Ohio Environmental Protection Agency
John R. Kasich, Governor
Mary Taylor, Lt. Governor
Scott J. Nally, Director

7/5/2011

Certified Mail

| | |
|---|---|
| No | TOXIC REVIEW |
| Yes | PSD |
| No | SYNTHETIC MINOR TO AVOID MAJOR NSR |
| No | CEMS |
| Yes | MACT/GACT |
| Yes | NSPS |
| No | NESHAPS |
| No | NETTING |
| No | MAJOR NON-ATTAINMENT |
| No | MODELING SUBMITTED |

Liza Mireles
Carbon Limestone Landfill Gas Power Station
c/o Energy Developments Inc
16360 Park Ten Place, Suite 218
Houston, TX 77084

RE: FINALAIR POLLUTION PERMIT-TO-INSTALL
Facility ID: 0250050996
Permit Number: P0107078
Permit Type: Initial Installation
County: Mahoning

Dear Permit Holder:

Enclosed please find a final Air Pollution Permit-to-Install (PTI) which will allow you to install or modify the described emissions unit(s) in a manner indicated in the permit. Because this permit contains several conditions and restrictions, we urge you to read it carefully.Please complete a survey at www.epa.ohio.gov/dapc/permitsurvey.aspx and give us feedback on your permitting experience. We value your opinion.

The issuance of this PTI is a final action of the Director and may be appealed to the Environmental Review Appeals Commission pursuant to Section 3745.04 of the Ohio Revised Code. The appeal must be in writing and set forth the action complained of and the grounds upon which the appeal is based. The appeal must be filed with the Commission within thirty (30) days after notice of the Director's action. The appeal must be accompanied by a filing fee of $70.00, made payable to “Ohio Treasurer Josh Mandel," which the Commission, in its discretion, may reduce if by affidavit you demonstrate that payment of the full amount of the fee would cause extreme hardship. Notice of the filing of the appeal shall be filed with the Director within three (3) days of filing with the Commission. Ohio EPA requests that a copy of the appeal be served upon the Ohio Attorney General’s Office, Environmental Enforcement Section. An appeal may be filed with the Environmental Review Appeals Commission at the following address:

Environmental Review Appeals Commission
309 South Fourth Street, Room 222
Columbus, OH 43215

The Ohio EPA is encouraging companies to investigate pollution prevention and energy conservation. Not only will this reduce pollution and energy consumption, but it can also save you money. If you would like to learn ways you can save money while protecting the environment, please contact our Office of Compliance Assistance and Pollution Prevention at (614) 644-3469. If you have any questions regarding this permit, please contact the Ohio EPA DAPC, Northeast District Office. This permit can be accessed electronically on the Division of Air Pollution Control (DAPC) Web page,www.epa.ohio.gov/dapc by clicking the "Issued Air Pollution Control Permits" link.

Sincerely,

Michael W. Ahern

Michael W. Ahern, Manager
Permit Issuance and Data Management Section, DAPC

Cc: U.S. EPA
Ohio EPA-NEDO; Pennsylvania; West Virginia

# Response to Comments

Response to comments for: Permit-To-Install

| | |
|---|---|
| Facility ID: | 0250050996 |
| Facility Name: | Carbon Limestone Landfill Gas Power Station |
| Facility Description: | Landfill gas power station |
| Facility Address: | 8100 South Stateline Road<br>Lowellville, OH 44436<br>Mahoning County |
| Permit #: | P0107078, Initial Installation |
| A public notice for the draft permit issuance was published in the Ohio EPA Weekly Review and appeared in the Youngstown-Vindicator on 05/28/2011. The comment period ended on 06/27/2011. | |
| Hearing date (if held) | |
| Hearing Public Notice Date (if different from draft public notice) | |

The following comments were received during the comment period specified. Ohio EPA reviewed and considered all comments received during the public comment period. By law, Ohio EPA has authority to consider specific issues related to protection of the environment and public health. Often, public concerns fall outside the scope of that authority. For example, concerns about zoning issues are addressed at the local level. Ohio EPA may respond to those concerns in this document by identifying another government agency with more direct authority over the issue.

In an effort to help you review this document, the questions are grouped by topic and organized in a consistent format. PDF copies of the original comments in the format submitted are available upon request.

1. Topic: **None**
    a. Comment: **None**
    b. Response: **None**
2. Topic: **None**
    a. Comment: **None**
    b. Response: **None**

Ohio | Environmental Protection Agency

# FINAL

# Division of Air Pollution Control
# Permit-to-Install
for
Carbon Limestone Landfill Gas Power Station

| | |
|---|---|
| Facility ID: | 0250050996 |
| Permit Number: | P0107078 |
| Permit Type: | Initial Installation |
| Issued: | 7/5/2011 |
| Effective: | 7/5/2011 |

Ohio Environmental Protection Agency

**Division of Air Pollution Control**
**Permit-to-Install**
for
Carbon Limestone Landfill Gas Power Station

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# Authorization

Facility ID: 0250050996
Facility Description: Landfill gas power station
Application Number(s): A0040434, A0041073, A0041627
Permit Number: P0107078
Permit Description: Two (2) Caterpilar G3520C internal combustion engines (each - 2,233 hp). Operating with lean burn and combusting landfill gas to produce electricity.
Permit Type: Initial Installation
Permit Fee: $50.00
Issue Date: 7/5/2011
Effective Date: 7/5/2011

This document constitutes issuance to:

Carbon Limestone Landfill Gas Power Station
8100 South Stateline Road
Lowellville, OH 44436

of a Permit-to-Install for the emissions unit(s) identified on the following page.

