



State of Ohio Environmental Protection Agency

**RE: FINAL PERMIT TO INSTALL
COSHOCOTON COUNTY**

CERTIFIED MAIL

Street Address:

50 West Town Street, Suite 700

Lazarus Gov. Center TELE: (614) 644-3020 FAX: (614) 644-2329

Mailing Address:

Lazarus Gov. Center
P.O. Box 1049

Application No: 06-08168

Fac ID: 0616010090

DATE: 5/1/2008

Intrinergy Coshocoton LLC
Greg Cabe
10408 Lakeridge Parkway, Suite 900
Ashland, VA 23005

Enclosed please find an Ohio EPA Permit to Install which will allow you to install the described source(s) in a manner indicated in the permit. Because this permit contains several conditions and restrictions, I urge you to read it carefully.

The Ohio EPA is urging 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 Pollution Prevention at (614) 644-3469.

You are hereby notified that this action of the Director is final 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 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

Sincerely,

Michael W. Ahern, Manager
Permit Issuance and Data Management Section
Division of Air Pollution Control

CC: USEPA

SEDO



**Permit To Install
Terms and Conditions**

**Issue Date: 5/1/2008
Effective Date: 5/1/2008**

FINAL PERMIT TO INSTALL 06-08168

Application Number: 06-08168
Facility ID: 0616010090
Permit Fee: **\$3200**
Name of Facility: Intrinergy Coshocton LLC
Person to Contact: Greg Cabe
Address: 10408 Lakeridge Parkway, Suite 900
Ashland, VA 23005

Location of proposed air contaminant source(s) [emissions unit(s)]:
**1957 South Sixth St.
Coshocton, Ohio**

Description of proposed emissions unit(s):
Syngas production facility

The above named entity is hereby granted a Permit to Install for the above described emissions unit(s) 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 above described 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

Chris Korleski
Director

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Part I - GENERAL TERMS AND CONDITIONS

A. State and Federally Enforceable Permit-To-Install General Terms and Conditions

1. Monitoring and Related Recordkeeping 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:
 - i. The date, place (as defined in the permit), and time of sampling or measurements.
 - ii. The date(s) analyses were performed.
 - iii. The company or entity that performed the analyses.
 - iv. The analytical techniques or methods used.
 - v. The results of such analyses.
 - vi. 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:
 - i. Reports of any required monitoring and/or recordkeeping of federally enforceable information shall be submitted to the appropriate Ohio EPA District Office or local air agency.
 - ii. Quarterly written reports of (i) any deviations from federally enforceable emission limitations, operational restrictions, and control device operating parameter limitations, 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 appropriate Ohio EPA District Office or local air agency. The written

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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 B.9 below if no deviations occurred during the quarter.

- iii. Written reports, which identify any deviations from the federally enforceable monitoring, recordkeeping, and reporting requirements contained in this permit shall be submitted (i.e., postmarked) to the appropriate Ohio EPA District Office or local air agency 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.
 - iv. If this permit is for an emissions unit located at a Title V facility, then 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.

2. 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 appropriate Ohio EPA District Office or local air agency 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).

3. 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.

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4. 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.

5. Severability Clause

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.

6. 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.

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7. 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.

8. Federal and State Enforceability

Only those terms and conditions designated in this permit as federally enforceable, that are required under the Act, or any 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. All other terms and conditions of this permit shall not be federally enforceable and shall be enforceable under State law only.

9. Compliance Requirements

- a. 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.
- b. 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:
 - i. 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.
 - ii. 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.
 - iii. Inspect at reasonable times any facilities, equipment (including monitoring and air pollution control equipment), practices, or operations regulated or required under this permit.

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- iv. 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.
- c. The permittee shall submit progress reports to the appropriate Ohio EPA District Office or local air agency 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:
 - i. Dates for achieving the activities, milestones, or compliance required in any schedule of compliance, and dates when such activities, milestones, or compliance were achieved.
 - ii. 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.

10. Permit-To-Operate Application

- a. If 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).
- b. If the permittee is required to apply for permit(s) pursuant to OAC Chapter 3745-35, the source(s) identified in this permit is (are) permitted to operate for a period of up to one year from the date the source(s) commenced operation. Permission to operate is granted only if the facility complies with all requirements contained in this permit and all applicable air pollution laws, regulations, and policies. Pursuant to OAC Chapter 3745-35, the permittee shall submit a complete operating permit application within ninety (90) days after commencing operation of the source(s) covered by this permit.

11. Best Available Technology

As specified in OAC Rule 3745-31-05, all new sources must employ Best Available Technology (BAT). Compliance with the terms and conditions of this permit will fulfill this requirement.

12. Air Pollution Nuisance

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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.

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13. Permit-To-Install

A permit-to-install must be obtained pursuant to OAC Chapter 3745-31 prior to "installation" of "any air contaminant source" as defined in OAC rule 3745-31-01, or "modification", as defined in OAC rule 3745-31-01, of any emissions unit included in this permit.

B. State Only Enforceable Permit-To-Install General Terms and Conditions

1. Compliance Requirements

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.

2. 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 appropriate Ohio EPA District Office or local air agency.
- 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 appropriate Ohio EPA District Office or local air agency. 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.)

3. Permit Transfers

Any transferee of this permit shall assume the responsibilities of the prior permit holder. The appropriate Ohio EPA District Office or local air agency must be notified in writing

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of any transfer of this permit.

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4. Authorization To Install or Modify

If applicable, authorization to install or modify any new or existing 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 modification or has not entered into a binding contractual obligation to undertake and complete within a reasonable time a continuing program of installation or modification. 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.

5. Construction of New Sources(s)

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.

6. 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.

7. 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).

8. Construction Compliance Certification

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If applicable, the applicant shall provide Ohio EPA with a written certification (see enclosed form if applicable) that the facility has been constructed in accordance with the permit-to-install application and the terms and conditions of the permit-to-install. The certification shall be provided to Ohio EPA upon completion of construction but prior to startup of the source.

9. Additional Reporting Requirements When There Are No Deviations of Federally Enforceable Emission Limitations, Operational Restrictions, or Control Device Operating Parameter Limitations (See Section A of This Permit)

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.

C. Permit-To-Install Summary of Allowable Emissions

The following information summarizes the total allowable emissions, by pollutant, based on the individual allowable emissions of each air contaminant source identified in this permit.

SUMMARY (for informational purposes only)
 TOTAL PERMIT TO INSTALL ALLOWABLE EMISSIONS

<u>Pollutant</u>	<u>Tons Per Year</u>
PE (stack)	8.35
PE (fugitive)	0.01
CO	118.21
NO _x	67.70
SO ₂	24.9
VOC	39.60

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Part II - FACILITY SPECIFIC TERMS AND CONDITIONS

A. State and Federally Enforceable Permit To Install Facility Specific Terms and Conditions

I. Facility-Wide Emission Limitations

1. Fugitive leaks of benzene from the equipment covered by this permit (emission unit ID # P801) are subject to 40 CFR Part 61 Subparts J and V - National Emission Standards for Equipment Leaks of Benzene. The complete requirements may be accessed via the internet from the Electronic Code of Federal Regulations (e-CFR) website at <http://ecfr.gpoaccess.gov>.

II. Operational Restrictions

None

III. Facility-Wide Monitoring and/or Record Keeping Requirements

None

IV. Reporting Requirements

None

V. Testing Requirements

None

B. State Only Enforceable Permit To Install Facility Specific Terms and Conditions

I. Facility-Wide Emission Limitations

1. The permittee has requested a limitation on facility-wide sulfur dioxide (SO₂) emissions for the purpose of avoiding state modeling for SO₂. Therefore, the facility-wide emissions from the production and burning of syngas fuel* and the burning of natural gas, propane and #2 fuel oil by Intrinergy shall not exceed the following emission rate based on a rolling, 12-month summation:

- a. SO₂ emissions shall not exceed 24.9 tons.

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* Syngas fuel is the alternate fuel gas produced from the conversion, via pyrolysis, of prepared rubber, prepared shredded carpet fluff (subject to solid waste permitting requirements), and/or prepared wood chips and agricultural vegetation feedstocks.

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II. Operational Restrictions

- The fuel usage in emissions units B001-B005, P001-P004, and P006 shall not cause SO₂ emissions to exceed 24.9 tons per rolling, 12-month period based on the following equation:

$$\frac{[(A_{SG} * H * T_{B001-B004}) + ((A_{NG} + B_{NG} + C_{NG}) * 1,020 \text{ Btu/scf} * 0.0006 \text{ lb/million Btu}) + ((A_{FO} + B_{FO}) * 0.14 \text{ million Btu/gallon} * 0.051 \text{ lb/million Btu}) + ((A_P + B_P) * 0.0905 \text{ million Btu/gallon} * 0.017 \text{ lb/million Btu}) + (B_{SG} * H * T_{B005}) + (C_{SG} * H * T_{P001-P004}) + (D * S * H)]}{2000 \text{ lbs/ton}} \leq 24.9 \text{ tons of SO}_2 \text{ per rolling, 12-month period}$$

Where:

- A_{SG} = total syngas combusted in the converters (B001-B004), in million scf per rolling, 12-month period;
- A_{NG} = total natural gas combusted in the converters (B001-B004), in million scf per rolling, 12-month period;
- A_{FO} = total #2 fuel oil combusted in the converters (B001-B004), in gallons per rolling, 12-month period;
- A_P = total propane combusted in the converters (B001-B004), in gallons per rolling, 12-month period;
- B_{SG} = total syngas combusted in the steam boiler (B005), in million scf per rolling, 12-month period;
- B_{NG} = total natural gas combusted in the steam boiler (B005), in million scf per rolling, 12-month period;
- B_{FO} = total #2 fuel oil combusted in the steam boiler (B005), in gallons per rolling, 12-month period;
- B_P = total propane combusted in the steam boiler (B005), in gallons per rolling, 12-month period;
- C_{NG} = total natural gas combusted in the IC engines (P001-P004), in million scf per rolling, 12-month period;
- C_{SG} = total syngas combusted in the IC engines (P001-P004), in million scf per rolling, 12-month period;
- D = total syngas combusted in the waste syngas fuel flare (P006), in million scf per rolling, 12-month period;
- H = heat content of syngas, in Btu/scf;
- S = sulfur content of syngas, in lb/Million Btu;
- T_{xxxx} = emission factor for SO₂ from the most recent stack tests for converters ($T_{B001-B004}$), IC engines ($T_{P001-P004}$), and steam boiler (T_{B005}) while burning syngas, in lb/Million Btu;

0.0006 lb/million Btu = converted SO₂ EF for natural gas combustion in external combustion sources (AP-42 Section 1.4, 7/98) and natural gas

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combustion in internal combustion sources (AP-42 Section 3.2, 7/00);
 0.051 lb/million Btu = converted SO₂ EF for fuel oil combustion (AP-42 Section
 1.3, 9/98); and
 0.017 lb/million Btu = converted SO₂ EF for propane combustion (AP-42 Section
 1.5, 10/96).

To ensure enforceability during the first 12 calendar months of operation following the issuance of this permit, the permittee shall not use any fuel in a manner that causes exceedences of the SO₂ emission rates in the following chart:

<u>Month(s)</u>	<u>Maximum Allowable Combined SO₂ Emission Rates</u> <u>(tons)</u>
1-1	6.0
1-2	7.7
1-3	9.4
1-4	11.1
1-5	12.8
1-6	14.5
1-7	16.2
1-8	17.9
1-9	19.6
1-10	21.3
1-11	23.0
1-12	24.9

After the first 12 calendar months of operation following issuance of this permit, compliance with the annual SO₂ emission rates based on fuel usage shall be based upon a rolling, 12-month summation of the tons of SO₂ emissions.

