



Environmental
Protection Agency

Ted Strickland, Governor
Lee Fisher, Lt. Governor
Chris Korleski, Director

11/15/2010

Teaford Hamilton
Central Ohio Community Improvement Corporation (COCIC)
PO Box 6355
Columbus, OH 43206

RE: FINAL AIR POLLUTION PERMIT-TO-INSTALL AND OPERATE

Facility ID: 0125074001
Permit Number: P0107004
Permit Type: Renewal
County: Franklin

Certified Mail

No	TOXIC REVIEW
No	PSD
No	SYNTHETIC MINOR TO AVOID MAJOR NSR
No	CEMS
No	MACT/GACT
No	NSPS
No	NESHAPS
No	NETTING
No	MAJOR NON-ATTAINMENT
No	MODELING SUBMITTED
No	SYNTHETIC MINOR TO AVOID TITLE V
No	FEDERALLY ENFORCABLE PTIO (FEPTIO)

Dear Permit Holder:

Enclosed please find a final Air Pollution Permit-to-Install and Operate (PTIO) which will allow you to install, modify, and/or operate the described emissions unit(s) in the manner indicated in the permit. Because this permit contains conditions and restrictions, please read it very 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 Kevin Boyce," 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

If you have any questions, please contact Ohio EPA DAPC, Central District Office at (614)728-3778 or the Office of Compliance Assistance and Pollution Prevention at (614) 644-3469. This permit can be accessed electronically on the DAPC Web page, www.epa.ohio.gov/dapc, by clicking the "Issued Air Pollution Control Permits" link.

Sincerely,

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

Cc: Ohio EPA-CDO



FINAL

**Division of Air Pollution Control
Permit-to-Install and Operate
for**

Central Ohio Community Improvement Corporation (COCIC)

Facility ID: 0125074001
Permit Number: P0107004
Permit Type: Renewal
Issued: 11/15/2010
Effective: 11/15/2010
Expiration: 11/15/2020



Division of Air Pollution Control
Permit-to-Install and Operate
for
Central Ohio Community Improvement Corporation (COCIC)

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Authorization

Facility ID: 0125074001

Application Number(s): A0040417

Permit Number: P0107004

Permit Description: PTIO for a flare located at a closed landfill. The equipment is not subject to the NSPS because of its original installation date. This equipment was originally permitted under Bedford #1 Landfill (0125071821) which has been shutdown. The physical location has been re-parceled by the City of Ghanna, but the equipment is still located in the same place and has not been modified.

Permit Type: Renewal

Permit Fee: \$0.00

Issue Date: 11/15/2010

Effective Date: 11/15/2010

Expiration Date: 11/15/2020

Permit Evaluation Report (PER) Annual Date: Jan 1 - Dec 31, Due Feb 15

This document constitutes issuance to:

Central Ohio Community Improvement Corporation (COCIC)
811 Science Blvd
Gahanna, OH 43215

of a Permit-to-Install and Operate 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, Central District Office
50 West Town Street, 6th Floor
P.O. Box 1049
Columbus, OH 43216-1049
(614)728-3778

The above named entity is hereby granted this Permit-to-Install and Operate for the air contaminant source(s) (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 described emissions unit(s) will operate in compliance with applicable State and federal laws and regulations.

This permit is granted subject to the conditions attached hereto.

Ohio Environmental Protection Agency

Chris Korleski
Director



Authorization (continued)

Permit Number: P0107004
Permit Description: PTIO for a flare located at a closed landfill. The equipment is not subject to the NSPS because of its original installation date. This equipment was originally permitted under Bedford #1 Landfill (0125071821) which has been shutdown. The physical location has been re-parceled by the City of Ghanna, but the equipment is still located in the same place and has not been modified.

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

Emissions Unit ID:	P001
Company Equipment ID:	Flare
Superseded Permit Number:	01-1240
General Permit Category and Type:	Not Applicable



A. Standard Terms and Conditions

1. What does this permit-to-install and operate ("PTIO") allow me to do?

This permit allows you to install and operate the emissions unit(s) identified in this PTIO. You must install and operate the unit(s) in accordance with the application you submitted and all the terms and conditions contained in this PTIO, including emission limits and those terms that ensure compliance with the emission limits (for example, operating, recordkeeping and monitoring requirements).