Ohio EPA District Office or local air agency responsible for processing and administering your permit:

Ohio EPA DAPC, Northeast District Office
2110 East Aurora Road
Twinsburg, OH 44087
(330)425-9171

The above named entity is hereby granted a Permit-to-Install for the emissions unit(s) listed in this section pursuant to Chapter 3745-31 of the Ohio Administrative Code. Issuance of this permit does not constitute expressed or implied approval or agreement that, if constructed or modified in accordance with the plans included in the application, the emissions unit(s) of environmental pollutants will operate in compliance with applicable State and Federal laws and regulations, and does not constitute expressed or implied assurance that if constructed or modified in accordance with those plans and specifications, the above described emissions unit(s) of pollutants will be granted the necessary permits to operate (air) or NPDES permits as applicable.

This permit is granted subject to the conditions attached hereto.

Ohio Environmental Protection Agency

Scott J. Nally
Director

# Authorization (continued)

Permit Number: P0107078
Permit Description: Two (2) Caterpilar G3520C internal combustion engines (each - 2,233 hp). Operating with lean burn and combusting landfill gas to produce electricity.

Permits for the following Emissions Unit(s) or groups of Emissions Units are in this document as indicated below:

| | |
|---|---|
| **Emissions Unit ID:** | **P020** |
| Company Equipment ID: | IC Engine #17 |
| Superseded Permit Number: | |
| General Permit Category and Type: | Not Applicable |
| **Emissions Unit ID:** | **P021** |
| Company Equipment ID: | IC Engine #18 |
| Superseded Permit Number: | |
| General Permit Category and Type: | Not Applicable |

# A. Standard Terms and Conditions

## 1. Federally Enforceable Standard Terms and Conditions

a) All Standard Terms and Conditions are federally enforceable, with the exception of those listed below which are enforceable under State law only:

(1) Standard Term and Condition A.2.a), Severability Clause

(2) Standard Term and Condition A.3.c) through A. 3.e)General Requirements

(3) Standard Term and Condition A.6.c) and A. 6.d), Compliance Requirements

(4) Standard Term and Condition A.9., Reporting Requirements

(5) Standard Term and Condition A.10., Applicability

(6) Standard Term and Condition A.11.b) through A.11.e), Construction of New Source(s) and Authorization to Install

(7) Standard Term and Condition A.14., Public Disclosure

(8) Standard Term and Condition A.15., Additional Reporting Requirements When There Are No Deviations of Federally Enforceable Emission Limitations, Operational Restrictions, or Control Device Operating Parameter Limitations

(9) Standard Term and Condition A.16., Fees

(10) Standard Term and Condition A.17., Permit Transfers

## 2. Severability Clause

a) A determination that any term or condition of this permit is invalid shall not invalidate the force or effect of any other term or condition thereof, except to the extent that any other term or condition depends in whole or in part for its operation or implementation upon the term or condition declared invalid.

b) All terms and conditions designated in parts B and C of this permit are federally enforceable as a practical matter, if they are required under the Act, or any of its applicable requirements, including relevant provisions designed to limit the potential to emit of a source, are enforceable by the Administrator of the U.S. EPA and the State and by citizens (to the extent allowed by section 304 of the Act) under the Act. Terms and conditions in parts B and C of this permit shall not be federally enforceable and shall be enforceable under State law only, only if specifically identified in this permit as such.

## 3. General Requirements

a) The permittee must comply with all terms and conditions of this permit. Any noncompliance with the federally enforceable terms and conditions of this permit constitutes a violation of the Act, and is grounds for enforcement action or for permit revocation, revocation and re-issuance, or modification.

b) It shall not be a defense for the permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the federally enforceable terms and conditions of this permit.

c) This permit may be modified, revoked, or revoked and reissued, for cause. The filing of a request by the permittee for a permit modification, revocation and reissuance, or revocation, or of a notification of planned changes or anticipated noncompliance does not stay any term and condition of this permit.

d) This permit does not convey any property rights of any sort, or any exclusive privilege.

e) The permittee shall furnish to the Director of the Ohio EPA, or an authorized representative of the Director, upon receipt of a written request and within a reasonable time, any information that may be requested to determine whether cause exists for modifying or revoking this permit or to determine compliance with this permit. Upon request, the permittee shall also furnish to the Director or an authorized representative of the Director, copies of records required to be kept by this permit. For information claimed to be confidential in the submittal to the Director, if the Administrator of the U.S. EPA requests such information, the permittee may furnish such records directly to the Administrator along with a claim of confidentiality.

**4. Monitoring and Related Record Keeping and Reporting Requirements**

a) Except as may otherwise be provided in the terms and conditions for a specific emissions unit, the permittee shall maintain records that include the following, where applicable, for any required monitoring under this permit:

(1) The date, place (as defined in the permit), and time of sampling or measurements.

(2) The date(s) analyses were performed.

(3) The company or entity that performed the analyses.

(4) The analytical techniques or methods used.

(5) The results of such analyses.

(6) The operating conditions existing at the time of sampling or measurement.

b) Each record of any monitoring data, testing data, and support information required pursuant to this permit shall be retained for a period of five years from the date the record was created. Support information shall include, but not be limited to all calibration and maintenance records and all original strip-chart recordings for continuous monitoring instrumentation, and copies of all reports required by this permit. Such records may be maintained in computerized form.

c) Except as may otherwise be provided in the terms and conditions for a specific emissions unit, the permittee shall submit required reports in the following manner:

(1) Reports of any required monitoring and/or recordkeeping of federally enforceable information shall be submitted to the Ohio EPA DAPC, Northeast District Office.

(2) Quarterly written reports of (i) any deviations from federally enforceable emissionlimitations, operationalrestrictions, andcontroldeviceoperatingparameterlimitations, excluding deviations resulting from malfunctions reported in accordance with OAC rule 3745-15-06, that have been detected by the testing, monitoring and recordkeeping requirements specified in this permit, (ii) the probable cause of such deviations, and (iii) any corrective actions or preventive measures taken, shall be made to the Ohio EPA DAPC, Northeast District Office. The written reports shall be submitted (i.e., postmarked) quarterly, by January 31, April 30, July 31, and October 31 of each year and shall cover the previous calendar quarters. See A.15. below if no deviations occurred during the quarter.