III. Facility-Wide Monitoring and/or Record Keeping Requirements

1. The permit to install for these emissions units (B001-B005, P001-P006, and P801) was evaluated based on the actual materials and the design parameters of the emissions units' exhaust systems, as specified by the permittee in the permit application. The "Toxic Air Contaminant Statute", ORC 3704.03(F), was applied to this/these emissions unit(s) for each toxic air contaminant listed in OAC rule 3745-114-01, using data from the permit application; and modeling was performed for each toxic air contaminant(s) emitted at over one ton per year using an air dispersion model such as SCREEN 3.0, AERMOD, or ISCST3, or other Ohio EPA approved model. The predicted 1-hour maximum ground-level concentration result(s) from the approved air dispersion model, was compared to the Maximum Acceptable Ground-Level Concentration (MAGLC),

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calculated as described in the Ohio EPA guidance document entitled "Review of New Sources of Air Toxic Emissions, Option A", as follows:

- a. the exposure limit, expressed as a time-weighted average concentration for a conventional 8-hour workday and a 40-hour workweek, for each toxic compound(s) emitted from the emissions unit(s), (as determined from the raw materials processed and/or coatings or other materials applied) has been documented from one of the following sources and in the following order of preference (TLV was and shall be used, if the chemical is listed):
 - i. threshold limit value (TLV) from the American Conference of Governmental Industrial Hygienists' (ACGIH) "Threshold Limit Values for Chemical Substances and Physical Agents Biological Exposure Indices"; or
 - ii. STEL (short term exposure limit) or the ceiling value from the American Conference of Governmental Industrial Hygienists' (ACGIH) "Threshold Limit Values for Chemical Substances and Physical Agents Biological Exposure Indices"; the STEL or ceiling value is multiplied by 0.737 to convert the 15-minute exposure limit to an equivalent 8-hour TLV.
- b. The TLV is divided by ten to adjust the standard from the working population to the general public (TLV/10).
- c. This standard is/was then adjusted to account for the duration of the exposure or the operating hours of the emissions unit(s), i.e., "X" hours per day and "Y" days per week, from that of 8 hours per day and 5 days per week. The resulting calculation was (and shall be) used to determine the Maximum Acceptable Ground-Level Concentration (MAGLC):

$$\text{TLV}/10 \times 8/X \times 5/Y = 4 \text{ TLV}/XY = \text{MAGLC}$$

- d. The following summarizes the results of dispersion modeling for the significant toxic contaminants (emitted at 1 or more tons/year) or "worst case" toxic contaminant(s):

Toxic Contaminant: Benzene (1,3-Butadiene).

TLV (mg/m³): 1.6

Maximum Hourly Emission Rate (lbs/hr): 1.6 (benzene)

Predicted 1-Hour Maximum Ground-Level Concentration (ug/m³): 10.76

MAGLC (ug/m³): 38

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The permittee, has demonstrated that emissions of benzene, from emissions units B001-B005, P001-P006, and P901, is calculated to be less than eighty per cent of the maximum acceptable ground level concentration (MAGLC); any new raw material or processing agent shall not be applied without evaluating each component toxic air contaminant in accordance with the "Toxic Air Contaminant Statute", ORC 3704.03(F).

2. Prior to making any physical changes to or changes in the method of operation of the emissions unit(s), that could impact the parameters or values that were used in the predicted 1-hour maximum ground-level concentration", the permittee shall re-model the change(s) to demonstrate that the MAGLC has not been exceeded. Changes that can affect the parameters/values used in determining the 1-hour maximum ground-level concentration include, but are not limited to, the following:
 - a. changes in the composition of the materials used or the use of new materials, that would result in the emission of a new toxic air contaminant with a lower Threshold Limit Value (TLV) than the lowest TLV previously modeled;
 - b. changes in the composition of the materials, or use of new materials, that would result in an increase in emissions of any toxic air contaminant listed in OAC rule 3745-114-01, that was modeled from the initial (or last) application; and
 - c. physical changes to the emissions unit(s) or its/their exhaust parameters (e.g., increased/ decreased exhaust flow, changes in stack height, changes in stack diameter, etc.).

If the permittee determines that the "Toxic Air Contaminant Statute" will be satisfied for the above changes, the Ohio EPA will not consider the change(s) to be a "modification" under OAC rule 3745-31-01 solely due to a non-restrictive change to a parameter or process operation, where compliance with the "Toxic Air Contaminant Statute", ORC 3704.03(F), has been documented. If the change(s) meet(s) the definition of a "modification" or if a new toxic is emitted, or the modeled toxic(s) is/are expected to exceed the previous modeled level(s), then the permittee shall apply for and obtain a final permit-to-install prior to the change. The Director may consider any significant departure from the operations of the emissions unit, described in the permit-to-install application, as a modification that results in greater emissions than the emissions rate modeled to determine the ground level concentration; and may require the permittee to submit a permit-to-install application for the increased emissions.

3. The permittee shall collect, record, and retain the following information for each toxic evaluation conducted to determine compliance with the "Toxic Air Contaminant Statute", ORC 3704.03(F):

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- a. a description of the parameters/values used in each compliance demonstration and the parameters or values changed for any re-evaluation of the toxic(s) modeled (the composition of materials, new toxic contaminants emitted, change in stack/exhaust parameters, etc.);
 - b. the Maximum Acceptable Ground-Level Concentration (MAGLC) for each significant toxic contaminant or worst-case contaminant, calculated in accordance with the "Toxic Air Contaminant Statute", ORC 3704.03(F);
 - c. a copy of the computer model run(s), that established the predicted 1-hour maximum ground-level concentration that demonstrated the emissions unit(s) to be in compliance with the "Toxic Air Contaminant Statute", ORC 3704.03(F), initially and for each change that requires re-evaluation of the toxic air contaminant emissions; and
 - d. the documentation of the initial evaluation of compliance with the "Toxic Air Contaminant Statute", ORC 3704.03(F), and documentation of any determination that was conducted to re-evaluate compliance due to a change made to the emissions unit(s) or the materials applied.
4. The permittee shall maintain a record of any change made to a parameter or value used in the dispersion model, used to demonstrate compliance with the "Toxic Air Contaminant Statute", ORC 3704.03(F), through the predicted 1-hour maximum ground-level concentration. The record shall include the date and reason(s) for the change and if the change would increase the ground-level concentration.
 5. The permittee shall collect and analyze representative samples of syngas on at least a monthly basis for sulfur content and heat content for each feedstock converted during the month. The permittee shall perform the analyses for sulfur content and heat content in accordance with appropriate ASTM methods, such as D240 Standard Test Method for Heat of Combustion of Liquid Hydrocarbon Fuels by Bomb Calorimeter, D5504 Standard Test Method for Determination of Sulfur Compounds in Natural Gas and Gaseous Fuels by Gas Chromatography and Chemiluminescence, D1945 Standard Test Method for Analysis of Natural Gas by Gas Chromatography, and D1946 Standard Method for Analysis of Reformed Gas by GC (Fixed Gases), or equivalent methods as approved by the director.
 6. The permittee shall collect and record the following information each month*:
 - a. the total final product syngas generated in the four converters (B001-B004), post gas conditioning, in million scf/month;
 - c. the total quantity of syngas fired in the four converters (B001-B004), in million scf/month;
 - d. the total quantity of syngas fired in the four IC engines (P001-P004), in million scf/month;

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- e. the total quantity of syngas fired in the steam boiler (B005), in million scf/month;
- f. the total quantity of syngas fired in the waste syngas fuel flare (P006), in million scf/month;
- g. the total quantity of natural gas fired in the converters (B001-B004), IC engines (P001-P004) and the steam boiler (B005); in million scf/month;
- h. the total quantity of #2 fuel oil fired in the converters (B001-B004) and the steam boiler (B005), in gallons/month;
- i. the total quantity of propane fired in the converters (B001-B004) and the steam boiler (B005), in gallons/month;
- j. the heat content of the syngas generated, in Btu/scf;
- k. the sulfur content of the syngas generated, calculated based on the sulfur and heat content analyses in Part II.B.III.1, in lb/Million Btu;
- l. the feedstock used to generate the syngas analyzed for heat and sulfur content pursuant to Part II.B.III.1;
- m. the SO₂ emissions from the Intrinergy emissions units (B001-B005, P001-P004 and P006) in tons for each month, calculated using the equations in Part II.B.II.1.
- n. the rolling, 12-month summation of the SO₂ emissions rates, in tons.

*Ohio EPA may require more frequent heat (2.j) and sulfur content (2.k) sampling and analysis if monthly sample data shows a high degree of variability for syngas fuel heat and sulfur content.

IV. Reporting Requirements

1. The permittee shall submit annual reports to the appropriate Ohio EPA District Office or local air agency, documenting 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. If no changes to the emissions unit(s) or the exhaust stack have been made, then the report shall include a statement to this effect. This report shall be postmarked or delivered no later than January 31 following the end of each calendar year.
2. The permittee shall submit quarterly deviation (excursion) reports which identify all exceedences of the rolling, 12-month emissions limitation specified in Part II.B.I.1. and Part II.B.II. These reports shall be submitted in accordance with the General Terms and Conditions of this permit.
3. The permittee shall submit quarterly reports which specify the heat and sulfur content analytical results for syngas for the previous three calendar months. These reports shall be submitted in accordance with the General Terms and Conditions of this permit.

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4. The permittee shall submit annual reports which specify the total SO₂ emissions from the Intrinergy emissions units (B001-B005, P001-P004 and P006) for the previous calendar year. These reports shall be submitted by April 15th of each year. This reporting requirement may be satisfied by including and identifying the specific emission data for these emissions units in the annual Title V Air Fee Emission Report.

V. Testing Requirements

1. Compliance with the emission limitation in Part II.B.I.1 of these terms and conditions shall be determined in accordance with the following method:

Emission Limitation:

SO₂ emissions shall not exceed 24.9 tons per rolling, 12-month period.

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Applicable Compliance Method:

Compliance with the facility-wide emission limitation for SO₂ shall be based upon a rolling, 12-month summation of the monthly SO₂ emission rate determined in accordance with the calculations in Part II.B.II.1 and the recordkeeping requirements in Part II.B.III.

VI. Miscellaneous Requirements

None

Part III - SPECIAL TERMS AND CONDITIONS FOR SPECIFIC EMISSIONS UNIT(S)

A. State and Federally Enforceable Section

I. Applicable Emissions Limitations and/or Control Requirements

1. The specific operations(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 specified in narrative form following the table.

Operations, Property, and/or Equipment - B001 - Converter #1; pyrolysis unit with a 8.75 million Btu/hr process heater fired by natural gas, #2 fuel oil, propane, and/or syngas fuel

Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
OAC rule 3745-31-05(A)(3)(b)	See Section A.I.2.a below.
OAC rule 3745-17-10(B)(1)	Particulate emissions (PE) shall not exceed 0.020 lb/million Btu actual heat input.
OAC rule 3745-17-07(A)(1)	Visible PE from any stack serving this emissions unit shall not exceed 20% opacity as a 6-minute average, except as provided by the rule.
OAC rule 3745-18-06(G)	This emissions unit is exempt from the requirements of OAC rule 3745-18-06(G) pursuant to OAC rule 3745-18-06(B).
OAC rule 3745-21-08(B)	See Section A.I.2.b below.

2. Additional Terms and Conditions

- 2.a The Best Available Technology (BAT) requirements under 3745-31-05(A)(3) do not apply to the carbon monoxide (CO), nitrogen oxides (NO_x), sulfur dioxide (SO₂), volatile organic compound (VOC), or the particulate emissions from this air contaminant source since the uncontrolled potential to emit for CO, NO_x, SO₂, VOC, and particulate emissions is less than ten tons per year.
- 2.b The permittee has satisfied the "best available control techniques and operating practices" required pursuant to OAC rule 3745-21-08(B).

On November 5, 2002, OAC rule 3745-21-08 was revised to delete paragraph (B); therefore, paragraph (B) is no longer part of the State regulations. However, that rule revision has not yet been submitted to the 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 3745-21-08, the requirement to satisfy the "best available control techniques and operating practices" still exists as part of the federally-approved SIP for Ohio.

Emissions Unit ID: B001

II. Operational Restrictions

1. The permittee shall burn only natural gas, #2 fuel oil, propane, and/or syngas fuel in this emissions unit.

III. Monitoring and/or Recordkeeping Requirements

1. For each day during which the permittee burns a fuel other than natural gas, #2 fuel oil, propane, and/or syngas fuel, the permittee shall maintain a record of the type and quantity of fuel burned in this emissions unit.

IV. Reporting Requirements

1. The permittee shall submit deviation (excursion) reports that identify each day when a fuel other than natural gas, #2 fuel oil, propane, and/or syngas fuel was burned in this emissions unit. Each report shall be submitted within 30 days after the deviation occurs.

V. Testing Requirements

1. Compliance with the emission limitation(s) in Section A.I.1. of these terms and conditions shall be determined in accordance with the following method(s):

- a. Emission Limitation:
Particulate emissions (PE) shall not exceed 0.020 lb/million Btu actual heat input.

