

Facility ID: 0812710566 Issuance type: Final State Permit To Operate

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In addition to the terms and conditions, hyperlinks have been inserted into the document so you may more readily access the section of the document you wish to review.

Finally, the term language under "Part II" and before "A. Applicable Emissions Limitations..." has been added to aid in document conversion, and was not part of the original issued permit.

\*\*\*THIS IS NOT AN OFFICIAL VERSION OF THE PERMIT. SEE PAGE 1 FOR ADDITIONAL INFORMATION\*\*\*

Facility ID: 0812710566 Emissions Unit ID: F001 Issuance type: Final State Permit To Operate

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**Part II - Special Terms and Conditions**

This permit document constitutes a permit-to-install issued in accordance with ORC 3704.03(F) and a permit-to-operate issued in accordance with ORC 3704.03(G).

1. For the purpose of a permit-to-install document, the emissions unit terms and conditions identified below are federally enforceable with the exception of those listed below which are enforceable under state law only.
  - (a) None.
2. For the purpose of a permit-to-operate document, the emissions unit terms and conditions identified below are enforceable under state law only with the exception of those listed below which are federally enforceable.
  - (a) None.

**A. Applicable Emissions Limitations and/or Control Requirements**

1. The specific operation(s), property, and/or equipment which constitute this emissions unit are listed in the following table along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures. Emissions from this unit shall not exceed the listed limitations, and the listed control measures shall be employed. Additional applicable emissions limitations and/or control measures (if any) may be specified in narrative form following the table.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
F001 - Landfill Gas Active Collection System and Enclosed Flare	OAC rule 3745-31-05(A)(3) PTI 08-04217	0.09 lb/hr and 0.16 TPY nonmethane organic compounds (NMOC);  0.17 lb/hr and 0.30 TPY sulfur dioxide (SO <sub>2</sub> );  1.8 lbs/hr and 3.21 TPY nitrogen oxides (NO <sub>x</sub> );  0.765 lb/hr and 3.35 TPY particulate emissions (PE);  33.75 lbs/hr carbon monoxide (CO) and 60.24 TPY CO; and,  See Sections A.2.c, B.2., B.3., B.4., C.2., C.3., C.4., and C.7.
	OAC rule 3745-35-07(B)	60.24 TPY CO, as a rolling, 365-day, summation  0.16 TPY NMOC, as a rolling, 365-day, summation  0.30 TPY SO <sub>2</sub> , as a rolling, 365-day, summation  3.21 TPY NO <sub>x</sub> , as a rolling, 365-day, summation  60.24 TPY CO, as a rolling, 365-day, summation
	OAC Chapter 3745-76	See Section A.2.b.

**2. Additional Terms and Conditions**

- (a) The 0.09 lb NMOC/hr; 0.17 lb SO<sub>2</sub>/hr, 1.8 lbs NO<sub>x</sub>/hr, 0.765 lb PE/hr, and 33.75 lbs CO/hr limitations were established for purpose to reflect the potential to emit for this emissions unit. Therefore, it is not necessary to develop record keeping and/or reporting requirements to ensure compliance with these limitations.  
This PTO is for the equipment installed and operated by a second party, Springfield Gas Company, at the existing Tremont Landfill (the owners of the Tremont Landfill are Danis Clarko) that was shut down in 1994 and has a potential NMOC emission rate less than 50 Mg (55 tons) per year. Therefore, the installation of this equipment is not subject to OAC Chapter 3745-76.  
The active gas collection system shall be designed and operated as follows:
  - i. handle the maximum gas flow rate from the entire area of the landfill that will vent to the enclosed flare or off-site for energy recovery;
  - ii. collect gas from each area in the landfill where:
    - a. municipal solid waste has been placed for more than 5 years; or
    - b. acceptance of municipal solid waste has ceased for at least two years;
  - iii. collect gas at a sufficient extraction rate; and

iv. all vertical wells, horizontal collectors, or other collection devices shall be sufficient to meet standard operational and performance specifications as described in OAC rule 3745-76-14.