(3) Written reports, which identify any deviations from the federally enforceable monitoring, recordkeeping, andreportingrequirements contained in this permit shall be submitted (i.e., postmarked) to the Ohio EPA DAPC, Northeast District Office every six months, by January 31 and July 31 of each year for the previous six calendar months. If no deviations occurred during a six-month period, the permittee shall submit a semi-annual report, which states that no deviations occurred during that period.

(4) This permit is for an emissions unit located at a Title V facility. Each written report shall be signed by a responsible official certifying that, based on information and belief formed after reasonable inquiry, the statements and information in the report are true, accurate, and complete.

d) The permittee shall report actual emissions pursuant to OAC Chapter 3745-78 for the purpose of collecting Air Pollution Control Fees.

**5. Scheduled Maintenance/Malfunction Reporting**

Any scheduled maintenance of air pollution control equipment shall be performed in accordance with paragraph (A) of OAC rule 3745-15-06. The malfunction, i.e., upset, of any emissions units or any associated air pollution control system(s) shall be reported to the Ohio EPA DAPC, Northeast District Office in accordance with paragraph (B) of OAC rule 3745-15-06. (The definition of an upset condition shall be the same as that used in OAC rule 3745-15-06(B)(1) for a malfunction.) The verbal and written reports shall be submitted pursuant to OAC rule 3745-15-06.

Except as provided in that rule, any scheduled maintenance or malfunction necessitating the shutdown or bypassing of any air pollution control system(s) shall be accompanied by the shutdown of the emission unit(s) that is (are) served by such control system(s).

**6. Compliance Requirements**

a) The emissions unit(s) identified in this Permit shall remain in full compliance with all applicable State laws and regulations and the terms and conditions of this permit.

b) Any document (including reports) required to be submitted and required by a federally applicable requirement in this permit shall include a certification by a responsible official that, based on information and belief formed after reasonable inquiry, the statements in the document are true, accurate, and complete.

c) Upon presentation of credentials and other documents as may be required by law, the permittee shall allow the Director of the Ohio EPA or an authorized representative of the Director to:

(1) At reasonable times, enter upon the permittee's premises where a source is located or the emissions-related activity is conducted, or where records must be kept under the conditions of this permit.

(2) Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit, subject to the protection from disclosure to the public of confidential information consistent with ORC section 3704.08.

(3) Inspect at reasonable times any facilities, equipment (including monitoring and air pollution control equipment), practices, or operations regulated or required under this permit.

(4) As authorized by the Act, sample or monitor at reasonable times substances or parameters for the purpose of assuring compliance with the permit and applicable requirements.

d) The permittee shall submit progress reports to the Ohio EPA DAPC, Northeast District Office concerning any schedule of compliance for meeting an applicable requirement. Progress reports shall be submitted semiannually or more frequently if specified in the applicable requirement or by the Director of the Ohio EPA. Progress reports shall contain the following:

(1) Dates for achieving the activities, milestones, or compliance required in any schedule of compliance, and dates when such activities, milestones, or compliance were achieved.

(2) An explanation of why any dates in any schedule of compliance were not or will not be met, and any preventive or corrective measures adopted.

## 7. Best Available Technology

As specified in OAC Rule 3745-31-05, new sources that must employ Best Available Technology (BAT) shall comply with the Applicable Emission Limitations/Control Measures identified as BAT for each subject emissions unit.

## 8. Air Pollution Nuisance

The air contaminants emitted by the emissions units covered by this permit shall not cause a public nuisance, in violation of OAC rule 3745-15-07.

## 9. Reporting Requirements

The permittee shall submit required reports in the following manner:

a) Reports of any required monitoring and/or recordkeeping of state-only enforceable information shall be submitted to the Ohio EPA DAPC, Northeast District Office.

b) Except as otherwise may be provided in the terms and conditions for a specific emissions unit, quarterly written reports of (a) any deviations (excursions) from state-only required emission limitations, operational restrictions, and control device operating parameter limitations that have

been detected by the testing, monitoring, and recordkeeping requirements specified in this permit, (b) the probable cause of such deviations, and (c) any corrective actions or preventive measures which have been or will be taken, shall be submitted to the Ohio EPA DAPC, Northeast District Office. If no deviations occurred during a calendar quarter, the permittee shall submit a quarterly report, which states that no deviations occurred during that quarter. The reports shall be submitted (i.e., postmarked) quarterly, by January 31, April 30, July 31, and October 31 of each year and shall cover the previous calendar quarters. (These quarterly reports shall exclude deviations resulting from malfunctions reported in accordance with OAC rule 3745-15-06.)

**10. Applicability**

This Permit-to-Install is applicable only to the emissions unit(s) identified in the Permit-to-Install. Separate application must be made to the Director for the installation or modification of any other emissions unit(s).

**11. Construction of New Sources(s) and Authorization to Install**

a) This permit does not constitute an assurance that the proposed source will operate in compliance with all Ohio laws and regulations. This permit does not constitute expressed or implied assurance that the proposed facility has been constructed in accordance with the application and terms and conditions of this permit. The action of beginning and/or completing construction prior to obtaining the Director's approval constitutes a violation of OAC rule 3745-31-02. Furthermore, issuance of this permit does not constitute an assurance that the proposed source will operate in compliance with all Ohio laws and regulations. Issuance of this permit is not to be construed as a waiver of any rights that the Ohio Environmental Protection Agency (or other persons) may have against the applicant for starting construction prior to the effective date of the permit. Additional facilities shall be installed upon orders of the Ohio Environmental Protection Agency if the proposed facilities cannot meet the requirements of this permit or cannot meet applicable standards.