Applicable Compliance Method:

Compliance with the 0.020 lb/million Btu emission limitation is demonstrated by the following equations:

- i. for combustion of natural gas, by using the emissions factor for external combustion of natural gas of 0.0076 lb/million Btu from AP-42, Table 1.4-2 (7/98);
- ii. for combustion of #2 fuel oil, by using the emissions factor for external combustion of #2 fuel oil of 0.014 lb/million Btu from AP-42, Table 1.3-1 (9/98);
- iii. for combustion of propane, by using the emissions factor for external combustion of propane of 0.0044 lb/million Btu from AP-42, Table 1.3-2 (9/98); and
- iv. for combustion of syngas, by adding the emissions factor for external combustion of natural gas of 0.0076 lb/million Btu from AP-42, Table 1.4-2 (7/98) and the maximum particulate present in the syngas (0.0082

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lb/million Btu) specified in the permittee's permit application.

If required, PE shall be determined according to test Methods 1 - 5, as set forth in the "Appendix on Test Methods" in 40 CFR, Part 60 "Standards of Performance for New Stationary Sources", and the procedures specified in OAC rule 3745-17-03(B)(9). Alternative U.S. EPA-approved test methods may be used with prior approval from Ohio EPA, Southeast District Office.

- b. Emission Limitation:
Visible PE from any stack serving this emissions unit shall not exceed 20% opacity as a 6-minute average, except as provided by the rule.

Applicable Compliance Method:

If required, visible PE shall be determined according to test Method 9 as set forth in the "Appendix on Test Methods" in 40 CFR, Part 60 "Standards of Performance for New Stationary Sources" as such appendix existed on July 1, 2002.

2. The permittee shall conduct, or have conducted, emissions testing for one converter (emissions unit B001, B002, B003 or B004) in accordance with the following requirements:
- a. The emissions testing shall be conducted on the first of the four units that begins operating after issuance of the permit. The emissions testing shall be conducted within sixty (60) days after achieving the maximum production rate at which the emissions units will be operated, but not later than one hundred and eighty (180) days after permit issuance or initial startup of the first emissions unit following permit issuance, whichever is later.
 - b. The emissions testing shall be conducted to validate the theoretical/calculated emissions factors for PE, CO, NO_x, SO₂, and VOC for syngas fuel used in the permit application.
 - c. The following test methods shall be employed to demonstrate compliance with the theoretical/calculated emissions factors:

PE	Methods 1-5	40 CFR Part 60, Appendix A
CO	Method 10	40 CFR Part 60, Appendix A
NO _x	Method 7	40 CFR Part 60, Appendix A
SO ₂	Method 6	40 CFR Part 60, Appendix A
VOC	Method 18, 25, or 25A	40 CFR Part 60, Appendix A

Emissions Unit ID: B001

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

- d. The tests shall be conducted while the emissions units are operating at or near their maximum capacity, unless otherwise specified or approved by the appropriate Ohio EPA District Office or local air agency. The tests shall be conducted when the emissions units are burning syngas generated from either tire-derived or wood-derived fuels, whichever is expected to be "worst case" for each pollutant being tested.
- e. Not later than 30 days prior to the proposed test date(s), the permittee 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 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 District Office's or local air agency's refusal to accept the results of the emission test(s).
- f. 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 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.
- g. 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 appropriate Ohio EPA District Office or local air agency 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 appropriate Ohio EPA District Office or local air agency.

VI. Miscellaneous Requirements

None

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B. State Only Enforceable Section

I. Applicable Emissions Limitations and/or Control Requirements

1. The specific operations(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 specified in narrative form following the table.

Operations, Property, and/or Equipment - B001 - Converter #1; pyrolysis unit with a 8.75 million Btu/hr process heater fired by natural gas, #2 fuel oil, propane, and/or syngas fuel

Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
None	None

2. **Additional Terms and Conditions**

- 2.a None

II. Operational Restrictions

None

III. Monitoring and/or Recordkeeping Requirements

None

IV. Reporting Requirements

None

V. Testing Requirements

None

VI. Miscellaneous Requirements

1. Modeling to demonstrate compliance with the "Toxic Air Contaminant Statute" in ORC 3704.03(F)(4)(b) was necessary because the maximum combined annual emissions from emissions units B001-B005, P001-P006, and P801 of benzene and 1,3-butadiene,

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Emissions Unit ID: B001

toxic air contaminants as defined in OAC rule 3745-114-01, are greater than 1.0 ton per year. Requirements to address ORC 3704.03(F)(4)(b) are included in Part II.B.III. and IV. of this permit.

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Part III - SPECIAL TERMS AND CONDITIONS FOR SPECIFIC EMISSIONS UNIT(S)

A. State and Federally Enforceable Section

I. Applicable Emissions Limitations and/or Control Requirements

1. The specific operations(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 specified in narrative form following the table.

Operations, Property, and/or Equipment - B002 - Converter #2; pyrolysis unit with a 8.75 million Btu/hr process heater fired by natural gas, #2 fuel oil, propane, and/or syngas fuel

Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
OAC rule 3745-31-05(A)(3)(b)	See Section A.I.2.a below.
OAC rule 3745-17-10(B)(1)	Particulate emissions (PE) shall not exceed 0.020 lb/million Btu actual heat input.
OAC rule 3745-17-07(A)(1)	Visible PE from any stack serving this emissions unit shall not exceed 20% opacity as a 6-minute average, except as provided by the rule.
OAC rule 3745-18-06(G)	This emissions unit is exempt from the requirements of OAC rule 3745-18-06(G) pursuant to OAC rule 3745-18-06(B).
OAC rule 3745-21-08(B)	See Section A.I.2.b below.

2. Additional Terms and Conditions

- 2.a The Best Available Technology (BAT) requirements under 3745-31-05(A)(3) do not apply to the carbon monoxide (CO), nitrogen oxides (NO_x), sulfur dioxide (SO₂), volatile organic compound (VOC), or the particulate emissions from this air contaminant source since the uncontrolled potential to emit for CO, NO_x, SO₂, VOC, and particulate emissions is less than ten tons per year.
- 2.b The permittee has satisfied the "best available control techniques and operating practices" required pursuant to OAC rule 3745-21-08(B).

On November 5, 2002, OAC rule 3745-21-08 was revised to delete paragraph (B); therefore, paragraph (B) is no longer part of the State regulations. However, that rule revision has not yet been submitted to the U.S. EPA as a revision to

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Ohio's State Implementation Plan (SIP). Therefore, until the SIP revision occurs and the U.S. EPA approves the revisions to OAC rule 3745-21-08, the requirement to satisfy the "best available control techniques and operating practices" still exists as part of the federally-approved SIP for Ohio.

II. Operational Restrictions

1. The permittee shall burn only natural gas, #2 fuel oil, propane, and/or syngas fuel in this emissions unit.

III. Monitoring and/or Recordkeeping Requirements

1. For each day during which the permittee burns a fuel other than natural gas, #2 fuel oil, propane, and/or syngas fuel, the permittee shall maintain a record of the type and quantity of fuel burned in this emissions unit.

IV. Reporting Requirements

1. The permittee shall submit deviation (excursion) reports that identify each day when a fuel other than natural gas, #2 fuel oil, propane, and/or syngas fuel was burned in this emissions unit. Each report shall be submitted within 30 days after the deviation occurs.

V. Testing Requirements

1. Compliance with the emission limitation(s) in Section A.I.1. of these terms and conditions shall be determined in accordance with the following method(s):

- a. Emission Limitation:
Particulate emissions (PE) shall not exceed 0.020 lb/million Btu actual heat input.

Applicable Compliance Method:

Compliance with the 0.020 lb/million Btu emission limitation is demonstrated by the following equations:

- i. for combustion of natural gas, by using the emissions factor for external combustion of natural gas of 0.0076 lb/million Btu from AP-42, Table 1.4-2 (7/98);
- ii. for combustion of #2 fuel oil, by using the emissions factor for external

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combustion of #2 fuel oil of 0.014 lb/million Btu from AP-42, Table 1.3-1 (9/98);

- iii. for combustion of propane, by using the emissions factor for external combustion of propane of 0.0044 lb/million Btu from AP-42, Table 1.3-2 (9/98); and
- iv. for combustion of syngas, by adding the emissions factor for external combustion of natural gas of 0.0076 lb/million Btu from AP-42, Table 1.4-2 (7/98) and the maximum particulate present in the syngas (0.0082 lb/million Btu) specified in the permittee's permit application.

If required, PE shall be determined according to test Methods 1 - 5, as set forth in the "Appendix on Test Methods" in 40 CFR, Part 60 "Standards of Performance for New Stationary Sources", and the procedures specified in OAC rule 3745-17-03(B)(9). Alternative U.S. EPA-approved test methods may be used with prior approval from Ohio EPA, Southeast District Office.

b. Emission Limitation:

Visible PE from any stack serving this emissions unit shall not exceed 20% opacity as a 6-minute average, except as provided by the rule.

Applicable Compliance Method:

If required, visible PE shall be determined according to test Method 9 as set forth in the "Appendix on Test Methods" in 40 CFR, Part 60 "Standards of Performance for New Stationary Sources" as such appendix existed on July 1, 2002.

2. The permittee shall conduct, or have conducted, emissions testing for one converter (emissions unit B001, B002, B003 or B004) in accordance with the following requirements:
 - a. The emissions testing shall be conducted on the first of the four units that begins operating after issuance of the permit. The emissions testing shall be conducted within sixty (60) days after achieving the maximum production rate at which the emissions units will be operated, but not later than one hundred and eighty (180) days after permit issuance or initial startup of the first emissions unit following permit issuance, whichever is later.
 - b. The emissions testing shall be conducted to validate the theoretical/calculated emissions factors for PE, CO, NO_x, SO₂, and VOC for syngas fuel used in the permit application.
 - c. The following test methods shall be employed to demonstrate compliance with the theoretical/calculated emissions factors:

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PE	Methods 1-5	40 CFR Part 60, Appendix A
CO	Method 10	40 CFR Part 60, Appendix A
NO _x	Method 7	40 CFR Part 60, Appendix A
SO ₂	Method 6	40 CFR Part 60, Appendix A
VOC	Method 18, 25, or 25A	40 CFR Part 60, Appendix A

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

- d. The tests shall be conducted while the emissions units are operating at or near their maximum capacity, unless otherwise specified or approved by the appropriate Ohio EPA District Office or local air agency. The tests shall be conducted when the emissions units are burning syngas generated from either tire-derived or wood-derived fuels, whichever is expected to be "worst case" for each pollutant being tested.
- e. Not later than 30 days prior to the proposed test date(s), the permittee 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 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 District Office's or local air agency's refusal to accept the results of the emission test(s).
- f. 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 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.
- g. 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 appropriate Ohio EPA District Office or local air agency 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 appropriate Ohio EPA District Office or local air agency.

VI. Miscellaneous Requirements

None

B. State Only Enforceable Section

I. Applicable Emissions Limitations and/or Control Requirements

- 1. The specific operations(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 specified in narrative form following the table.

Operations, Property, and/or Equipment - B002 - Converter #2; pyrolysis unit with a 8.75 million Btu/hr process heater fired by natural gas, #2 fuel oil, propane, and/or syngas fuel

Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
None	None

2. Additional Terms and Conditions

2.a None

II. Operational Restrictions

None

III. Monitoring and/or Recordkeeping Requirements

None

IV. Reporting Requirements

None

V. Testing Requirements

None

VI. Miscellaneous Requirements

- 1. Modeling to demonstrate compliance with the "Toxic Air Contaminant Statute" in ORC 3704.03(F)(4)(b) was necessary because the maximum combined annual emissions from emissions units B001-B005, P001-P006, and P801 of benzene and 1,3-butadiene, toxic air contaminants as defined in OAC rule 3745-114-01, are greater than 1.0 ton per year. Requirements to address ORC 3704.03(F)(4)(b) are included in Part II.B.III. and IV. of this permit.

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Part III - SPECIAL TERMS AND CONDITIONS FOR SPECIFIC EMISSIONS UNIT(S)

A. State and Federally Enforceable Section

I. Applicable Emissions Limitations and/or Control Requirements

1. The specific operations(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 specified in narrative form following the table.