2. Who is responsible for complying with this permit?

The person identified on the "Authorization" page, above, is responsible for complying with this permit until the permit is revoked, terminated, or transferred. "Person" means a person, firm, corporation, association, or partnership. The words "you," "your," or "permittee" refer to the "person" identified on the "Authorization" page above.

The permit applies only to the emissions unit(s) identified in the permit. If you install or modify any other equipment that requires an air permit, you must apply for an additional PTIO(s) for these sources.

3. What records must I keep under this permit?

You must keep all records required by this permit, including monitoring data, test results, strip-chart recordings, calibration data, maintenance records, and any other record required by this permit for five years from the date the record was created. You can keep these records electronically, provided they can be made available to Ohio EPA during an inspection at the facility. Failure to make requested records available to Ohio EPA upon request is a violation of this permit requirement.

4. What are my permit fees and when do I pay them?

There are two fees associated with permitted air contaminant sources in Ohio:

- PTIO fee. This one-time fee is based on a fee schedule in accordance with Ohio Revised Code (ORC) section 3745.11, or based on a time and materials charge for permit application review and permit processing if required by the Director.

You will be sent an invoice for this fee after you receive this PTIO and payment is due within 30 days of the invoice date. You are required to pay the fee for this PTIO even if you do not install or modify your operations as authorized by this permit.

- Annual emissions fee. Ohio EPA will assess a separate fee based on the total annual emissions from your facility. You self-report your emissions in accordance with Ohio Administrative Code (OAC) Chapter 3745-78. This fee assessed is based on a fee schedule in ORC section 3745.11 and funds Ohio EPA's permit compliance oversight activities. Unless otherwise specified, facilities subject to one or more synthetic minor restrictions must use Ohio EPA's "Air Services" to submit annual emissions associated with this permit requirement. Ohio EPA will notify you when it is time to report your emissions and to pay your annual emission fees.

5. When does my PTIO expire, and when do I need to submit my renewal application?

This permit expires on the date identified at the beginning of this permit document (see "Authorization" page above) and you must submit a renewal application to renew the permit. Ohio EPA will send a renewal notice to you approximately six months prior to the expiration date of this permit. However, it is very important that you submit a complete renewal permit application (postmarked prior to expiration of this permit) even if you do not receive the renewal notice.

If a complete renewal application is submitted before the expiration date, Ohio EPA considers this a timely application for purposes of ORC section 119.06, and you are authorized to continue operating the emissions unit(s) covered by this permit beyond the expiration date of this permit until final action is taken by Ohio EPA on the renewal application.

6. What happens to this permit if my project is delayed or I do not install or modify my source?

This PTIO expires 18 months after the issue date identified on the "Authorization" page above unless otherwise specified if you have not (1) started constructing the new or modified emission sources identified in this permit, or (2) entered into a binding contract to undertake such construction. This deadline can be extended by up to 12 months, provided you apply to Ohio EPA for this extension within a reasonable time before the 18-month period has ended and you can show good cause for any such extension.

7. What reports must I submit under this permit?

An annual permit evaluation report (PER) is required in addition to any malfunction reporting required by OAC rule 3745-15-06 or other specific rule-based reporting requirement identified in this permit. Your PER due date is identified in the Authorization section of this permit.

8. If I am required to obtain a Title V operating permit in the future, what happens to the operating provisions and PER obligations under this permit?

If you are required to obtain a Title V permit under OAC Chapter 3745-77 in the future, the permit-to-operate portion of this permit will be superseded by the issued Title V permit. From the effective date of the Title V permit forward, this PTIO will effectively become a PTI (permit-to-install) in accordance with OAC rule 3745-31-02(B). The following terms and conditions will no longer be applicable after issuance of the Title V permit: Section B, Term 1.b) and Section C, for each emissions unit, Term a)(2).

The PER requirements in this permit remain effective until the date the Title V permit is issued and is effective, and cease to apply after the effective date of the Title V permit. The final PER obligation will cover operations up to the effective date of the Title V permit and must be submitted on or before the submission deadline identified in this permit on the last day prior to the effective date of the Title V permit.