b) If applicable, authorization to install any new emissions unit included in this permit shall terminate within eighteen months of the effective date of the permit if the owner or operator has not undertaken a continuing program of installation or has not entered into a binding contractual obligation to undertake and complete within a reasonable time a continuing program of installation. This deadline may be extended by up to 12 months if application is made to the Director within a reasonable time before the termination date and the party shows good cause for any such extension.

c) The permittee may notify Ohio EPA of any emissions unit that is permanently shut down (i.e., the emissions unit has been physically removed from service or has been altered in such a way that it can no longer operate without a subsequent "modification" or "installation" as defined in OAC Chapter 3745-31) by submitting a certification from the authorized official that identifies the date on which the emissions unit was permanently shut down. Authorization to operate the affected emissions unit shall cease upon the date certified by the authorized official that the emissions unit was permanently shut down. At a minimum, notification of permanent shut down shall be made or confirmed by marking the affected emissions unit(s) as “permanently shut down” in Ohio EPA’s “Air Services” along with the date the emissions unit(s) was permanently removed and/or disabled. Submitting the facility profile update will constitute notifying of the permanent shutdown of the affected emissions unit(s).

d) The provisions of this permit shall cease to be enforceable for each affected emissions unit after the date on which an emissions unit is permanently shut down (i.e., emissions unit has been physically removed from service or has been altered in such a way that it can no longer operate without a subsequent "modification" or "installation" as defined in OAC Chapter 3745-31). All records relating to any permanently shutdown emissions unit, generated while the emissions unit was in operation, must be maintained in accordance with law. All reports required by this permit must be submitted for any period an affected emissions unit operated prior to permanent shut down. At a minimum, the permit requirements must be evaluated as part of the reporting requirements identified in this permit covering the last period the emissions unit operated.

No emissions unit certified by the authorized official as being permanently shut down may resume operation without first applying for and obtaining a permit pursuant to OAC Chapter 3745-31.

e) The permittee shall comply with any residual requirements related to this permit, such as the requirement to submit a deviation report, air fee emission report, or other any reporting required by this permit for the period the operating provisions of this permit were enforceable, or as required by regulation or law. All reports shall be submitted in a form and manner prescribed by the Director. All records relating to this permit must be maintained in accordance with law.

**12. Permit-To-Operate Application**

The permittee is required to apply for a Title V permit pursuant to OAC Chapter 3745-77. The permittee shall submit a complete Title V permit application or a complete Title V permit modification application within twelve (12) months after commencing operation of the emissions units covered by this permit. However, if the proposed new or modified source(s) would be prohibited by the terms and conditions of an existing Title V permit, a Title V permit modification must be obtained before the operation of such new or modified source(s) pursuant to OAC rule 3745-77-04(D) and OAC rule 3745-77-08(C)(3)(d).

**13. Construction Compliance Certification**

The applicant shall identify the following dates in the online facility profile for each new emissions unit identified in this permit.

a) Completion of initial installation date shall be enteredupon completion of construction and prior to start-up.

b) Commence operation after installation or latest modification date shall be entered within 90 days after commencing operation of the applicable emissions unit.

**14. Public Disclosure**

The facility is hereby notified that this permit, and all agency records concerning the operation of this permitted source, are subject to public disclosure in accordance with OAC rule 3745-49-03.

**15. Additional Reporting Requirements When There Are No Deviations of Federally Enforceable Emission Limitations, Operational Restrictions, or Control Device Operating Parameter Limitations**

If no deviations occurred during a calendar quarter, the permittee shall submit a quarterly report, which states that no deviations occurred during that quarter. The reports shall be submitted quarterly (i.e., postmarked), by January 31, April 30, July 31, and October 31 of each year and shall cover the previous calendar quarters.

**16. Fees**

The permittee shall pay fees to the Director of the Ohio EPA in accordance with ORC section 3745.11 and OAC Chapter 3745-78. The permittee shall pay all applicable permit-to-install fees within 30 days after the issuance of any permit-to-install. The permittee shall pay all applicable permit-to-operate fees within thirty days of the issuance of the invoice.

**17. Permit Transfers**

Any transferee of this permit shall assume the responsibilities of the prior permit holder. The new owner must update and submit the ownership information via the “Owner/Contact Change” functionality in Air Services once the transfer is legally completed.The change must be submitted through Air Services within thirty days of the ownership transfer date.

**18. Risk Management Plans**

If the permittee is required to develop and register a risk management plan pursuant to section 112(r) of the Clean Air Act, as amended, 42 U.S.C. 7401 et seq. ("Act"), the permittee shall comply with the requirement to register such a plan.

**19. Title IV Provisions**

If the permittee is subject to the requirements of 40 CFR Part 72 concerning acid rain, the permittee shall ensure that any affected emissions unit complies with those requirements. Emissions exceeding any allowances that are lawfully held under Title IV of the Act, or any regulations adopted thereunder, are prohibited.

# B. Facility-Wide Terms and Conditions

1. All the following facility-wide terms and conditions are federally enforceable with the exception of those listed below which are enforceable under state law only:

   a) None.

# C. Emissions Unit Terms and Conditions

**1. P020 and P021 IC Engine #17 & IC Engine #18**

**Operations, Property and/or Equipment Description:**

| | |
|---|---|
| P020 | 2,233 hp (15.75 mmBtu/hr) Caterpillar Engine (G3520C) to burn LFG to produce Electricity |
| P021 | 2,233 hp (15.75 mmBtu/hr) Caterpillar Engine (G3520C) to burn LFG to produce Electricity |

a) The following emissions unit terms and conditions are federally enforceable with the exception of those listed below which are enforceable under state law only.