Operations, Property, and/or Equipment - B003 - Converter #3; pyrolysis unit with a 8.75 million Btu/hr process heater fired by natural gas, #2 fuel oil, propane, and/or syngas fuel

Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
OAC rule 3745-31-05(A)(3)(b)	See Section A.I.2.a below.
OAC rule 3745-17-10(B)(1)	Particulate emissions (PE) shall not exceed 0.020 lb/million Btu actual heat input.
OAC rule 3745-17-07(A)(1)	Visible PE from any stack serving this emissions unit shall not exceed 20% opacity as a 6-minute average, except as provided by the rule.
OAC rule 3745-18-06(G)	This emissions unit is exempt from the requirements of OAC rule 3745-18-06(G) pursuant to OAC rule 3745-18-06(B).
OAC rule 3745-21-08(B)	See Section A.I.2.b below.

2. Additional Terms and Conditions

- 2.a The Best Available Technology (BAT) requirements under 3745-31-05(A)(3) do not apply to the carbon monoxide (CO), nitrogen oxides (NO_x), sulfur dioxide (SO₂), volatile organic compound (VOC), or the particulate emissions from this air contaminant source since the uncontrolled potential to emit for CO, NO_x, SO₂, VOC, and particulate emissions is less than ten tons per year.
- 2.b The permittee has satisfied the "best available control techniques and operating practices" required pursuant to OAC rule 3745-21-08(B).

On November 5, 2002, OAC rule 3745-21-08 was revised to delete paragraph (B); therefore, paragraph (B) is no longer part of the State regulations. However, that rule revision has not yet been submitted to the U.S. EPA as a revision to

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Ohio's State Implementation Plan (SIP). Therefore, until the SIP revision occurs and the U.S. EPA approves the revisions to OAC rule 3745-21-08, the requirement to satisfy the "best available control techniques and operating practices" still exists as part of the federally-approved SIP for Ohio.

II. Operational Restrictions

1. The permittee shall burn only natural gas, #2 fuel oil, propane, and/or syngas fuel in this emissions unit.

III. Monitoring and/or Recordkeeping Requirements

1. For each day during which the permittee burns a fuel other than natural gas, #2 fuel oil, propane, and/or syngas fuel, the permittee shall maintain a record of the type and quantity of fuel burned in this emissions unit.

IV. Reporting Requirements

1. The permittee shall submit deviation (excursion) reports that identify each day when a fuel other than natural gas, #2 fuel oil, propane, and/or syngas fuel was burned in this emissions unit. Each report shall be submitted within 30 days after the deviation occurs.

V. Testing Requirements

1. Compliance with the emission limitation(s) in Section A.I.1. of these terms and conditions shall be determined in accordance with the following method(s):

- a. Emission Limitation:

Particulate emissions (PE) shall not exceed 0.020 lb/million Btu actual heat input.

Applicable Compliance Method:

Compliance with the 0.020 lb/million Btu emission limitation is demonstrated by the following equations:

- i. for combustion of natural gas, by using the emissions factor for external combustion of natural gas of 0.0076 lb/million Btu from AP-42, Table 1.4-2 (7/98);
- ii. for combustion of #2 fuel oil, by using the emissions factor for external combustion of #2 fuel oil of 0.014 lb/million Btu from AP-42, Table 1.3-1 (9/98);
- iii. for combustion of propane, by using the emissions factor for external combustion of propane of 0.0044 lb/million Btu from AP-42, Table 1.3-2

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(9/98); and

- iv. for combustion of syngas, by adding the emissions factor for external combustion of natural gas of 0.0076 lb/million Btu from AP-42, Table 1.4-2 (7/98) and the maximum particulate present in the syngas (0.0082 lb/million Btu) specified in the permittee's permit application.

If required, PE shall be determined according to test Methods 1 - 5, as set forth in the "Appendix on Test Methods" in 40 CFR, Part 60 "Standards of Performance for New Stationary Sources", and the procedures specified in OAC rule 3745-17-03(B)(9). Alternative U.S. EPA-approved test methods may be used with prior approval from Ohio EPA, Southeast District Office.

- b. Emission Limitation:
Visible PE from any stack serving this emissions unit shall not exceed 20% opacity as a 6-minute average, except as provided by the rule.

Applicable Compliance Method:

If required, visible PE shall be determined according to test Method 9 as set forth in the "Appendix on Test Methods" in 40 CFR, Part 60 "Standards of Performance for New Stationary Sources" as such appendix existed on July 1, 2002.

- 2. The permittee shall conduct, or have conducted, emissions testing for one converter (emissions unit B001, B002, B003 or B004) in accordance with the following requirements:
 - a. The emissions testing shall be conducted on the first of the four units that begins operating after issuance of the permit. The emissions testing shall be conducted within sixty (60) days after achieving the maximum production rate at which the emissions units will be operated, but not later than one hundred and eighty (180) days after permit issuance or initial startup of the first emissions unit following permit issuance, whichever is later.
 - b. The emissions testing shall be conducted to validate the theoretical/calculated emissions factors for PE, CO, NO_x, SO₂, and VOC for syngas fuel used in the permit application.
 - c. The following test methods shall be employed to demonstrate compliance with the theoretical/calculated emissions factors:

Emissions Unit ID: B003

PE	Methods 1-5	40 CFR Part 60, Appendix A
CO	Method 10	40 CFR Part 60, Appendix A
NOX	Method 7	40 CFR Part 60, Appendix A
SO2	Method 6	40 CFR Part 60, Appendix A
VOC	Method 18, 25, or 25A	40 CFR Part 60, Appendix A

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

- d. The tests shall be conducted while the emissions units are operating at or near their maximum capacity, unless otherwise specified or approved by the appropriate Ohio EPA District Office or local air agency. The tests shall be conducted when the emissions units are burning syngas generated from either tire-derived or wood-derived fuels, whichever is expected to be "worst case" for each pollutant being tested.
- e. Not later than 30 days prior to the proposed test date(s), the permittee 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 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 District Office's or local air agency's refusal to accept the results of the emission test(s).
- f. 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 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.
- g. 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 appropriate Ohio EPA District Office or local air agency 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 appropriate Ohio EPA District Office or local air agency.

VI. Miscellaneous Requirements

None

Issued: 5/1/2008

B. State Only Enforceable Section

I. Applicable Emissions Limitations and/or Control Requirements

1. The specific operations(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 specified in narrative form following the table.

Operations, Property, and/or Equipment - B003 - Converter #3; pyrolysis unit with a 8.75 million Btu/hr process heater fired by natural gas, #2 fuel oil, propane, and/or syngas fuel

Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
None	None

2. **Additional Terms and Conditions**

- 2.a None

II. Operational Restrictions

None

III. Monitoring and/or Recordkeeping Requirements

None

IV. Reporting Requirements

None

V. Testing Requirements

None

VI. Miscellaneous Requirements

1. Modeling to demonstrate compliance with the "Toxic Air Contaminant Statute" in ORC 3704.03(F)(4)(b) was necessary because the maximum combined annual emissions from emissions units B001-B005, P001-P006, and P801 of benzene and 1,3-butadiene,

Emissions Unit ID: B003

Issued: 5/1/2008

toxic air contaminants as defined in OAC rule 3745-114-01, are greater than 1.0 ton per year. Requirements to address ORC 3704.03(F)(4)(b) are included in Part II.B.III. and IV. of this permit.

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Part III - SPECIAL TERMS AND CONDITIONS FOR SPECIFIC EMISSIONS UNIT(S)

A. State and Federally Enforceable Section

I. Applicable Emissions Limitations and/or Control Requirements

1. The specific operations(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 specified in narrative form following the table.

Operations, Property, and/or Equipment - B004 - Converter #4; pyrolysis unit with a 8.75 million Btu/hr process heater fired by natural gas, #2 fuel oil, propane, and/or syngas fuel

Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
OAC rule 3745-31-05(A)(3)(b)	See Section A.I.2.a below.
OAC rule 3745-17-10(B)(1)	Particulate emissions (PE) shall not exceed 0.020 lb/million Btu actual heat input.
OAC rule 3745-17-07(A)(1)	Visible PE from any stack serving this emissions unit shall not exceed 20% opacity as a 6-minute average, except as provided by the rule.
OAC rule 3745-18-06(G)	This emissions unit is exempt from the requirements of OAC rule 3745-18-06(G) pursuant to OAC rule 3745-18-06(B).
OAC rule 3745-21-08(B)	See Section A.I.2.b below.

2. Additional Terms and Conditions

- 2.a The Best Available Technology (BAT) requirements under 3745-31-05(A)(3) do not apply to the carbon monoxide (CO), nitrogen oxides (NO_x), sulfur dioxide (SO₂), volatile organic compound (VOC), or the particulate emissions from this air contaminant source since the uncontrolled potential to emit for CO, NO_x, SO₂, VOC, and particulate emissions is less than ten tons per year.
- 2.b The permittee has satisfied the "best available control techniques and operating practices" required pursuant to OAC rule 3745-21-08(B).

On November 5, 2002, OAC rule 3745-21-08 was revised to delete paragraph (B); therefore, paragraph (B) is no longer part of the State regulations. However, that rule revision has not yet been submitted to the U.S. EPA as a revision to

Emissions Unit ID: B004

Ohio's State Implementation Plan (SIP). Therefore, until the SIP revision occurs and the U.S. EPA approves the revisions to OAC rule 3745-21-08, the requirement to satisfy the "best available control techniques and operating practices" still exists as part of the federally-approved SIP for Ohio.

II. Operational Restrictions

1. The permittee shall burn only natural gas, #2 fuel oil, propane, and/or syngas fuel in this emissions unit.

III. Monitoring and/or Recordkeeping Requirements

1. For each day during which the permittee burns a fuel other than natural gas, #2 fuel oil, propane, and/or syngas fuel, the permittee shall maintain a record of the type and quantity of fuel burned in this emissions unit.

IV. Reporting Requirements

1. The permittee shall submit deviation (excursion) reports that identify each day when a fuel other than natural gas, #2 fuel oil, propane, and/or syngas fuel was burned in this emissions unit. Each report shall be submitted within 30 days after the deviation occurs.

V. Testing Requirements

1. Compliance with the emission limitation(s) in Section A.I.1. of these terms and conditions shall be determined in accordance with the following method(s):

- a. Emission Limitation:

Particulate emissions (PE) shall not exceed 0.020 lb/million Btu actual heat input.

Applicable Compliance Method:

Compliance with the 0.020 lb/million Btu emission limitation is demonstrated by the following equations:

- i. for combustion of natural gas, by using the emissions factor for external combustion of natural gas of 0.0076 lb/million Btu from AP-42, Table 1.4-2 (7/98);
- ii. for combustion of #2 fuel oil, by using the emissions factor for external combustion of #2 fuel oil of 0.014 lb/million Btu from AP-42, Table 1.3-1 (9/98);
- iii. for combustion of propane, by using the emissions factor for external combustion of propane of 0.0044 lb/million Btu from AP-42, Table 1.3-2

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(9/98); and

- iv. for combustion of syngas, by adding the emissions factor for external combustion of natural gas of 0.0076 lb/million Btu from AP-42, Table 1.4-2 (7/98) and the maximum particulate present in the syngas (0.0082 lb/million Btu) specified in the permittee's permit application.

If required, PE shall be determined according to test Methods 1 - 5, as set forth in the "Appendix on Test Methods" in 40 CFR, Part 60 "Standards of Performance for New Stationary Sources", and the procedures specified in OAC rule 3745-17-03(B)(9). Alternative U.S. EPA-approved test methods may be used with prior approval from Ohio EPA, Southeast District Office.

- b. Emission Limitation:
Visible PE from any stack serving this emissions unit shall not exceed 20% opacity as a 6-minute average, except as provided by the rule.

Applicable Compliance Method:

If required, visible PE shall be determined according to test Method 9 as set forth in the "Appendix on Test Methods" in 40 CFR, Part 60 "Standards of Performance for New Stationary Sources" as such appendix existed on July 1, 2002.

- 2. The permittee shall conduct, or have conducted, emissions testing for one converter (emissions unit B001, B002, B003 or B004) in accordance with the following requirements:
 - a. The emissions testing shall be conducted on the first of the four units that begins operating after issuance of the permit. The emissions testing shall be conducted within sixty (60) days after achieving the maximum production rate at which the emissions units will be operated, but not later than one hundred and eighty (180) days after permit issuance or initial startup of the first emissions unit following permit issuance, whichever is later.
 - b. The emissions testing shall be conducted to validate the theoretical/calculated emissions factors for PE, CO, NO_x, SO₂, and VOC for syngas fuel used in the permit application.
 - c. The following test methods shall be employed to demonstrate compliance with the theoretical/calculated emissions factors:

Emissions Unit ID: B004

PE	Methods 1-5	40 CFR Part 60, Appendix A
CO	Method 10	40 CFR Part 60, Appendix A
NOX	Method 7	40 CFR Part 60, Appendix A
SO2	Method 6	40 CFR Part 60, Appendix A
VOC	Method 18, 25, or 25A	40 CFR Part 60, Appendix A

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

- d. The tests shall be conducted while the emissions units are operating at or near their maximum capacity, unless otherwise specified or approved by the appropriate Ohio EPA District Office or local air agency. The tests shall be conducted when the emissions units are burning syngas generated from either tire-derived or wood-derived fuels, whichever is expected to be "worst case" for each pollutant being tested.
- e. Not later than 30 days prior to the proposed test date(s), the permittee 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 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 District Office's or local air agency's refusal to accept the results of the emission test(s).
- f. 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 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.
- g. 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 appropriate Ohio EPA District Office or local air agency 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 appropriate Ohio EPA District Office or local air agency.

