	6.48	445	0.4	5.5	13.4
E5	LFG Engine #5	6.48	445	0.4	5.5	13.4
F1	LFG Flare #1	31.3	871	2.1	-	12.2
F2	LFG Flare #2	57.3	900	2.7	-	12.2
F3	Candlestick LFG Flare	1.0	900	0.2	-	10.4
RAWLEACH	Raw Leachate Equalization Tank	0.0001	25	0.2	0.6	6.6
SBR	Sequencing Batch Reactor Tank	0.0001	32	0.2	0.6	6.6
EFFLUENT	Effluent Equalization Tank	0.0001	25	0.2	0.6	6.6
SLUDGE	Sludge Tank	0.0001	25	0.2	0.6	6.6
LEACHGEN	Emergency Diesel-Fired Generator for SBR	1.23	432	0.2	0.1	3.1
CR-ENG	Impact Crusher Diesel Engine	0.555	600	0.12	-	2.0
TR-ENG	Trommel Engine	1.25	349	0.2	-	2.0

## SCHEDULE "B"

**PARAMETER:** Temperature

**LOCATION:**

The sample point for the Continuous Temperature Monitor shall be located in the combustion chamber where the minimum retention time of the combustion gases at a minimum temperature of 900 degrees Celsius for at least 0.75 second is achieved.

**PERFORMANCE:**

The Continuous Temperature Monitor shall meet the following minimum performance specifications for the following parameters.

PARAMETER	SPECIFICATION
1. Type:	shielded "K" type thermocouple or equivalent
2. Accuracy:	$\pm 1.5$ percent of the minimum gas temperature

**RECORDER:**

The recorder must be capable of registering continuously the measurement of the monitor without a significant loss of accuracy and with a time resolution of 5 minutes or better.

**RELIABILITY:**

The monitor shall be operated and maintained so that accurate data is obtained during a minimum of 90 percent of the time, on a monthly basis, when the enclosed flare systems are in operation.

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

1. Condition No. 1 is included to provide the minimum performance requirements considered necessary to prevent an adverse effect resulting from the operation of the *Facility*.
2. Conditions No. 2 to 3, inclusive, are 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. 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 require the *Company* to prepare and submit records to provide information to the *Ministry* so that the environmental impact and subsequent compliance with the *EPA*, the Regulations and this *Approval* can be verified.
6. Condition No. 7 is included to provide the minimum performance requirement 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).  
0980-A4BMZY issued on July 18, 2016**

*In accordance with Section 139 of the Environmental Protection Act, you may by written Notice served upon me and the Environmental Review Tribunal within 15 days after receipt of this Notice, require a hearing by the Tribunal. Section 142 of the Environmental Protection Act provides that the Notice requiring the hearing 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  
M5G 1E5

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 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](http://www.ert.gov.on.ca)**

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

**DATED AT TORONTO this 8th day of February, 2019**



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Jeffrey McKerrall, P.Eng.

Director

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

AB/

c: District Manager, MECP Ottawa  
Brad Bergeron, RWDI Air Inc.