**B. Operational Restrictions**

1. The maximum landfill gas flow rate for emissions unit F001 shall not exceed 321.3 million standard cubic feet ("mm scf") based on a rolling, 365-day, summation.
2. The permittee shall operate the active collection system with a negative pressure at each wellhead except under the following conditions:
  - a. a fire or increased well temperature (the permittee shall record instances when positive pressure occurs in efforts to avoid a fire);
  - b. use of a geomembrane or synthetic cover (the permittee shall develop acceptable pressure limits in the design plan); and
  - c. a decommissioned well (a well may experience a static positive pressure after shutdown to accommodate for declining flows. All designs shall be approved by the Director of Ohio EPA).
3. The permittee shall operate each interior wellhead in the collection system with a landfill gas temperature less than 55 degrees Celsius (131 degrees Fahrenheit) and with either a nitrogen level less than 20% or an oxygen level less than 5%. The permittee may establish a higher operating temperature, nitrogen level, or oxygen level at a particular well. A higher operating value demonstration shall show supporting data that the elevated parameter does not cause fires or significantly inhibit anaerobic decomposition by killing methanogens.
4. The permittee shall shut down the gas mover and all valves in the active collection system and open valves to the tied-in passive vent flares within one hour, in the event the enclosed flare is inoperable and gas is not being delivered to International Truck & Engine Corporation ID 0812760220 (to prevent release of unburned gas to the atmosphere).
5. The permittee shall maintain an average combustion temperature for the enclosed flare, as determined during the most recent stack test that demonstrated compliance.
6. The permittee shall divert the landfill gas to the enclosed flare and operate the enclosed flare during periods when the landfill gas extraction rate is greater than the demand from the off-site energy recovery operation at International Truck and Engine Corporation, Facility ID 0812100223.
7. The permittee shall have a maximum landfill gas extraction rate of 1500 dscf/min.

**C. Monitoring and/or Record Keeping Requirements**

1. The permittee shall monitor and record the following information each day for the flare:
  - a. the amount of landfill gas used, in mm scf;
  - b. during the first 12 calendar months of operation, following the issuance of the permit to install, the cumulative amount of landfill gas used, in mm scf;
  - c. the daily emission rate of CO, in tons, as calculated from the following:  

$$EC = [(x)(y)(750 \text{ lbs CO/mm dscf methane})] 750 \text{ lbs CO/mm dscf of methane, AP-42, Table 2.4-5 (11/98) (or until performance testing data is available)}$$
 where:  
 EC = daily CO emission rate, in tons  
 x = LFG burned in the flare (F001), in mm scf/day  
 y = % methane in LFG, using the daily averages determined in C.4.a.;

and

  - d. the rolling, 365-day summation of landfill gas used, in mm scf, i.e., the summation of C.1.a. for that day and the previous 364 days.
2. For the active gas collection system, the permittee shall install a sampling port and a thermometer, or other temperature measuring device, or an access port for temperature measurements at each wellhead and record the following information on a quarterly basis:
  - a. the gauge pressure in the gas collection header at each individual well;
  - b. the nitrogen or oxygen concentration in the landfill gas; and
  - c. the temperature of the landfill gas.
3. The permittee shall maintain, for the life of the collection system, an up-to-date, readily accessible plot map showing all existing and planned collectors in the system and providing a unique identification location label for each collector.
4. The permittee shall install, calibrate, maintain, and operate according to the manufacturer's specifications the following equipment:
  - a. a methane measuring device that provides a measurement of the percent methane by volume at the fuel inlet to the flare and shall be read and recorded every fifteen minutes;
  - b. a temperature monitoring device for the enclosed flare with a minimum accuracy of plus or minus 1 percent of the temperature being measured, expressed in degrees Celsius or minus 0.5 percent degrees Celsius,

whichever is greater and shall be equipped with a continuous recorder that shall record the average temperature every fifteen minutes; and,

c. a gas flow rate measuring device that shall record the flow to the enclosed flare at least every 15 minutes.

5. The permittee shall keep records of all time periods for the following occurrences:

a. periods during which the generation rate of landfill gas is greater than the demand and the flare did not operate; and

b. the downtime for the flare and monitoring equipment when the collection system is in operation.

6. The permittee shall maintain the following information for the life of the control equipment as measured during the performance test or compliance demonstration:

a. the maximum expected gas generation flow rate as calculated based on the following:

i. for sites with unknown year-to-year solid waste acceptance rate:

$$Q_m = 2L_o \times R \times \{(e \text{ to the power } -kc) - (e \text{ to the power } -kt)\}$$

where,

$Q_m$  = maximum expected gas generation flow rate, cubic meters per year

$L_o$  = methane generation potential, cubic meters per megagram solid waste

$R$  = average annual acceptance rate, megagrams per year

$k$  = methane generation rate constant, per year

$t$  = age of the landfill at equipment installation plus the time the owner or operator intends to use the gas mover equipment or active life of the landfill, whichever is less (if the equipment is installed after closure,  $t$  is the age of the landfill at installation), years

$c$  = time since closure, years (for an active landfill  $c = 0$  and  $(e \text{ to the the power } -kc) = 1$ )

ii. With an active gas collection and flare system, actual flow data may be used to project the maximum expected gas generation flow rate instead of, or in conjunction with, the equations in paragraph C.6.a.i. The permittee may use another method to determine the maximum gas generation flow rate, if the method has been approved by the Ohio EPA.

b. the density of wells, horizontal collectors, surface collectors, or other gas extraction devices determined using the procedures specified in 40 CFR Part 60.759(a)(1);

c. the average combustion temperature of the enclosed flare; and

d. the flow rate or bypass flow rate measurements.