VI. Miscellaneous Requirements

None

Issued: 5/1/2008

B. State Only Enforceable Section

I. Applicable Emissions Limitations and/or Control Requirements

1. The specific operations(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 specified in narrative form following the table.

Operations, Property, and/or Equipment - B004 - Converter #4; pyrolysis unit with a 8.75 million Btu/hr process heater fired by natural gas, #2 fuel oil, propane, and/or syngas fuel

Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
None	None

2. **Additional Terms and Conditions**

- 2.a None

II. Operational Restrictions

None

III. Monitoring and/or Recordkeeping Requirements

None

IV. Reporting Requirements

None

V. Testing Requirements

None

VI. Miscellaneous Requirements

1. Modeling to demonstrate compliance with the "Toxic Air Contaminant Statute" in ORC 3704.03(F)(4)(b) was necessary because the maximum combined annual emissions from emissions units B001-B005, P001-P006, and P801 of benzene and 1,3-butadiene,

Intrinergy Coshocton LLC
DTI Application: 06 09160

Facility ID: 0616010090

Emissions Unit ID: B004

toxic air contaminants as defined in OAC rule 3745-114-01, are greater than 1.0 ton per year. Requirements to address ORC 3704.03(F)(4)(b) are included in Part II.B.III. and IV. of this permit.

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Part III - SPECIAL TERMS AND CONDITIONS FOR SPECIFIC EMISSIONS UNIT(S)

A. State and Federally Enforceable Section

I. Applicable Emissions Limitations and/or Control Requirements

1. The specific operations(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 specified in narrative form following the table.

Operations, Property, and/or Equipment - B005 - 9.8 million Btu/hr steam boiler fired with natural gas, #2 fuel oil, propane, and/or syngas fuel

Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
OAC rule 3745-31-05(A)(3)(b)	See Section A.I.2.a below.
OAC rule 3745-17-10(B)(1)	Particulate emissions (PE) shall not exceed 0.020 lb/million Btu actual heat input.
OAC rule 3745-17-07(A)(1)	Visible PE from any stack serving this emissions unit shall not exceed 20% opacity as a 6-minute average, except as provided by the rule.
OAC rule 3745-18-06(G)	This emissions unit is exempt from the requirements of OAC rule 3745-18-06(G) pursuant to OAC rule 3745-18-06(B).
OAC rule 3745-21-08(B)	See Section A.I.2.b below.

2. Additional Terms and Conditions

- 2.a The Best Available Technology (BAT) requirements under 3745-31-05(A)(3) do not apply to the carbon monoxide (CO), nitrogen oxides (NO_x), sulfur dioxide (SO₂), volatile organic compound (VOC), or the particulate emissions from this air contaminant source since the uncontrolled potential to emit for CO, NO_x, SO₂, VOC, and particulate emissions is less than ten tons per year.
- 2.b The permittee has satisfied the "best available control techniques and operating practices" required pursuant to OAC rule 3745-21-08(B).

On November 5, 2002, OAC rule 3745-21-08 was revised to delete paragraph (B); therefore, paragraph (B) is no longer part of the State regulations. However, that rule revision has not yet been submitted to the U.S. EPA as a revision to

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Ohio's State Implementation Plan (SIP). Therefore, until the SIP revision occurs and the U.S. EPA approves the revisions to OAC rule 3745-21-08, the requirement to satisfy the "best available control techniques and operating practices" still exists as part of the federally-approved SIP for Ohio.

II. Operational Restrictions

1. The permittee shall burn only natural gas, #2 fuel oil, propane, and/or syngas fuel in this emissions unit.

III. Monitoring and/or Recordkeeping Requirements

1. For each day during which the permittee burns a fuel other than natural gas, #2 fuel oil, propane, and/or syngas fuel, the permittee shall maintain a record of the type and quantity of fuel burned in this emissions unit.

IV. Reporting Requirements

1. The permittee shall submit deviation (excursion) reports that identify each day when a fuel other than natural gas, #2 fuel oil, propane, and/or syngas fuel was burned in this emissions unit. Each report shall be submitted within 30 days after the deviation occurs.

V. Testing Requirements

1. Compliance with the emission limitation(s) in Section A.1. of these terms and conditions shall be determined in accordance with the following method(s):

- a. Emission Limitation:
Particulate emissions (PE) shall not exceed 0.020 lb/million Btu actual heat input.

Applicable Compliance Method:

Compliance with the 0.020 lb/million Btu emission limitation is demonstrated by the following equations:

- i. for combustion of natural gas, by using the emissions factor for external combustion of natural gas of 0.0076 lb/million Btu from AP-42, Table 1.4-2 (7/98);
- ii. for combustion of #2 fuel oil, by using the emissions factor for external

Emissions Unit ID: B005

combustion of #2 fuel oil of 0.014 lb/million Btu from AP-42, Table 1.3-1 (9/98);

- iii. for combustion of propane, by using the emissions factor for external combustion of propane of 0.0044 lb/million Btu from AP-42, Table 1.3-2 (9/98); and
- iv. for combustion of syngas, by adding the emissions factor for external combustion of natural gas of 0.0076 lb/million Btu from AP-42, Table 1.4-2 (7/98) and the maximum particulate present in the syngas (0.0082 lb/million Btu) specified in the permittee's permit application.

If required, PE shall be determined according to test Methods 1 - 5, as set forth in the "Appendix on Test Methods" in 40 CFR, Part 60 "Standards of Performance for New Stationary Sources", and the procedures specified in OAC rule 3745-17-03(B)(9). Alternative U.S. EPA-approved test methods may be used with prior approval from Ohio EPA, Southeast District Office.

b. Emission Limitation:

Visible PE from any stack serving this emissions unit shall not exceed 20% opacity as a 6-minute average, except as provided by the rule.

Applicable Compliance Method:

If required, visible PE shall be determined according to test Method 9 as set forth in the "Appendix on Test Methods" in 40 CFR, Part 60 "Standards of Performance for New Stationary Sources" as such appendix existed on July 1, 2002.

- 2. The permittee shall conduct, or have conducted, emissions testing for this emissions unit in accordance with the following requirements:
 - a. The emissions testing shall be conducted within sixty (60) days after achieving the maximum production rate at which this emissions unit will be operated, but not later than one hundred and eighty (180) days after initial startup of the emissions units.
 - b. The emissions testing shall be conducted to validate the theoretical/calculated emissions factors for PE, CO, NO_x, SO₂, and VOC for syngas fuel used in the permit application.
 - c. The following test methods shall be employed to demonstrate compliance with the theoretical/calculated emissions factors and/or allowable mass emission rates:

PE	Methods 1-5	40 CFR Part 60, Appendix A
CO	Method 10	40 CFR Part 60, Appendix A

Issued: 5/1/2008

NO _x	Method 7	40 CFR Part 60, Appendix A
SO ₂	Method 6	40 CFR Part 60, Appendix A
VOC	Method 18, 25, or 25A	40 CFR Part 60, Appendix A

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

- d. The tests shall be conducted while the emissions unit is operating at or near their maximum capacity, unless otherwise specified or approved by the appropriate Ohio EPA District Office or local air agency. The tests shall be conducted when the emissions units are burning syngas generated from either tire-derived or wood-derived fuels, whichever is expected to be "worst case" for each pollutant being tested.
- e. Not later than 30 days prior to the proposed test date(s), the permittee 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 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 District Office's or local air agency's refusal to accept the results of the emission test(s).
- f. 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 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.
- g. 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 appropriate Ohio EPA District Office or local air agency 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 appropriate Ohio EPA District Office or local air agency.

VI. Miscellaneous Requirements

None

Emissions Unit ID: B005

B. State Only Enforceable Section

I. Applicable Emissions Limitations and/or Control Requirements

1. The specific operations(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 specified in narrative form following the table.

Operations, Property, and/or Equipment - B005 - 9.8 million Btu/hr steam boiler fired with natural gas, #2 fuel oil, propane, and/or syngas fuel

Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
None	None

2. **Additional Terms and Conditions**

- 2.a None

II. Operational Restrictions

None

III. Monitoring and/or Recordkeeping Requirements

None

IV. Reporting Requirements

None

V. Testing Requirements

None

VI. Miscellaneous Requirements

1. Modeling to demonstrate compliance with the "Toxic Air Contaminant Statute" in ORC 3704.03(F)(4)(b) was necessary because the maximum combined annual emissions from emissions units B001-B005, P001-P006, and P801 of benzene and 1,3-butadiene, toxic air contaminants as defined in OAC rule 3745-114-01, are greater than 1.0 ton per year. Requirements to address ORC 3704.03(F)(4)(b) are included in Part II.B.III. and IV. of this permit.

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Part III - SPECIAL TERMS AND CONDITIONS FOR SPECIFIC EMISSIONS UNIT(S)

A. State and Federally Enforceable Section

I. Applicable Emissions Limitations and/or Control Requirements

1. The specific operations(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 specified in narrative form following the table.

Operations, Property, and/or Equipment - P001 - Stationary spark ignition (SI) reciprocating internal combustion engine (RICE) #1; 9.78 million Btu/hr, 1000 kW (1340 HP) GE J320 natural gas and/or syngas-fired generator controlled with catalytic oxidation

Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
OAC rule 3745-31-05(A)(3)	Carbon monoxide (CO) emissions shall not exceed 4.33 pounds per hour (1.47 g/hp-hr) and 18.98 tons per year. The requirements of this rule also include compliance with the requirements of 40 CFR Part 60, Subpart JJJJ.
OAC rule 3745-31-05(C)	Nitrogen oxides (NO _x) emissions shall not exceed 9.9 tons per year. See Section A.I.2.a below.
OAC rule 3745-31-05(A)(3)(b)	See Section A.I.2.b below.
OAC rule 3745-17-11(B)(5)(b)	Particulate emissions (PE) shall not exceed 0.062 pound/million Btu actual heat input.
OAC rule 3745-17-07(A)(1)	Visible PE from any stack serving this emissions unit shall not exceed 20% opacity as a 6-minute average, except as provided by the rule.
OAC rule 3745-18-06(G)	This emissions unit is exempt from the requirements of OAC rule 3745-18-06(G) pursuant to OAC rule 3745-18-06(B).
OAC rule 3745-21-08(B)	See Section A.I.2.c below.
OAC rule 3745-110-03(F)(2)	This emissions unit is exempt from the requirements of OAC rule 3745-110-03(F)(2) pursuant to OAC rule 3745-110-03(J)(3).