9. What are my obligations when I perform scheduled maintenance on air pollution control equipment?

You must perform scheduled maintenance of air pollution control equipment in accordance with OAC rule 3745-15-06(A). If scheduled maintenance requires shutting down or bypassing any air pollution control equipment, you must also shut down the emissions unit(s) served by the air pollution control equipment during maintenance, unless the conditions of OAC rule 3745-15-06(A)(3) are met. Any emissions that exceed permitted amount(s) under this permit (unless specifically exempted by rule) must be reported as deviations in the annual permit evaluation report (PER), including nonexempt excess emissions that occur during approved scheduled maintenance.

10. Do I have to report malfunctions of emissions units or air pollution control equipment? If so, how must I report?

If you have a reportable malfunction of any emissions unit(s) or any associated air pollution control system, you must report this to the Ohio EPA DAPC, Central District Office in accordance with OAC rule 3745-15-06(B). Malfunctions that must be reported are those that result in emissions that exceed

permitted emission levels. It is your responsibility to evaluate control equipment breakdowns and operational upsets to determine if a reportable malfunction has occurred.

If you have a malfunction, but determine that it is not a reportable malfunction under OAC rule 3745-15-06(B), it is recommended that you maintain records associated with control equipment breakdown or process upsets. Although it is not a requirement of this permit, Ohio EPA recommends that you maintain records for non-reportable malfunctions.

11. Can Ohio EPA or my local air agency inspect the facility where the emission unit(s) is/are located?

Yes. Under Ohio law, the Director or his authorized representative may inspect the facility, conduct tests, examine records or reports to determine compliance with air pollution laws and regulations and the terms and conditions of this permit. You must provide, within a reasonable time, any information Ohio EPA requests either verbally or in writing.

12. What happens if one or more emissions units operated under this permit is/are shut down permanently?

Ohio EPA can terminate the permit terms associated with any permanently shut down emissions unit. "Shut down" means 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.

You should notify Ohio EPA of any emissions unit that is permanently shut down by submitting¹ a certification that identifies the date on which the emissions unit was permanently shut down. The certification must be submitted by an authorized official from the facility. You cannot continue to operate an emissions unit once the certification has been submitted to Ohio EPA by the authorized official.

You must comply with all recordkeeping and reporting for any permanently shut down emissions unit in accordance with the provisions of the permit, regulations or laws that were enforceable during the period of operation, such as the requirement to submit a PER, air fee emission report, or malfunction report. You must also keep all records relating to any permanently shutdown emissions unit, generated while the emissions unit was in operation, for at least five years from the date the record was generated.

Again, you cannot resume operation of any emissions unit certified by the authorized official as being permanently shut down without first applying for and obtaining a permit pursuant to OAC Chapter 3745-31.

13. Can I transfer this permit to a new owner or operator?

You can transfer this permit to a new owner or operator. If you transfer the permit, you must follow the procedures in OAC Chapter 3745-31, including notifying Ohio EPA or the local air agency of the change in ownership or operator. Any transferee of this permit must assume the responsibilities of the transferor permit holder.

14. Does compliance with this permit constitute compliance with OAC rule 3745-15-07, "air pollution nuisance"?

This permit and OAC rule 3745-15-07 prohibit operation of the air contaminant source(s) regulated

¹ Permittees that use Ohio EPA's "Air Services" can mark the affected emissions unit(s) as "permanently shutdown" in the facility profile 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).

under this permit in a manner that causes a nuisance. Ohio EPA can require additional controls or modification of the requirements of this permit through enforcement orders or judicial enforcement action if, upon investigation, Ohio EPA determines existing operations are causing a nuisance.

15. What happens if a portion of this permit is determined to be invalid?

If a portion of this permit is determined to be invalid, the remainder of the terms and conditions remain valid and enforceable. The exception is where the enforceability of terms and conditions are dependent on the term or condition that was declared invalid.

B. Facility-Wide Terms and Conditions

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

C. Emissions Unit Terms and Conditions



1. P001, Flare

Operations, Property and/or Equipment Description:

Landfill gas flare for odor control

a) 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.

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.