#### D. Reporting Requirements

1. The permittee shall submit quarterly deviation (excursion) reports in accordance with Section A.1. of the General Terms and Conditions that identify each of the following:

a. any exceedance of the rolling, 365-day landfill gas usage restriction of 321.3 million standard cubic feet;

b. any exceedance of the rolling, 365-day CO emission limit of 60.24 tons;

c. any periods of time during which the average combustion temperature of the enclosed flare is less than the average temperature recorded during the most recent stack test;

d. any periods of time during which the generation rate exceeded the demand and the enclosed flare did not operate;

e. any period when the total gas extraction flow rate is greater than 1500 dscf/min, and the actual flow rate; and

f. the downtime for the enclosed flare and monitoring equipment when the collection and flare system was in operation.

2. The permittee shall submit an annual report, submitted by January 31 of each year, that specifies the following information:

a. the total landfill gas usage, in mm scf;

b. the rolling, 365-day CO emissions, in tons, for the previous calendar year;

c. all periods when the collection system and the enclosed flare were not operating in excess of 5 days;

d. any record indicating the date of installation and the location of each well head or collection system expansion added;

e. any record which indicates that the gauge pressure in the gas collection header at each individual well was positive;

f. any record which indicates that the nitrogen or oxygen concentration in the landfill was greater than 20% or 5%, respectively;

g. any record which indicates that the temperature of the landfill gas was greater than 55 degrees Celsius (131 degrees Fahrenheit); and

h. any record which indicates that the surface concentration of methane was greater than 500 parts per million above background.

3. Any breakdown or malfunction of the landfill gas collection system and flare system resulting in the emission of

raw landfill gas emissions to the atmosphere shall be reported within one hour after the occurrence, or as soon as reasonably possible, and immediate remedial measures shall be undertaken to correct the problem and prevent further emissions to the atmosphere.

4. The permittee shall submit the following information with the compliance performance test report:
- a diagram of the collection system showing collection system positioning including all wells, horizontal collectors, surface collectors, or other gas extraction devices, including the locations of any areas excluded from collection and the proposed sites for the future collection system expansion;
  - the data upon which the sufficient density of wells, horizontal collectors, surface collectors, or other gas extraction devices and the gas mover equipment sizing are based;
  - the documentation of the presence of asbestos or nondegradable material for each area from which collection wells have been excluded based on the presence of asbestos or nondegradable material;
  - the sum of the gas generation flow rate for all areas from which collection wells have been excluded based on non-productivity and the calculations of gas generation flow rate for each excluded area;
  - the provisions for increasing gas mover equipment capacity with increased gas generation flow rate, if the present gas mover equipment is inadequate to move the maximum flow rate expected over the life of the landfill; and
  - the provisions for the control of off-site migration.

**E. Testing Requirements**

1. Compliance with the emission limitations in Section A.1.1. of this permit shall be determined in accordance with the following methods:
- Emission Limitation -  
0.09 lb NMOC/hr
- Applicable Compliance Method -  
Compliance shall be demonstrated by multiplying the maximum hourly landfill gas burn rate of the emissions unit (0.09 mm scf) by the company derived emission factor of 49.1 lbs NMOC/mm dscf landfill gas and by the destruction efficiency of (1 - 0.98), i.e., (0.09 mm scf/hr)(49.1 lbs NMOC/mm scf)(0.02). Compliance shall also be determined by a stack test using USEPA Reference Method 25, as specified in 40 CFR Part 60, Appendix A.
- The control system for the active gas collection system shall be designed and operated to reduce the NMOC emissions by 98% by weight, or, when an enclosed combustion device is used for control, to either reduce NMOC by 98% by weight or to reduce the outlet NMOC emission to less than 20 ppmv, dry basis as hexane at 3% oxygen.
- Emission Limitations -  
0.16 TPY NMOC and as a rolling, 365-day summation.
- Applicable Compliance Method -  
Compliance shall be based upon the record keeping requirements specified in Section C. and shall be the summation of the landfill gas burned for the calendar year multiplied by the company derived emission factor of 49.1 lbs NMOC/mm dscf landfill gas and by the destruction efficiency of (1 - 0.98) then divided by 2000 lbs/ton.
- Emission Limitation -  
0.17 lb SO<sub>2</sub>/hr
- Applicable Compliance Method -  
Compliance shall be demonstrated by multiplying the maximum hourly landfill gas burn rate of the emissions unit (0.09 mm scf) by the company derived emission factor of 1.89 lbs SO<sub>2</sub>/mm dscf landfill gas, i.e., (0.09 mm scf)(1.89 lbs SO<sub>2</sub>/mm scf).
- Emission Limitations -  
0.30 TPY SO<sub>2</sub> and as a rolling, 365-day summation.
- Applicable Compliance Method -  
Compliance shall be based upon the record keeping requirements specified in Section C. and shall be the summation of the landfill gas burned for the calendar year multiplied by the company derived emission factor of 1.89 lbs SO<sub>2</sub>/mm dscf landfill gas and divided by 2000 lbs/ton.
- Emission Limitation -  
1.8 lbs NO<sub>x</sub>/hr
- Applicable Compliance Method -  
Compliance shall be demonstrated by multiplying the maximum hourly landfill gas burn rate of the emissions unit (0.09 mm scf) by the percent methane in the landfill gas (0.50) and by the 40 lbs NO<sub>x</sub>/mm dscf methane, AP-42, Table 2.4-5 (11/98), i.e., (0.09 mm scf)(0.50)(40 lbs NO<sub>x</sub>/mm scf methane).
- Emission Limitations -  
3.21 TPY NO<sub>x</sub> and as a rolling, 365-day summation.
- Applicable Compliance Method -  
Compliance shall be based upon the record keeping requirements specified in Section C. and shall be the summation of the landfill gas burned for the calendar year and divided by 2000 lbs/ton.
- Emission Limitation -  
0.765 lb PE/hr
- Applicable Compliance Method -  
Compliance shall be demonstrated by multiplying the maximum hourly landfill gas burn rate of the emissions unit (0.09 mm scf) by the percent methane in the landfill gas (0.50) and by the emission factor 17 lbs particulates/mm dscf methane, AP-42, Table 2.4-5 (11/98), i.e., (0.09 mm scf)(0.50)(17 lbs particulates/mm scf methane).
- Emission Limitations -  
1.37 TPY PE and as a rolling, 365-day summation.