Emissions Unit ID: P001

<p>40 CFR Part 60, Subpart JJJJ (applicable only when natural gas is burned in this emissions unit)</p>	<p>NO_x emissions shall not exceed 2.0 g/hp-hr.</p> <p>Volatile organic compound (VOC) emissions shall not exceed 1.0 g/hp-hr.</p> <p>The CO emission limitation specified by this rule is less stringent than the emission limitation established pursuant to OAC rule 3745-31-05(A)(3).</p> <p>See Section A.1.2.d below.</p>
<p>40 CFR Part 63, Subpart ZZZZ (applicable only when natural gas is burned in this emissions unit)</p>	<p>Pursuant to 40 CFR Part 63, Subpart ZZZZ (40 CFR § 63.6590(c)), new stationary reciprocating internal combustion engines (RICE) located at an area source of HAP emissions must meet the requirements of this part by meeting the requirements of 40 CFR Part 60 Subpart JJJJ for spark ignition engines.</p> <p>Pursuant to 40 CFR Part 63, Subpart ZZZZ (40 CFR § 63.6665), the General Provisions in 40 CFR § 63.1 through 63.15 do not apply to a stationary RICE located at an area source of HAP emissions.</p> <p>See Section A.1.2.e below.</p>

2. Additional Terms and Conditions

2.a Permit to Install 06-08168 for this air contaminant source takes into account the following voluntary restrictions (including the use of any applicable air pollution control equipment) as proposed by the permittee for the purposes of avoiding Best Available Technology (BAT) requirements for NO_x emissions under OAC rule 3745-31-05(A)(3):

- i. the fuel usage in emissions unit P001 shall not cause NO_x emissions to exceed 9.9 tons per year based on the following equation:

$$[(C_{SG} * H) + (C_{NG} * 1,020 \text{ Btu/scf})] * EF_{NOx} / 2000 \text{ lbs/ton} \leq 9.9 \text{ tons per year}$$

Where:

- C_{NG} = total natural gas combusted in emissions unit P001, in million scf per year;
- C_{SG} = total syngas combusted in emissions unit P001, in million scf per year;
- H = heat content of syngas, in Btu/scf; and
- EF_{NOx} = the NO_x emission factor for syngas demonstrated pursuant to the most recent stack testing of the IC engines (P001-P004) required in Section A.V.2, while burning

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syngas, in lb/million Btu; manufacturer guarantees NOx emission factor is the same for all gaseous fuels, including syngas fuel and natural gas.

- 2.b** The Best Available Technology (BAT) requirements under 3745-31-05(A)(3) do not apply to the sulfur dioxide (SO₂), volatile organic compound (VOC), or the particulate emissions from this air contaminant source since the uncontrolled potential to emit for SO₂, VOC, and particulate emissions is less than ten tons per year.
- 2.c** The permittee has satisfied the "latest available control techniques and operating practices" required pursuant to OAC rule 3745-21-08(B).

On November 5, 2002, OAC rule 3745-21-08 was revised to delete paragraph (B); therefore, paragraph (B) is no longer part of the State regulations. However, that rule revision has not yet been submitted to the 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 3745-21-08, the requirement to satisfy the "best available control techniques and operating practices" still exists as part of the federally-approved SIP for Ohio.

- 2.d** See 40 CFR Part 60, Subpart JJJJ (40 CFR § 60.4230 - 60.4248).
- 2.e** See 40 CFR Part 63, Subpart ZZZZ (40 CFR § 63.6580 - 63.6675).

II. Operational Restrictions

1. The permittee shall burn only natural gas and/or syngas fuel in this emissions unit.

III. Monitoring and/or Recordkeeping Requirements

1. For each day during which the permittee burns a fuel other than natural gas and/or syngas fuel, the permittee shall maintain a record of the type and quantity of fuel burned in this emissions unit.
2. The permittee shall maintain monthly records of the natural gas and syngas fuel usage in this unit in million scf.
3. The permittee shall collect and analyze representative samples of syngas on at least a monthly basis for heat content for each feedstock converted during the month. The permittee shall perform the analyses for heat content in accordance with appropriate

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ASTM methods, such as D240 Standard Test Method for Heat of Combustion of Liquid Hydrocarbon Fuels by Bomb Calorimeter, D1945 Standard Test Method for Analysis of Natural Gas by Gas Chromatography, and D1946 Standard Method for Analysis of Reformed Gas by GC (Fixed Gases), or equivalent methods as approved by the director.

4. The permittee shall collect and record the following information each month*:
 - a. the heat content of the syngas generated, in Btu/scf; and
 - b. the feedstock used to generate the syngas analyzed for heat content pursuant to Section A.III.2.

*Ohio EPA may require more frequent heat content sampling and analysis if monthly sample data shows a high degree of variability for syngas fuel heat content.

5. See 40 CFR Part 60, Subpart JJJJ (40 CFR § 60.4245 - 60.4246).

IV. Reporting Requirements

1. The permittee shall submit deviation (excursion) reports that identify each day when a fuel other than natural gas and/or syngas fuel was burned in this emissions unit. Each report shall be submitted within 30 days after the deviation occurs.
2. The permittee shall submit deviation (excursion) reports which identify any fuel use exceedances that cause the NO_x limitation of 9.9 tons per year to be exceeded. These reports shall be submitted in accordance with the reporting requirements specified in Part 1 - General Terms and Conditions, Section A of this permit.
3. The permittee shall submit quarterly reports which specify the heat content analytical results for syngas for the previous three calendar months. These reports shall be submitted in accordance with the General Terms and Conditions of this permit.

V. Testing Requirements

1. Compliance with the emission limitation(s) in Section A.I.1. of these terms and conditions shall be determined in accordance with the following method(s):
 - a. Emission Limitation:
CO emissions shall not exceed 4.33 pounds per hour (1.47 g/hp-hr) and 18.98 tons per year.

Emissions Unit ID: P001

Applicable Compliance Method:

The lbs/hr emission limitation is based upon the emission factor for syngas from the permittee's permit application (0.443 lb/million Btu) multiplied by the maximum rated capacity of P001 (9.78 million Btu/hr). Compliance with the tons per year emission limitation is demonstrated by the following equation:

$$18.98 \text{ tons per year} \geq [(C_{SG} * H) + (C_{NG} * 1,020 \text{ Btu/scf})] * EF_{CO}/2000 \text{ lbs/ton}$$

Where:

EF_{CO} = the CO emission factor for syngas demonstrated pursuant to the stack testing required in Section A.V.2

If required, the permittee shall demonstrate compliance with the lbs/hr emission limitation for this emissions unit in accordance with the stack testing required in Section A.V.2.

- b. **Emission Limitation:**
 NO_x emissions shall not exceed 9.9 tons per year.

Applicable Compliance Method:

Compliance with the tons per year emission limitation is demonstrated by the following equation:

$$9.9 \text{ tons per year} \geq [(C_{SG} * H) + (C_{NG} * 1,020 \text{ Btu/scf})] * EF_{NOx}/2000 \text{ lbs/ton}$$

- c. **Emission Limitation:**
 Particulate emissions (PE) shall not exceed 0.062 lb/million Btu actual heat input.

Applicable Compliance Method:

Compliance with the 0.062 lb/million Btu emission limitation is demonstrated by the following equations:

- i. for combustion of natural gas, by using the emissions factor for internal combustion of natural gas of 0.010 lb/million Btu from AP-42, Table 3.2-2 (7/00); and
- ii. for combustion of syngas, by adding the emissions factor for internal combustion of natural gas of 0.010 lb/million Btu from AP-42, Table 3.2-2 (7/00) and the maximum particulate present in the syngas (0.0082 lb/million Btu) specified in the permittee's permit application.

If required, PE shall be determined according to test Methods 1 - 5, as set forth in the "Appendix on Test Methods" in 40 CFR, Part 60 "Standards of Performance for New Stationary Sources", and the procedures specified in OAC

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rule 3745-17-03(B)(10). Alternative U.S. EPA-approved test methods may be used with prior approval from Ohio EPA, Southeast District Office.

- d. Emission Limitation:
Visible PE from any stack serving this emissions unit shall not exceed 20% opacity as a 6-minute average, except as provided by the rule.

Applicable Compliance Method:

If required, visible PE shall be determined according to test Method 9 as set forth in the "Appendix on Test Methods" in 40 CFR, Part 60 "Standards of Performance for New Stationary Sources" as such appendix existed on July 1, 2002.

- e. Emission Limitation:
NO_x emissions shall not exceed 2.0 g/hp-hr.

Applicable Compliance Method:

Compliance with the g/hp-hr emission limitation is demonstrated by the manufacturer guarantee presented in the permittee's permit application.

If required, NO_x emissions shall be determined according to test Methods 1 - 4, and 7 as set forth in the "Appendix on Test Methods" in 40 CFR, Part 60 "Standards of Performance for New Stationary Sources". Alternative U.S. EPA-approved test methods may be used with prior approval from Ohio EPA, Southeast District Office.

- f. Emission Limitation:
VOC emissions shall not exceed 1.0 g/hp-hr.

Applicable Compliance Method:

Compliance with the g/hp-hr emission limitation is demonstrated by the manufacturer guarantee presented in the permittee's permit application.

If required, VOC emissions shall be determined according to test Methods 1 - 4, and 18, 25, or 25A as set forth in the "Appendix on Test Methods" in 40 CFR, Part 60 "Standards of Performance for New Stationary Sources". Alternative U.S. EPA-approved test methods may be used with prior approval from Ohio EPA, Southeast District Office.

- 2. The permittee shall conduct, or have conducted, emissions testing for one IC engine (emissions unit P001, P002, P003 or P004) in accordance with the following

Emissions Unit ID: P001

requirements:

- a. The emissions testing shall be conducted on the first of the four units that begins operating after issuance of the permit. The emissions testing shall be conducted within sixty (60) days after achieving the maximum production rate at which the emissions units will be operated, but not later than one hundred and eighty (180) days after permit issuance or initial startup of the first emissions unit following permit issuance, whichever is later. Initial startup for the IC engines means the date syngas is first used in these units.
- b. The emissions testing shall be conducted to validate the theoretical/calculated emissions factors for PE, CO, NO_x, SO₂, and VOC for syngas fuel used in the permit application and to demonstrate compliance with the allowable pound per hour mass emission rate for CO in emissions units P001-P004, in the appropriate averaging period.
- c. The following test methods shall be employed to demonstrate compliance with the theoretical/calculated emissions factors and/or allowable mass emission rates:

PE	Methods 1-5	40 CFR Part 60, Appendix A
CO	Method 10	40 CFR Part 60, Appendix A
NO _x	Method 7	40 CFR Part 60, Appendix A
SO ₂	Method 6	40 CFR Part 60, Appendix A
VOC	Method 18, 25, or 25A	40 CFR Part 60, Appendix A

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

- d. The tests shall be conducted while the emissions units are operating at or near their maximum capacity, unless otherwise specified or approved by the appropriate Ohio EPA District Office or local air agency. The tests shall be conducted when the emissions units are burning syngas generated from either tire-derived or wood-derived fuels, whichever is expected to be "worst case" for each pollutant being tested.
- e. Not later than 30 days prior to the proposed test date(s), the permittee 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 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 District Office's or local air agency's refusal to accept the results of the emission test(s).
- f. Personnel from the appropriate Ohio EPA District Office or local air agency shall

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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.

- g. 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 appropriate Ohio EPA District Office or local air agency 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 appropriate Ohio EPA District Office or local air agency.

- 3. See 40 CFR Part 60, Subpart JJJJ (40 CFR § 60.4243 - 60.4244).

VI. Miscellaneous Requirements

None

Emissions Unit ID: P001

B. State Only Enforceable Section

I. Applicable Emissions Limitations and/or Control Requirements

1. The specific operations(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 specified in narrative form following the table.

Operations, Property, and/or Equipment - P001 - Stationary spark ignition (SI) reciprocating internal combustion engine (RICE) #1; 9.78 million Btu/hr, 1000 kW (1340 HP) GE J320 natural gas and/or syngas-fired generator controlled with catalytic oxidation

Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
None	None

2. **Additional Terms and Conditions**

- 2.a None

II. Operational Restrictions

None

III. Monitoring and/or Recordkeeping Requirements

None

IV. Reporting Requirements

None

V. Testing Requirements

None

VI. Miscellaneous Requirements

1. Modeling to demonstrate compliance with the "Toxic Air Contaminant Statute" in ORC 3704.03(F)(4)(b) was necessary because the maximum combined annual emissions from emissions units B001-B005, P001-P006, and P801 of benzene and 1,3-butadiene, toxic air contaminants as defined in OAC rule 3745-114-01, are greater than 1.0 ton per year. Requirements to address ORC 3704.03(F)(4)(b) are included in Part II.B.III. and IV. of this permit.

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Part III - SPECIAL TERMS AND CONDITIONS FOR SPECIFIC EMISSIONS UNIT(S)**A. State and Federally Enforceable Section****I. Applicable Emissions Limitations and/or Control Requirements**

1. The specific operations(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 specified in narrative form following the table.