(1) e)(5)

b) Applicable Emissions Limitations and/or Control Requirements

(1) The specific operation(s), property, and/or equipment that constitute each emissions unit along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures are identified below. Emissions from each unit shall not exceed the listed limitations, and the listed control measures shall be specified in narrative form following the table.

| | Applicable Rules/Requirements | Applicable Emissions Limitations/Control Measures |
|---|---|---|
| a. | OAC rule 3745-31-05(A)(3), as effective 11/30/2001 | Visible particulate emissions shall not exceed 10% opacity as a 6-minute average.<br><br>Particulate emissions (PE)/particulate less than 10 microns in diameter ($PM_{10}$) emissions shall not exceed 0.1 gram per brake horsepower hour, 0.49 pound per hour and 2.15 tons per year.<br><br>Sulfur dioxide ($SO_2$) emissions shall not exceed 0.28 pound per hour and 1.23 tons per year.<br><br>Volatile organic compound (VOC) emissions shall not exceed 0.82 pound per hour and 3.59 tons per year.<br><br>Nitrogen oxides ($NO_x$) emissions shall not exceed 0.6 gram per brake horsepower hour, 2.95 pounds per hour and 12.92 tons per year. |

| | Applicable Rules/Requirements | Applicable Emissions Limitations/Control Measures |
|---|---|---|
| | | Hydrogen chloride (HCl) emissions shall not exceed 0.15 pound per hour and 0.66 ton per year.<br><br>Organic compound (OC) emissions shall not exceed 5.84 grams per brake horsepower hour, 28.72 pounds per hour and 125.79 tons per year.<br><br>See b)(2)a.<br><br>Compliance with this rule also includes compliance with the requirements of 40 CFR Part 52, Section 52.21, and OAC rules 3745-31-10 through 20. |
| b. | OAC rule 3745-31-05(A)(3), as effective 12/1/2006 | See b(2)c. |
| c. | 40 CFR Part 52, Section 52.21 and OAC rules 3745-31-10 through 20 | Carbon monoxide (CO) emissions shall not exceed 2.75 grams per brake horsepower hour, 13.53 pounds per hour and 59.26 tons per year. |
| d. | 40 CFR Part 60, Subpart WWW | See b)(2)d. |
| e. | OAC rule 3745-17-11(B)(5) | PE shall not exceed 0.062 pound per million Btu of actual heat input. |
| f. | OAC rule 3745-17-07(A) | Visible particulate emissions shall not exceed 20% opacity as a 6-minute average, except as provided by the rule. |
| g. | OAC rule 3745-18-06 | $SO_2$ emissions shall not exceed 0.5 pound per million Btu of actual heat input. |
| h. | 40 CFR Part 60, Subpart JJJJ (40 CFR 60.4230-4248)<br><br>[In accordance with 40 CFR 60.4230(a)(4)(i), this emissions unit is a landfill gas fired lean burn stationary spark ignition (SI) internal combustion engine (ICE) constructed after June 12, 2006 and manufactured after July 1, 2007 with a maximum engine power greater than or equal to 500 HP] | Emission standards for landfill gas SI-ICE manufactured after July 1, 2007 as specified in Table 1 of 40 CFR Part 60, Subpart JJJJ.<br><br>$NO_x$: 3.0 grams per horsepower-hour or 220 ppmvd at 15% oxygen.<br><br>CO: 5.0 grams per horsepower-hour or 610 ppmvd at 15% oxygen.<br><br>VOC: 1.0 gram per horsepower-hour or 80 ppmvd at 15% oxygen |

| | Applicable Rules/Requirements | Applicable Emissions Limitations/Control Measures |
|---|---|---|
| | | The VOC and $NO_x$emission limitations established in this subpart are less stringent than those established pursuant to OAC rule 3745-31-05(A)(3).<br><br>The CO emission limitations established in this subpart are less stringent than those established pursuant to OAC rules 3745-31-10 through 20 |
| i. | 40 CFR Part 63, Subpart ZZZZ | See b)(2)e. |

(2) Additional Terms and Conditions

a. The permittee has satisfied the Best Available Technology (BAT) requirements pursuant to OAC paragraph 3745-31-05(A)(3), as effective November 30, 2001, in this permit. On December 1, 2006, paragraph (A)(3) of OAC rule 3745-31-05 was revised to conform to ORC changes effective August 3, 2006 (S.B. 265 changes), such that BAT is no longer required by State regulations for NAAQS pollutants less than ten tons per year. However, that rule revision has not yet been approved by U.S. EPA as a revision to Ohio's State Implementation Plan (SIP). Therefore, until the SIP revision occurs and the U.S. EPA approves the revisions to OAC rule 3745-31-05, the requirement to satisfy BAT still exists as part of the federally-approved SIP for Ohio. Once U.S. EPA approves the December 1, 2006 version of 3745-31-05, then these emission limits/control measures no longer apply.

b. The internal combustion engine shall operate using lean burn technology.

c. This rule paragraph applies once U.S. EPA approves the December 1, 2006 version of OAC rule 3745-31-05 as part of the State Implementation Plan.

The Best Available Technology (BAT) requirements under OAC rule 3745-31-05(A)(3) do not apply to the PE/$PM_{10}$, HCl, $SO_2$ and VOC emissions from this air contaminant source since the uncontrolled potential to emit for PE/$PM_{10}$, HCl, $SO_2$ and VOC is less than 10 tons per year.

d. Collected landfill gas shall be treated for sale or additional use per 40 CFR 60.752(b)(2)(iii)(C) or shall be routed to a control system per 40 CFR 60.752(b)(2)(iii)(B). The control system shall be designed and operated to reduce the non-methane organic compound (NMOC) by 98 weight-percent or the outlet NMOC emissions shall be reduced to less than 20 parts per million by volume, dry basis (ppmvd) as hexane at 3 percent oxygen.

e. In accordance with 40 CFR 63.6590(c), a new stationary RICE located at an area source must meet the requirements of this subpart by meeting the requirements of 40 CFR Part 60, subpart JJJJ.

f. The permittee shall comply with the applicable requirements of 40 CFR Part 60, Subpart JJJJ, including the following sections:

| | |
|---|---|
| 60.4236(b) | Installation deadlines |
| 60.4243(b) | Compliance Requirements |

c) Operational Restrictions

(1) This emissions unit shall burn only landfill gas.