## Applicable Compliance Method -

Compliance shall be based upon the record keeping requirements specified in Section C. and shall be the summation of the landfill gas burned for the calendar year and divided by 2000 lbs/ton.

## Emission Limitation -

33.75 lbs CO/hr

## Applicable Compliance Method -

Compliance shall be demonstrated by multiplying the maximum hourly landfill gas burn rate of the emissions unit (0.09 mm scf) by the percent methane in the landfill gas (0.50) and by the emission factor 750 lbs CO/mm dscf methane, AP-42, Table 2.4-5 (11/98), i.e., (0.09 mm scf)(0.50)(750 lbs CO/mm scf methane). Compliance shall also be determined by a stack test using the USEPA Reference Method 10, as specified in 40 CFR Part 60, Appendix A.

## Emission Limitation -

60.24 TPY CO and as a rolling, 365-day summation.

## Applicable Compliance Method -

Compliance shall be based upon the record keeping requirements specified in Section C. and shall be the summation of the 365 daily CO emission rates divided by 2000 lbs/ton.

2. The nitrogen level shall be determined using Method 3C of 40 CFR Part 60, Appendix A, unless an alternative test method is established and approved by the Regional Air Pollution Control Agency.
3. The oxygen level shall be determined by an oxygen meter using Method 3A of 40 CFR Part 60, Appendix A, unless an alternative test method is established and approved by the Regional Air Pollution Control Agency, except that:
  - a. the span shall be set so that the regulatory limit is between 20% and 50% of the span;
  - b. a data recorder is not required;
  - c. only two calibration gases are required, a zero and a span, and ambient air may be used as the span;
  - d. a calibration error check is not required; and
  - e. the allowable sample bias, zero drift, and calibration drift are plus or minus 10%.
4. Within twelve months of permit renewal the permittee shall conduct or have conducted performance testing of the active gas collection system and enclosed flare to demonstrate compliance with the allowable mass emission rate for CO, NMOC, and the control efficiency for NMOC. The test(s) shall be conducted while the emissions unit is operating at its maximum capacity, unless otherwise specified or approved by the appropriate Ohio EPA District Office or local air agency.

Not later than 60 days prior to the proposed test date(s), this facility shall submit an "Intent to Test" notification to the appropriate Ohio EPA District Office or local air agency. The "Intent to Test" notification shall describe in detail the proposed test methods and procedures, the emissions units operating parameters, the time(s) and date(s) of the test(s), and the persons who will be conducting the test(s). Failure to submit such notification for review and approval prior to the test(s) may result in the Ohio EPA District Office's or local air agency's refusal to accept the results of the emission test(s).

Personnel from the appropriate Ohio EPA District Office or local air agency shall be permitted to witness the test(s), examine the testing equipment, and acquire data and information necessary to assure that the emissions unit operation and testing procedures provides a valid characterization of the emissions from the emissions unit and/or the performance of the control equipment.

A comprehensive written report on the result of the emissions test(s) shall be signed and submitted to the appropriate Ohio EPA District Office or local air agency within 30 days following completion of the test(s).

F. **Miscellaneous Requirements**

1. None