Operations, Property, and/or Equipment - P002 - Stationary spark ignition (SI) reciprocating internal combustion engine (RICE) #2; 9.78 million Btu/hr, 1000 kW (1340 HP) GE J320 natural gas and/or syngas-fired generator controlled with catalytic oxidation

Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
OAC rule 3745-31-05(A)(3)	Carbon monoxide (CO) emissions shall not exceed 4.33 pounds per hour (1.47 g/hp-hr) and 18.98 tons per year. The requirements of this rule also include compliance with the requirements of 40 CFR Part 60, Subpart JJJJ.
OAC rule 3745-31-05(C)	Nitrogen oxides (NO _x) emissions shall not exceed 9.9 tons per year. See Section A.I.2.a below.
OAC rule 3745-31-05(A)(3)(b)	See Section A.I.2.b below.
OAC rule 3745-17-11(B)(5)(b)	Particulate emissions (PE) shall not exceed 0.062 pound/million Btu actual heat input.
OAC rule 3745-17-07(A)(1)	Visible PE from any stack serving this emissions unit shall not exceed 20% opacity as a 6-minute average, except as provided by the rule.
OAC rule 3745-18-06(G)	This emissions unit is exempt from the requirements of OAC rule 3745-18-06(G) pursuant to OAC rule 3745-18-06(B).
OAC rule 3745-21-08(B)	See Section A.I.2.c below.
OAC rule 3745-110-03(F)(2)	This emissions unit is exempt from the requirements of OAC rule 3745-110-03(F)(2) pursuant to OAC rule 3745-110-03(J)(3).

Emissions Unit ID: P002

<p>40 CFR Part 60, Subpart JJJJ (applicable only when natural gas is burned in this emissions unit)</p>	<p>NO_x emissions shall not exceed 2.0 g/hp-hr.</p> <p>Volatile organic compound (VOC) emissions shall not exceed 1.0 g/hp-hr.</p> <p>The CO emission limitation specified by this rule is less stringent than the emission limitation established pursuant to OAC rule 3745-31-05(A)(3).</p> <p>See Section A.1.2.d below.</p>
<p>40 CFR Part 63, Subpart ZZZZ (applicable only when natural gas is burned in this emissions unit)</p>	<p>Pursuant to 40 CFR Part 63, Subpart ZZZZ (40 CFR § 63.6590(c)), new stationary reciprocating internal combustion engines (RICE) located at an area source of HAP emissions must meet the requirements of this part by meeting the requirements of 40 CFR Part 60 Subpart JJJJ for spark ignition engines.</p> <p>Pursuant to 40 CFR Part 63, Subpart ZZZZ (40 CFR § 63.6665), the General Provisions in 40 CFR § 63.1 through 63.15 do not apply to a stationary RICE located at an area source of HAP emissions.</p> <p>See Section A.1.2.e below.</p>

2. Additional Terms and Conditions

2.a Permit to Install 06-08168 for this air contaminant source takes into account the following voluntary restrictions (including the use of any applicable air pollution control equipment) as proposed by the permittee for the purposes of avoiding Best Available Technology (BAT) requirements for NO_x emissions under OAC rule 3745-31-05(A)(3):

- i. the fuel usage in emissions unit P002 shall not cause NO_x emissions to exceed 9.9 tons per year based on the following equation:

$$[(C_{SG} * H) + (C_{NG} * 1,020 \text{ Btu/scf})] * EF_{NOx} / 2000 \text{ lbs/ton} \leq 9.9 \text{ tons per year}$$

Where:

- C_{NG} = total natural gas combusted in emissions unit P001, in million scf per year;
- C_{SG} = total syngas combusted in emissions unit P001, in million scf per year;
- H = heat content of syngas, in Btu/scf; and
- EF_{NOx} = the NO_x emission factor for syngas demonstrated pursuant to the most recent stack testing of the IC engines (P001-P004) required in Section A.V.2, while burning

Emissions Unit ID: P002

syngas, in lb/million Btu; manufacturer guarantees NOx emission factor is the same for all gaseous fuels, including syngas fuel and natural gas.

2.b The Best Available Technology (BAT) requirements under 3745-31-05(A)(3) do not apply to the sulfur dioxide (SO₂), volatile organic compound (VOC), or the particulate emissions from this air contaminant source since the uncontrolled potential to emit for SO₂, VOC, and particulate emissions is less than ten tons per year.

2.c The permittee has satisfied the "latest available control techniques and operating practices" required pursuant to OAC rule 3745-21-08(B).

On November 5, 2002, OAC rule 3745-21-08 was revised to delete paragraph (B); therefore, paragraph (B) is no longer part of the State regulations. However, that rule revision has not yet been submitted to the 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 3745-21-08, the requirement to satisfy the "best available control techniques and operating practices" still exists as part of the federally-approved SIP for Ohio.

2.d See 40 CFR Part 60, Subpart JJJJ (40 CFR § 60.4230 - 60.4248).

2.e See 40 CFR Part 63, Subpart ZZZZ (40 CFR § 63.6580 - 63.6675).

II. Operational Restrictions

1. The permittee shall burn only natural gas and/or syngas fuel in this emissions unit.

III. Monitoring and/or Recordkeeping Requirements

1. For each day during which the permittee burns a fuel other than natural gas and/or syngas fuel, the permittee shall maintain a record of the type and quantity of fuel burned in this emissions unit.
2. The permittee shall maintain monthly records of the natural gas and syngas fuel usage in this unit in million scf.
3. The permittee shall collect and analyze representative samples of syngas on at least a monthly basis for heat content for each feedstock converted during the month. The permittee shall perform the analyses for heat content in accordance with appropriate ASTM methods, such as D240 Standard Test Method for Heat of Combustion of Liquid Hydrocarbon Fuels by Bomb Calorimeter, D1945 Standard Test Method for Analysis of Natural Gas by Gas Chromatography, and D1946 Standard Method for Analysis of Reformed Gas by GC (Fixed Gases), or equivalent methods as approved by the director.

Emissions Unit ID: P002

4. The permittee shall collect and record the following information each month*:
 - a. the heat content of the syngas generated, in Btu/scf; and
 - b. the feedstock used to generate the syngas analyzed for heat content pursuant to Section A.III.2.

*Ohio EPA may require more frequent heat content sampling and analysis if monthly sample data shows a high degree of variability for syngas fuel heat content.

5. See 40 CFR Part 60, Subpart JJJJ (40 CFR § 60.4245 and 60.4246).

IV. Reporting Requirements

1. The permittee shall submit deviation (excursion) reports that identify each day when a fuel other than natural gas and/or syngas fuel was burned in this emissions unit. Each report shall be submitted within 30 days after the deviation occurs.
2. The permittee shall submit deviation (excursion) reports which identify any fuel use exceedances that cause the NO_x limitation of 9.9 tons per year to be exceeded. These reports shall be submitted in accordance with the reporting requirements specified in Part 1 - General Terms and Conditions, Section A of this permit.
3. The permittee shall submit quarterly reports which specify the heat content analytical results for syngas for the previous three calendar months. These reports shall be submitted in accordance with the General Terms and Conditions of this permit.

V. Testing Requirements

1. Compliance with the emission limitation(s) in Section A.I.1. of these terms and conditions shall be determined in accordance with the following method(s):
 - a. Emission Limitation:
CO emissions shall not exceed 4.33 pounds per hour (1.47 g/hp-hr) and 18.98 tons per year.

Applicable Compliance Method:

The lbs/hr emission limitation is based upon the emission factor for syngas from the permittee's permit application (0.443 lb/Million Btu) multiplied by the maximum rated capacity of P002 (9.78 Million Btu/hr). Compliance with the tons per year emission limitation is demonstrated by the following equation:

$$18.98 \text{ tons per year} \geq [(C_{SG} * H) + (C_{NG} * 1,020 \text{ Btu/scf})] * EF_{CO} / 2000 \text{ lbs/ton}$$

Where:

Emissions Unit ID: P002

EF_{CO} = the CO emission factor for syngas demonstrated pursuant to the stack testing required in Section A.V.2

If required, the permittee shall demonstrate compliance with the lbs/hr emission limitation for this emissions unit in accordance with the stack testing required in Section A.V.2.

- b. Emission Limitation:
 NO_x emissions shall not exceed 9.9 tons per year.

Applicable Compliance Method:

Compliance with the tons per year emission limitation is demonstrated by the following equation:

$$9.9 \text{ tons per year} \geq [(C_{SG} * H) + (C_{NG} * 1,020 \text{ Btu/scf})] * EF_{NOX}/2000 \text{ lbs/ton}$$

- c. Emission Limitation:
 Particulate emissions (PE) shall not exceed 0.062 lb/million Btu actual heat input.

Applicable Compliance Method:

Compliance with the 0.062 lb/million Btu emission limitation is demonstrated by the following equations:

- i. for combustion of natural gas, by using the emissions factor for internal combustion of natural gas of 0.010 lb/million Btu from AP-42, Table 3.2-2 (7/00); and
- ii. for combustion of syngas, by adding the emissions factor for internal combustion of natural gas of 0.010 lb/million Btu from AP-42, Table 3.2-2 (7/00) and the maximum particulate present in the syngas (0.0082 lb/million Btu) specified in the permittee's permit application.

If required, PE shall be determined according to test Methods 1 - 5, as set forth in the "Appendix on Test Methods" in 40 CFR, Part 60 "Standards of Performance for New Stationary Sources", and the procedures specified in OAC rule 3745-17-03(B)(10). Alternative U.S. EPA-approved test methods may be used with prior approval from Ohio EPA, Southeast District Office.

- d. Emission Limitation:
 Visible PE from any stack serving this emissions unit shall not exceed 20% opacity as a 6-minute average, except as provided by the rule.

Applicable Compliance Method:

If required, visible PE shall be determined according to test Method 9 as set forth in the "Appendix on Test Methods" in 40 CFR, Part 60 "Standards of

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Performance for New Stationary Sources" as such appendix existed on July 1, 2002.

- e. Emission Limitation:
NO_x emissions shall not exceed 2.0 g/hp-hr.

Applicable Compliance Method:

Compliance with the g/hp-hr emission limitation is demonstrated by the manufacturer guarantee presented in the permittee's permit application.

If required, NO_x emissions shall be determined according to test Methods 1 - 4, and 7 as set forth in the "Appendix on Test Methods" in 40 CFR, Part 60 "Standards of Performance for New Stationary Sources". Alternative U.S. EPA-approved test methods may be used with prior approval from Ohio EPA, Southeast District Office.

- f. Emission Limitation:
VOC emissions shall not exceed 1.0 g/hp-hr.

Applicable Compliance Method:

Compliance with the g/hp-hr emission limitation is demonstrated by the manufacturer guarantee presented in the permittee's permit application.

If required, VOC emissions shall be determined according to test Methods 1 - 4, and 18, 25, or 25A as set forth in the "Appendix on Test Methods" in 40 CFR, Part 60 "Standards of Performance for New Stationary Sources". Alternative U.S. EPA-approved test methods may be used with prior approval from Ohio EPA, Southeast District Office.

- 2. The permittee shall conduct, or have conducted, emissions testing for one IC engine (emissions unit P001, P002, P003 or P004) in accordance with the following requirements:
 - a. The emissions testing shall be conducted on the first of the four units that begins operating after issuance of the permit. The emissions testing shall be conducted within sixty (60) days after achieving the maximum production rate at which the emissions units will be operated, but not later than one hundred and eighty (180) days after permit issuance or initial startup of the first emissions unit following permit issuance, whichever is later. Initial startup for the IC engines means the date syngas is first used in these units.

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- b. The emissions testing shall be conducted to validate the theoretical/calculated emissions factors for PE, CO, NO_x, SO₂, and VOC for syngas fuel used in the permit application and to demonstrate compliance with the allowable pound per hour mass emission rate for CO in emissions units P001-P004, in the appropriate averaging period.
- c. The following test methods shall be employed to demonstrate compliance with the theoretical/calculated emissions factors and/or allowable mass emission rates:

PE	Methods 1-5	40 CFR Part 60, Appendix A
CO	Method 10	40 CFR Part 60, Appendix A
NO _x	Method 7	40 CFR Part 60, Appendix A
SO ₂	Method 6	40 CFR Part 60, Appendix A
VOC	Method 18, 25 or 25A	40 CFR Part 60, Appendix A

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

- d. The tests shall be conducted while the emissions units are operating at or near their maximum capacity, unless otherwise specified or approved by the appropriate Ohio EPA District Office or local air agency. The tests shall be conducted when the emissions units are burning syngas generated from either tire-derived or wood-derived fuels, whichever is expected to be "worst case" for each pollutant being tested.
- e. Not later than 30 days prior to the proposed test date(s), the permittee 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 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 District Office's or local air agency's refusal to accept the results of the emission test(s).
- f. 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 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.
- g. 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 appropriate Ohio EPA District Office or local air agency 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

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appropriate Ohio EPA District Office or local air agency.