(2) The permittee shall install, maintain and operate according to the manufacturer's specifications a device at the inlet to the internal combustion engine which completely shuts off gas flow to the internal combustion engine when the internal combustion engine is not operating.

(3) When demonstrating compliance with 40 CFR 60.752(b)(2)(iii)(C), the permittee has committed to compressing, filtering for particles up to 10 microns in diameter, and dewatering the landfill gas.

Dewatering shall be defined as a reduction of the dew point of the landfill gas by at least 20 degrees Fahrenheit.

(4) The allowable gas flow rate to the internal combustion engine's combustion chambers shall not exceed 600 scfm.

(5) When demonstrating compliance with 40 CFR 60.752(b)(2)(iii)(B), the minimum allowable average temperature of the internal combustion engine's combustion chambers, based on 3-hour blocks of time, shall not be lower than the minimum combustion temperature that was established during the most recent compliance test that demonstrated compliance with the applicable requirements.

(6) When demonstrating compliance with 40 CFR 60.752(b)(2)(iii)(B), the maximum allowable gas flow rate to the internal combustion engine's, based on 3-hour blocks of time, shall not be higher than the maximum gas flow rate that was established during the most recent compliance test that demonstrated compliance with the applicable requirements.

(7) The permittee shall comply with the applicable restrictions of 40 CFR Part 60, Subpart JJJJ, including the following sections:

| | |
|---|---|
| 60.4234 | Duration of compliance with the emissions standards |
| 60.4243(b) | Maintenance Requirements |
| 60.4243(g) | Air-to-Fuel (ATR) controllers |

d) Monitoring and/or Recordkeeping Requirements

(1) The permittee shall perform weekly checks, when the emissions unit is in operation and when the weather conditions allow, for any visible particulate emissions from the stack serving each emissions unit. The presence or absence of any visible emissions shall be noted in an operations log for each unit. If visible emissions are observed, the permittee shall also note the following in the operations log:

a. the color of the emissions;

b. the cause of the visible emissions

c. the total duration of any visible emissions incident; and,

d. any corrective actions taken to eliminate the visible emissions.

(2) The permittee shall record the dates and times when the landfill gas is treated for sale or additional use and when the internal combustion engines are operated as landfill gas control devices.

(3) The permittee shall install, calibrate and maintain a continuous device that monitors and records the temperature of the landfill gas prior to dewatering and after dewatering. When demonstrating compliance with 40 CFR 60.752(b)(2)(iii)(C), the temperature shall be monitored at all times.

(4) The permittee shall install, calibrate and maintain a temperature monitoring device equipped with a continuous recorder and having a minimum accuracy of +/- 1 percent of the temperature being measured expressed in degrees Celsius or +/- 0.5 degrees Celsius, whichever is greater, for the exhaust of the internal combustion engines. When demonstrating compliance with 40 CFR 60.752(b)(2)(iii)(B), the temperatures shall be monitored at all times.

(5) The permittee shall install, calibrate, and maintain a device that monitors and records gas flow to or bypass of the internal combustion engines. The gas flow rate measuring device shall record the flow to the control device at least every 15 minutes.

(6) When attempting to demonstrate compliance with 40 CFR 60.752(b)(2)(iii)(B), the permittee shall collect and record each day all 3-hour blocks of time during which the average combustion chamber temperature within the internal combustion engine was less than the allowable minimum operating temperature as established during the most recent compliance test.

(7) When attempting to demonstrate compliance with 40 CFR 60.752(b)(2)(iii)(B), the permittee shall collect and record each day all 3-hour blocks of time during which the average landfill gas flow rate to the internal combustion engine exceeded the maximum allowable gas flow as established during the most recent compliance test.

(8) The permittee shall record each day when a fuel other than landfill gas was burned in this emissions unit.

(9) The permittee shall collect and record all times the flow rate to the internal combustion engine exceeded 600 scfm. The gas flow rate to the engine shall be determined by dividing the total gas flow into the treatment system(s) by the number of engines operating.

(10) The permittee shall record (daily) the operating hours of each engine.

(11) The permittee shall comply with the applicable restrictions of 40 CFR Part 60, Subpart JJJJ, including the following sections:

| | |
|---|---|
| 60.4243(b)(2)(ii) | Keeping a maintenance plan and records of conducted maintenance |
| 60.4245(a) | Records required |

e) Reporting Requirements

(1) The permittee shall submit semiannual written reports that:

a. identify all days during which any visible particulate emissions were observed from the stack serving this emissions unit;

b. describe any corrective actions taken to eliminate the visible particulate emissions;

c. identify the date(s) and duration the gas flow rate to the internal combustion engine exceeded the maximum gas flow rate requirements, as established during the most recent compliance stack test, as a 3-hour average;

d. when demonstrating compliance with 40 CFR 60.752 (b)(2)(iii)(C), identify the date(s) and duration when the temperature difference of the landfill gas between pre-dewatering and post-dewatering is less than 20 degrees Fahrenheit; and

e. when demonstrating compliance with 40 CFR 60.752(b)(2)(iii)(B), identify the date(s) and duration of each 3-hour block of time when the average temperature within the internal combustion engine did not meet the minimum temperature requirements.

These reports shall be submitted to the Northeast District Office of the Ohio EPA by January 31 and July 31 of each year and shall cover the previous 6-month period.

(2) The permittee shall submit deviation (excursion) reports that identify each day when a fuel other than landfill gas was burned in this emissions unit. Each report shall be submitted within 30 days after the deviation occurs.