Table with 2 columns: Applicable Rules/Requirements and Applicable Emissions Limitations/Control Measures. Row 1: a. OAC rule 3745-31-05(A)(3) | Controlled emissions from the flare: Non methane organic compound (NMOC) emissions shall not exceed 0.31 pounds per hour (lb/hr) and 1.33 tons per year (tpy). Methane (CH4) emissions shall not exceed 9.45 lb/hr and 41.37 tpy. Volatile organic compound (VOC) emissions shall not exceed 0.24 lb/hr and 1.07 tpy. Particulate matter with aerodynamic diameter less than ten microns in diameter (PM-10) emissions shall not exceed 0.31 lb/hr and 1.34 tpy. Sulfur dioxide (SO2) emissions shall not



	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
		<p>exceed 0.55 lb/hr and 2.38 tpy.</p> <p>Nitrogen oxide (NO_x) emissions shall not exceed 0.72 lb/hr and 3.17 tpy.</p> <p>Carbon monoxide (CO) emissions shall not exceed 13.51 lb/hr and 59.14 tpy.</p> <p>Combined hazardous air pollutants (HAP) shall not exceed 0.16 lb/hr and 0.67 tpy.</p> <p>See b)(2)a.</p>
b.	OAC rule 3745-17-07(A)	The emission limitation established by this rule is less stringent than OAC rule 3745-31-05(A)(3).

(2) Additional Terms and Conditions

- a. All collected gas shall be vented to an open flare designed and operated as follows:
 - i. The flare shall be designed for and operated with no visible emissions, as determined by Method 22 of Appendix A of 40 CFR Part 60, except for periods not to exceed a total of 5 minutes during any 2 consecutive hours.
 - ii. The flare shall be operated with a flame present at all times when gases are vented to it. The presence of a flare pilot flame shall be monitored using a thermocouple or any other equivalent device to detect the presence of a flame. The net heating value of the gas being combusted and the actual exit velocity shall be calculated as required in the Testing Section of this permit.
 - iii. Flares shall be steam-assisted, air-assisted, or non-assisted, and shall comply with the following requirements for the heat content in paragraph "i" **and** the maximum tip velocity in paragraph "ii", **or** shall comply with the alternative requirements in paragraph "iii" for nonassisted flares:
 - (a) Steam-assisted or air-assisted flares shall have a net heating value of 300 Btu/scf (11.2 MJ/scm) or greater, for the gas being combusted.
 - (b) Nonassisted flares shall have a net heating value of 200 Btu/scf (7.45 MJ/scm) for the gas being combusted.

The net heating value of the gas being combusted shall be calculated as required in the Testing Section of this permit.

iv. Steam-assisted and/or nonassisted flares shall be designed for and operated with an exit velocity of less than 18.3 m/sec (60 ft/sec), with the following exceptions:

- (a) steam-assisted and nonassisted flares, having a net heating value of 1,000 Btu/scf (37.3 MJ/scm) for the gas being combusted, can be designed for and operated with an exit velocity equal to or greater than 18.3 m/sec (60 ft/sec), but less than 122 m/sec (400 ft/sec); and
- (b) steam-assisted and nonassisted flares can be designed for and operated with an exit velocity of less than the velocity calculated below for V_{max} , and less than 122 m/sec (400 ft/sec):

$$\text{Log}_{10}(V_{max}) = (H_T + 28.8)/31.7$$

where:

V_{max} = maximum permitted velocity, m/sec;

28.8 = constant;

31.7 = constant; and

H_T = the net heating value as determined in the Testing Section of this permit.

- (c) Air-assisted flares shall be designed and operated with an exit velocity less than the velocity V_{max} , calculated as follows:

$$V_{max} = 8.706 + 0.7084 (H_T)$$

where:

V_{max} = maximum permitted velocity, m/sec;

8.706 = constant;

0.7084 = constant; and

H_T = the net heating value as determined in the Testing Section of this permit.

v. Nonassisted flares that have a diameter of 3 inches or greater and a hydrogen content of 8.0 percent (by volume), or greater, shall be designed for and operated with an exit velocity of less than 37.2 m/sec (122 ft/sec) and less than the velocity, V_{max} , as determined by the following equation:

$$V_{max} = (X_{H_2} - K_1) K_2$$

where:

V_{\max} = maximum permitted velocity, m/sec;

K_1 = constant, 6.0 volume-percent hydrogen;

K_2 = constant, 3.9 (m/sec)/volume-percent hydrogen; and

X_{H_2} = the volume-percent of hydrogen, on a wet basis, as calculated by using the ASTM Method D1946-90.

c) Operational Restrictions

- (1) An interlock system shall be operated continuously to prevent landfill gas from venting to the flare when a flame is not present.

d) Monitoring and/or Recordkeeping Requirements

- (1) Modeling to demonstrate compliance with the "Toxic Air Contaminant Statute", ORC 3704.03(F)(4)(b), was not necessary because the emissions unit's maximum annual emissions for each toxic air contaminant, as defined in OAC rule 3745-114-01, will be less than 1.0 ton per year. OAC Chapter 3745-31 requires permittees to apply for and obtain a new or modified permit-to-install and operate (PTIO) prior to making a "modification" as defined by OAC rule 3745-31-01. The permittee is hereby advised that changes in the composition of the materials, or use of new materials, that would cause the emissions of any toxic air contaminant to increase to above 1.0 ton per year may require the permittee to apply for and obtain a new PTIO.
- (2) The permittee shall monitor the flare to ensure that it is operated and maintained in conformance with its design and the requirements contained in this permit.
- (3) The permittee shall record all periods of time during which there was no pilot flame or the flare was inoperable. The date, time, and duration of each such period shall be reported as a deviation in the Annual Permit Evaluation Report (PER).
- (4) The permittee shall, upon each visit to this closed facility, and at a minimum of once per month during normal operating conditions, visually inspect the flare and record whether or not any visible emissions are present and the duration of any visible emissions.

e) Reporting Requirements

- (1) Annual Permit Evaluation Report (PER) forms will be mailed to the permittee at the end of the reporting period specified in the Authorization section of this permit. The permittee shall submit the PER in the form and manner provided by the director by the due date identified in the Authorization section of this permit. The permit evaluation report shall cover a reporting period of no more than twelve-months for each air contaminant source identified in this permit.

f) Testing Requirements

- (1) Compliance with the emission limitations in section b)(1) of these terms and conditions shall be determined in accordance with the following method(s):

a. Emission Limitations:

0.31 lb/hr NMOC

1.33 tpy NMOC

Applicable Compliance Method:

Compliance shall be demonstrated by multiplying the NMOC emission rate, as calculated by USEPA's Landfill Emissions Model (LandGEM), by an average flare destruction efficiency of 90%.

The hourly emission limitation was developed by multiplying the annual mass emission limitation by 2000 pounds per ton, and then dividing by 365 days per year and 24 hours per day.

b. Emission Limitations:

9.45 pounds per hour CH₄

41.37 tons per year CH₄

Applicable Compliance Method:

Compliance shall be demonstrated by multiplying CH₄ emission rate, as calculated by the USEPA's LandGem, by the conversion factor of 1.1023 Mg/ton and by an average flare destruction efficiency of 90%.

The hourly emission limitation was developed by multiplying the annual mass emission limitation by 2000 pounds per ton, and then dividing by 365 days per year and 24 hours per day.

c. Emission Limitations:

0.24 pounds per hour VOC

1.07 tons per year VOC

Applicable Compliance Method:

Multiply the NMOC emissions by 80% to convert to VOC emissions. The conversion rate was established per 61 Federal Register 9912, dated March 12, 1996.

The hourly emission limitation was developed by multiplying the annual mass emission limitation by 2000 pounds per ton, and then dividing by 365 days per year and 24 hours per day.

d. Emission Limitations:

0.31 pounds per hour PM-10

1.34 tons per year PM-10

Applicable Compliance Method:

Compliance shall be determined by the following calculation:

$$E = ((EF) / (16700)) * (\text{Methane Flow Rate})$$

where,

E = PM-10 emissions, lb/hr

EF = emission factor, 17 lbs/10⁶ dscf Methane (AP-42, Table 2.4-5, "Emission Rates for Secondary Compounds Exiting Control Devices," November 1998)