(3) Any breakdown or malfunction resulting in the emission of raw landfill gas emissions to the atmosphere shall be reported by phone to the Northeast District Office of Ohio EPA within one hour after the occurrence, or as soon as reasonably possible, and immediately remedial measures shall be undertaken to correct the problem and prevent

further emissions to the atmosphere. A summary of the breakdown or malfunction, including the date(s) and time(s) and the measure(s) taken to correct the problem shall be included in the semi-annual deviation report.

(4) The permittee shall submit deviation (excursion) reports that identify each time the gas flow rate to the engine exceeded 600 scfm

(5) The permittee shall include any changes made to a parameter or value used in the dispersion model, that was used to demonstrate compliance with the Toxic Air Contaminant Statute, ORC 3704.03(F), through the predicted 1-hour maximum ground-level concentration, in the quarterly deviation (excursion) reports. If no changes to the emissions, emissions unit(s), or the exhaust stack have been made, then the report shall include a statement to this effect.

(6) The permittee shall comply with the applicable restrictions of 40 CFR Part 60, Subpart JJJJ, including the following sections:

| | |
|---|---|
| 60.4245(c) | Initial Notification |
| 60.4245(d) | Performance Test Report |

f) Testing Requirements

(1) The permittee shall conduct, or have conducted, emission testing for this emissions unit in accordance with the following requirements:

a. The permittee shall conduct an emission test within 12 months after issuance of the permit and, thereafter, in accordance with the emission test requirements specified in 40 CFR Part 60, Subpart JJJJ.

b. The emission testing shall be conducted to demonstrate compliance with the allowable mass emission rates for $NO_x$, CO and VOC.

c. Unless the permittee can demonstrate that all landfill gas burned in the internal combustion engines has been compressed, filtered for particulates up to 10 microns in diameter, and dewatered since the previous compliance test, the emission testing shall be conducted to demonstrate compliance with either the removal of 98 weight-percent of NMOC or the reduction of the outlet concentration of NMOC to less than 20 parts per million by volume, dry basis (ppmvd) as hexane at 3 percent oxygen.

d. The following test methods shall be employed to demonstrate compliance with the allowable mass emission rates:

$NO_x$ - Methods 1 through 4 and 7; or 7E of 40 CFR Part 60, Appendix A;
CO - Methods 1 through 4 and 10 of 40 CFR Part 60, Appendix A;
VOC - Methods 1 through 4 and 25 or 25A of 40 CFR Part 60, Appendix A; and

NMOC - If required, methods 1 through 4 and 25 or 25C of 40 CFR Part 60, Appendix A.

Alternative U.S. EPA-approved test methods may be used with prior approval from the Ohio EPA.

e. The test(s) shall be conducted while the emissions unit is operating at or near its maximum capacity, unless otherwise specified or approved by the Ohio EPA Northeast District Office.

f. Not later than 30 days prior to the proposed test date(s), the permittee shall submit an "Intent to Test" notification to the Ohio EPA Northeast District Office. The "Intent to Test" notification shall describe in detail the proposed test methods and procedures, the emissions unit operating parameters, the time(s) and date(s) of the test(s), and the person(s) 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 Northeast District Office's refusal to accept the results of the emission test(s).

g. Personnel from the Ohio EPA Northeast District Office shall be permitted to witness the test(s), examine the testing equipment, and acquire data and information necessary to ensure that the operation of the emissions unit and the testing procedures provide a valid characterization of the emissions from the emissions unit and/or the performance of the control equipment.

h. A comprehensive written report on the results of the emissions test(s) shall be signed by the person or persons responsible for the tests and submitted to the Ohio EPA Northeast District Office within 30 days following completion of the test(s). The permittee may request additional time for the submittal of the written report, where warranted, with prior approval from the Ohio EPA Northeast District Office.

(2) Compliance with the emission limitations established in b)(1) and b)(2) of this permit shall be determined in accordance with the following methods:

a. <u>Emission Limitations</u>:

VOC emissions shall not exceed 0.82 pound per hour and 3.59 tons per year.

<u>Applicable Compliance Methods</u>:

Compliance with the VOC hourly emission limitation shall be demonstrated in accordance with the performance test requirement specified in f)(1).

The tpy emission limitation was developed by multiplying the short-term allowable VOC emission limitation (0.82 lb/hr) by the maximum annual hours of operation (8,760 hours), and then dividing by 2,000 lbs per ton. Therefore, if compliance is shown with the short-term allowable emission limitation, compliance shall also be shown with the annual emission limitation.

b. Emission Limitation:

Visible particulate emissions shall not exceed 10% opacity as a 6-minute average.

Applicable Compliance Method:

If required, compliance shall be demonstrated based upon visible particulate emission observations performed in accordance with the methods and procedures specified in 40 CFR Part 60, Appendix A, Method 9.

c. Emission Limitation:

$PE/PM_{10}$ emissions shall not exceed 0.1 gram per brake horsepower hour.

Applicable Compliance Method:

If required, compliance shall be demonstrated based upon an emission test performed in accordance with the methods and procedures specified in 40 CFR Part 60, Appendix A, Method 5.

d. Emission Limitations:

$PE/PM_{10}$ emissions shall not exceed 0.49 pound per hour and 2.15 tons per year.

Applicable Compliance Methods:

Compliance with the $PE/PM_{10}$ hourly emission rate shall be demonstrated by using the following equation:

$E = EF \times 2233/454$

where:

E = emissions of $PE/PM_{10}$ (pound per hour);

EF = emission factor provided by manufacturer (0.1 g $PM_{10}$/bhphr);

2,233 = rating of engine (bhphr); and

454 = conversion factor grams per pound.

The tpy emission limitation was developed by multiplying the short-term allowable $PE/PM_{10}$ emission limitation (0.49 lb/hr) by the maximum annual hours of operation (8,760 hours), and then dividing by 2,000 lbs per ton. Therefore, if compliance is shown with the short-term allowable emission limitation, compliance shall also be shown with the annual emission limitation.

e. Emission Limitations:

$NO_x$ emissions shall not exceed 0.6 gram per brake horsepower hour, 2.95 pounds per hour and 12.92 tons per year.

Applicable Compliance Methods:

Compliance with the $NO_x$ hourly emission and technical limitations shall be demonstrated in accordance with the performance test requirement specified in f)(1).

The tpy emission limitation was developed by multiplying the short-term allowable $NO_x$ emission limitation (2.95 lbs/hr) by the maximum annual hours of operation (8,760 hours), and then dividing by 2,000 lbs per ton. Therefore, if compliance is shown with the short-term allowable emission limitation, compliance shall also be shown with the annual emission limitation.

f. Emission Limitations:

CO emissions shall not exceed 2.75 grams per brake horsepower hour, 13.53 pounds per hour and 59.26 tons per year.

Applicable Compliance Methods:

Compliance with the CO hourly emission and technical limitations shall be demonstrated in accordance with the performance test requirement specified in f)(1).

The tpy emission limitation was developed by multiplying the short-term allowable CO emission limitation (13.53 lbs/hr) by the maximum annual hours of operation (8,760 hours), and then dividing by 2,000 lbs per ton. Therefore, if compliance is shown with the short-term allowable emission limitation, compliance shall also be shown with the annual emission limitation.

g. Emission Limitations:

$SO_2$ emissions shall not exceed 0.28 pound per hour and 1.23 tons per year.

Applicable Compliance Methods:

Compliance with the $SO_2$ hourly emission rate shall be demonstrated by using the following equation:

E = EF x (MW/24.45) x Flow x 60/(35.31 x 1000 x 454)

where:

E = emissions of $SO_2$ (pound per hour);

EF = emission factor from AP-42, Section 2.4, Municipal Solid Waste Landfills, version 10/2008 (46.9 ppmv $SO_2$);

MW = molecular weight of $SO_2$, 64.06;

24.45 = equation constant;

Flow = average flow of LFG to engine, $ft^3$ per minute;

60 = conversion factor, minutes per hour;

35.31 = conversion factor, $ft^3$ per $m^3$;

1000 = conversion factor, milligrams per gram; and

454 = conversion factor, grams per pound.

The tpy emission limitation was developed by multiplying the short-term allowable $SO_2$ emission limitation (0.28 lb/hr) by the maximum annual hours of operation (8,760 hours), and then dividing by 2,000 lbs per ton. Therefore, if compliance is shown with the short-term allowable emission limitation, compliance shall also be shown with the annual emission limitation.

h. Emission Limitation:

The control system shall be designed and operated to reduce the NMOC by 98 weight-percent or the outlet NMOC emissions shall be reduced to less than 20 parts per million by volume, on a dry basis (ppmvd) as hexane at 3 percent oxygen.

Applicable Compliance Method:

If required, compliance with the control efficiency limitation shall be demonstrated in accordance with the performance test requirement specified in f)(1).

Compliance with this condition is not required if all landfill gas is treated in compliance with 40 CFR 60.752(b)(2)(iii)(C).

i. Emission Limitation:

PE shall not exceed 0.062 pound per million Btu of actual heat input.

Applicable Compliance Method:

If required, compliance with the PE pound per million Btu of actual heat input limitation shall be demonstrated based upon an emission test performed in accordance with the methods and procedures specified in 40 CFR Part 60, Appendix A, Method 5.

j. Emission Limitations:

HCl emissions shall not exceed 0.15 pound per hour and 0.66 ton per year.

Applicable Compliance Methods:

If required, compliance with the HCl hourly emission limitation shall be demonstrated based upon an emission test performed in accordance with the methods and procedures specified in 40 CFR Part 60, Appendix A, Method 26.

The tpy emission limitation was developed by multiplying the short-term allowable HCl emission limitation (0.15 lb/hr) by the maximum annual hours of operation (8,760 hours), and then dividing by 2,000 lbs per ton. Therefore, if compliance is shown with the short-term allowable emission limitation, compliance shall also be shown with the annual emission limitation.

k. Emission Limitations:

OC emissions shall not exceed 5.84 grams per brake horsepower hour, 28.72 pounds per hour and 125.79 tons per year.

Applicable Compliance Methods:

If required, compliance with the OC hourly emission and technical limitations shall be demonstrated based upon an emission test performed in accordance with the methods and procedures specified in 40 CFR Part 60, Appendix A, Method 25.

The tpy emission limitation was developed by multiplying the short-term allowable OC emission limitation (28.72 lbs/hr) by the maximum annual hours of operation (8,760 hours), and then dividing by 2,000 lbs per ton. Therefore, if compliance is shown with the short-term allowable emission limitation, compliance shall also be shown with the annual emission limitation.

l. Emission Limitation:

Visible particulate emissions shall not exceed 20% opacity as a 6-minute average, except as provided by the rule.

Applicable Compliance Method:

If required, compliance shall be demonstrated based upon visible particulate emission observations performed in accordance with the methods and procedures specified in 40 CFR Part 60, Appendix A, Method 9.

m. Emission Limitation:

$SO_2$ emissions shall not exceed 0.5 pound per million Btu of actual heat input.

Applicable Compliance Method:

If required, compliance with the $SO_2$ pound per million Btu of actual heat input limitation shall be demonstrated based upon an emission test performed in accordance with the methods and procedures specified in 40 CFR Part 60, Appendix A, Method 8.

(3) The permittee shall comply with the applicable restrictions of 40 CFR Part 60, Subpart JJJJ, including the following sections:

| | |
|---|---|
| 60.4243(b)(1) | Certified engines - Compliance demonstration |
| 60.4243(b)(2) | Non-certified engines - Compliance demonstration |
| 60.4244 | Test methods and procedures |

g) Miscellaneous Requirements

(1) None.