The annual emission limitation was developed by multiplying the hourly mass emission limitation by 8760 hours per year, and then dividing by 2000 pounds per ton.

e. Emission Limitations:

0.55 pounds per hour SO₂

2.38 tons per year SO₂

Applicable Compliance Method:

Compliance shall be determined by the following calculation:

$$E = (\text{Methane Flow Rate}) * (EF) * (1000 \text{ btu/cf Methane}) * (1/1,000,000) * (60 \text{ min/hr})$$

where,

E = SO₂ emissions, lb/hr

EF = emission factor, 0.03 lbs/MMbtuh (Landfill Operations Document, "Default Values – Landfill Gas Flare Emissions," October 1998.)

The annual emission limitation was developed by multiplying the hourly mass emission limitation by 8760 hours per year, and then dividing by 2000 pounds per ton.

f. Emission Limitations:

0.72 pounds per hour NO_x

3.17 tons per year NO_x

Applicable Compliance Method:

Compliance shall be determined by the following calculation:

$$E = ((EF) / (16700)) * (\text{Methane Flow Rate})$$

where,

$$E = \text{NO}_x \text{ emissions, lb/hr}$$

EF = emission factor, 40 lbs/10⁶ dscf Methane (AP-42, Table 2.4-5, "Emission Rates for Secondary Compounds Exiting Control Devices," November 1998)

The annual emission limitation was developed by multiplying the hourly mass emission limitation by 8760 hours per year, and then dividing by 2000 pounds per ton.

g. Emission Limitations:

13.51 pounds per hour CO

59.14 tons per year CO

Applicable Compliance Method:

Compliance shall be determined by the following calculation:

$$E = ((EF) / (16700)) * (\text{Methane Flow Rate})$$

where,

$$E = \text{CO emissions, lb/hr}$$

EF = emission factor, 750 lbs/10⁶ dscf Methane (AP-42, Table 2.4-5, "Emission Rates for Secondary Compounds Exiting Control Devices," November 1998)

The annual emission limitation was developed by multiplying the hourly mass emission limitation by 8760 hours per year, and then dividing by 2000 pounds per ton.

h. Emission Limitation:

Visible particulate emissions from the stack serving this emissions unit shall not exceed zero percent (0%) opacity, except for periods not to exceed a total of five minutes during any 2 consecutive hours.

Applicable Compliance Method:

Compliance with the visible particulate emissions limitation shall be determined through visible emissions observations performed in accordance with U.S. EPA Method 22.

i. The net heating value of the gas being combusted at the flare shall be calculated as follows:

n

$$H_T = k \sum_{i=1} C_i H_i$$

where:

H_T = net heating value of the sample, MJ/scm; where the net enthalpy per mole of off gas is based on combustion at 25 degrees Celsius and 760 mm Hg, but the standard temperature of 20 degrees Celsius is used for determining the volume corresponding to one mole;

k = constant, 1.740×10^{-7} (1/ppm) (g mole/scm) (MJ/kcal), where the standard temperature for "g mole/scm" is 20 degrees Celsius;

C_i = concentration of sample component "i" in ppm on a wet basis, as measured for organics by Reference Method 18 and measured for hydrogen and carbon monoxide by ASTM D1946-90;

H_i = net heat of combustion of sample component "i", kcal/g mole at 25 degrees Celsius and 760 mm Hg. The heats of combustion may be determined using ASTM D4809-95 if published values are not available or cannot be calculated;

i = subscript denoting a specific component in the sample; and

n = total number of components within the sample.

The conversion factor of "26.84 Btu scm/MJ scf" can be used to convert the net heating value of the gas (H_T) from MJ/scm to Btu/scf.

- j. The actual exit velocity of the flare shall be determined by dividing the volumetric flow rate (in units of standard temperature and pressure) of the flare header or headers that feed the flare, as determined by Reference Methods 2, 2A, 2C, or 2D (found in 40 CFR 60, Appendix A), as appropriate, by the unobstructed (free) cross-sectional area of the flare tip.

The conversion factor of "3.281 ft/m" can be used to convert the velocity from m/sec to ft/sec.

g) Miscellaneous Requirements

- (1) None.