3. See 40 CFR Part 60, Subpart JJJJ (40 CFR § 60.4243 - 60.4244).

VI. Miscellaneous Requirements

None

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B. State Only Enforceable Section

I. Applicable Emissions Limitations and/or Control Requirements

1. The specific operations(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 specified in narrative form following the table.

Operations, Property, and/or Equipment - P002 - Stationary spark ignition (SI) reciprocating internal combustion engine (RICE) #2; 9.78 million Btu/hr, 1000 kW (1340 HP) GE J320 natural gas and/or syngas-fired generator controlled with catalytic oxidation

Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
None	None

2. **Additional Terms and Conditions**

- 2.a None

II. Operational Restrictions

None

III. Monitoring and/or Recordkeeping Requirements

None

IV. Reporting Requirements

None

V. Testing Requirements

None

VI. Miscellaneous Requirements

1. Modeling to demonstrate compliance with the "Toxic Air Contaminant Statute" in ORC 3704.03(F)(4)(b) was necessary because the maximum combined annual emissions

Emissions Unit ID: P002

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from emissions units B001-B005, P001-P006, and P801 of benzene and 1,3-butadiene, toxic air contaminants as defined in OAC rule 3745-114-01, are greater than 1.0 ton per year. Requirements to address ORC 3704.03(F)(4)(b) are included in Part II.B.III. and IV. of this permit.

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Part III - SPECIAL TERMS AND CONDITIONS FOR SPECIFIC EMISSIONS UNIT(S)**A. State and Federally Enforceable Section****I. Applicable Emissions Limitations and/or Control Requirements**

1. The specific operations(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 specified in narrative form following the table.

Operations, Property, and/or Equipment - P003 - Stationary spark ignition (SI) reciprocating internal combustion engine (RICE) #3; 9.78 million Btu/hr, 1000 kW (1340 HP) GE J320 natural gas and/or syngas-fired generator controlled with catalytic oxidation

Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
OAC rule 3745-31-05(A)(3)	Carbon monoxide (CO) emissions shall not exceed 4.33 pounds per hour (1.47 g/hp-hr) and 18.98 tons per year. The requirements of this rule also include compliance with the requirements of 40 CFR Part 60, Subpart JJJJ.
OAC rule 3745-31-05(C)	Nitrogen oxides (NO _x) emissions shall not exceed 9.9 tons per year. See Section A.I.2.a below.
OAC rule 3745-31-05(A)(3)(b)	See Section A.I.2.b below.
OAC rule 3745-17-11(B)(5)(b)	Particulate emissions (PE) shall not exceed 0.062 pound/million Btu actual heat input.
OAC rule 3745-17-07(A)(1)	Visible PE from any stack serving this emissions unit shall not exceed 20% opacity as a 6-minute average, except as provided by the rule.
OAC rule 3745-18-06(G)	This emissions unit is exempt from the requirements of OAC rule 3745-18-06(G) pursuant to OAC rule 3745-18-06(B).
OAC rule 3745-21-08(B)	See Section A.I.2.c below.
OAC rule 3745-110-03(F)(2)	This emissions unit is exempt from the requirements of OAC rule 3745-110-03(F)(2) pursuant to OAC rule 3745-110-03(J)(3).

Emissions Unit ID: P003

<p>40 CFR Part 60, Subpart JJJJ (applicable only when natural gas is burned in this emissions unit)</p>	<p>NO_x emissions shall not exceed 2.0 g/hp-hr.</p> <p>Volatile organic compound (VOC) emissions shall not exceed 1.0 g/hp-hr.</p> <p>The CO emission limitation specified by this rule is less stringent than the emission limitation established pursuant to OAC rule 3745-31-05(A)(3).</p> <p>See Section A.1.2.d below.</p>
<p>40 CFR Part 63, Subpart ZZZZ (applicable only when natural gas is burned in this emissions unit)</p>	<p>Pursuant to 40 CFR Part 63, Subpart ZZZZ (40 CFR § 63.6590(c)), new stationary reciprocating internal combustion engines (RICE) located at an area source of HAP emissions must meet the requirements of this part by meeting the requirements of 40 CFR Part 60 Subpart JJJJ for spark ignition engines.</p> <p>Pursuant to 40 CFR Part 63, Subpart ZZZZ (40 CFR § 63.6665), the General Provisions in 40 CFR § 63.1 through 63.15 do not apply to a stationary RICE located at an area source of HAP emissions.</p> <p>See Section A.1.2.e below.</p>

2. Additional Terms and Conditions

2.a Permit to Install 06-08168 for this air contaminant source takes into account the following voluntary restrictions (including the use of any applicable air pollution control equipment) as proposed by the permittee for the purposes of avoiding Best Available Technology (BAT) requirements for NO_x emissions under OAC rule 3745-31-05(A)(3):

- i. the fuel usage in emissions unit P003 shall not cause NO_x emissions to exceed 9.9 tons per year based on the following equation:

$$[(C_{SG} * H) + (C_{NG} * 1,020 \text{ Btu/scf})] * EF_{NOx} / 2000 \text{ lbs/ton} \leq 9.9 \text{ tons per year}$$

Where:

- C_{NG} = total natural gas combusted in emissions unit P001, in million scf per year;
- C_{SG} = total syngas combusted in emissions unit P001, in million scf per year;
- H = heat content of syngas, in Btu/scf; and
- EF_{NOx} = the NO_x emission factor for syngas demonstrated pursuant to the most recent stack testing of the IC engines (P001-P004) required in Section A.V.2, while burning

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syngas, in lb/million Btu; manufacturer guarantees NOx emission factor is the same for all gaseous fuels, including syngas fuel and natural gas.

2.b The Best Available Technology (BAT) requirements under 3745-31-05(A)(3) do not apply to the sulfur dioxide (SO₂), volatile organic compound (VOC), or the particulate emissions from this air contaminant source since the uncontrolled potential to emit for SO₂, VOC, and particulate emissions is less than ten tons per year.

2.c The permittee has satisfied the "latest available control techniques and operating practices" required pursuant to OAC rule 3745-21-08(B).

On November 5, 2002, OAC rule 3745-21-08 was revised to delete paragraph (B); therefore, paragraph (B) is no longer part of the State regulations. However, that rule revision has not yet been submitted to the 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 3745-21-08, the requirement to satisfy the "best available control techniques and operating practices" still exists as part of the federally-approved SIP for Ohio.

2.d See 40 CFR Part 60, Subpart JJJJ (40 CFR § 60.4230 - 60.4248).

2.e See 40 CFR Part 63, Subpart ZZZZ (40 CFR § 63.6580 - 63.6675).

II. Operational Restrictions

1. The permittee shall burn only natural gas and/or syngas fuel in this emissions unit.

III. Monitoring and/or Recordkeeping Requirements

1. For each day during which the permittee burns a fuel other than natural gas and/or syngas fuel, the permittee shall maintain a record of the type and quantity of fuel burned in this emissions unit.
2. The permittee shall maintain monthly records of the natural gas and syngas fuel usage in this unit in million scf.
3. The permittee shall collect and analyze representative samples of syngas on at least a monthly basis for heat content for each feedstock converted during the month. The permittee shall perform the analyses for heat content in accordance with appropriate ASTM methods, such as D240 Standard Test Method for Heat of Combustion of Liquid Hydrocarbon Fuels by Bomb Calorimeter, D1945 Standard Test Method for Analysis of Natural Gas by Gas Chromatography, and D1946 Standard Method for Analysis of Reformed Gas by GC (Fixed Gases), or equivalent methods as approved by the director.

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4. The permittee shall collect and record the following information each month*:
 - a. the heat content of the syngas generated, in Btu/scf; and
 - b. the feedstock used to generate the syngas analyzed for heat content pursuant to Section A.III.2.

*Ohio EPA may require more frequent heat content sampling and analysis if monthly sample data shows a high degree of variability for syngas fuel heat content.

5. See 40 CFR Part 60, Subpart JJJJ (40 CFR § 60.4245 and 60.4246).

IV. Reporting Requirements

1. The permittee shall submit deviation (excursion) reports that identify each day when a fuel other than natural gas and/or syngas fuel was burned in this emissions unit. Each report shall be submitted within 30 days after the deviation occurs.
2. The permittee shall submit deviation (excursion) reports which identify any fuel use exceedances that cause the NO_x limitation of 9.9 tons per year to be exceeded. These reports shall be submitted in accordance with the reporting requirements specified in Part 1 - General Terms and Conditions, Section A of this permit.
3. The permittee shall submit quarterly reports which specify the heat content analytical results for syngas for the previous three calendar months. These reports shall be submitted in accordance with the General Terms and Conditions of this permit.

V. Testing Requirements

1. Compliance with the emission limitation(s) in Section A.I.1. of these terms and conditions shall be determined in accordance with the following method(s):
 - a. Emission Limitation:
CO emissions shall not exceed 4.33 pounds per hour (1.47 g/hp-hr) and 18.98 tons per year.

Applicable Compliance Method:

The lbs/hr emission limitation is based upon the emission factor for syngas from the permittee's permit application (0.443 lb/Million Btu) multiplied by the maximum rated capacity of P003 (9.78 Million Btu/hr). Compliance with the tons per year emission limitation is demonstrated by the following equation:

$$18.98 \text{ tons per year} \geq [(C_{SG} * H) + (C_{NG} * 1,020 \text{ Btu/scf})] * EF_{CO}/2000 \text{ lbs/ton}$$

Where:

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EF_{CO} = the CO emission factor for syngas demonstrated pursuant to the stack testing required in Section A.V.2

If required, the permittee shall demonstrate compliance with the lbs/hr emission limitation for this emissions unit in accordance with the stack testing required in Section A.V.2.

- b. Emission Limitation:
 NO_x emissions shall not exceed 9.9 tons per year.

Applicable Compliance Method:

Compliance with the tons per year emission limitation is demonstrated by the following equation:

$$9.9 \text{ tons per year} \geq [(C_{SG} * H) + (C_{NG} * 1,020 \text{ Btu/scf})] * EF_{NOX}/2000 \text{ lbs/ton}$$

- c. Emission Limitation:
 Particulate emissions (PE) shall not exceed 0.062 lb/million Btu actual heat input.

Applicable Compliance Method:

Compliance with the 0.062 lb/million Btu emission limitation is demonstrated by the following equations:

- i. for combustion of natural gas, by using the emissions factor for internal combustion of natural gas of 0.010 lb/million Btu from AP-42, Table 3.2-2 (7/00); and
- ii. for combustion of syngas, by adding the emissions factor for internal combustion of natural gas of 0.010 lb/million Btu from AP-42, Table 3.2-2 (7/00) and the maximum particulate present in the syngas (0.0082 lb/million Btu) specified in the permittee's permit application.

If required, PE shall be determined according to test Methods 1 - 5, as set forth in the "Appendix on Test Methods" in 40 CFR, Part 60 "Standards of Performance for New Stationary Sources", and the procedures specified in OAC rule 3745-17-03(B)(10). Alternative U.S. EPA-approved test methods may be used with prior approval from Ohio EPA, Southeast District Office.

- d. Emission Limitation:
 Visible PE from any stack serving this emissions unit shall not exceed 20% opacity as a 6-minute average, except as provided by the rule.

Applicable Compliance Method:

If required, visible PE shall be determined according to test Method 9 as set forth in the "Appendix on Test Methods" in 40 CFR, Part 60 "Standards of

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Performance for New Stationary Sources" as such appendix existed on July 1, 2002.

- e. Emission Limitation:
NO_x emissions shall not exceed 2.0 g/hp-hr.

Applicable Compliance Method:

Compliance with the g/hp-hr emission limitation is demonstrated by the manufacturer guarantee presented in the permittee's permit application.

If required, NO_x emissions shall be determined according to test Methods 1 - 4, and 7 as set forth in the "Appendix on Test Methods" in 40 CFR, Part 60 "Standards of Performance for New Stationary Sources". Alternative U.S. EPA-approved test methods may be used with prior approval from Ohio EPA, Southeast District Office.

- f. Emission Limitation:
VOC emissions shall not exceed 1.0 g/hp-hr.

Applicable Compliance Method:

Compliance with the g/hp-hr emission limitation is demonstrated by the manufacturer guarantee presented in the permittee's permit application.

If required, VOC emissions shall be determined according to test Methods 1 - 4, and 18, 25, or 25A as set forth in the "Appendix on Test Methods" in 40 CFR, Part 60 "Standards of Performance for New Stationary Sources". Alternative U.S. EPA-approved test methods may be used with prior approval from Ohio EPA, Southeast District Office.

- 2. The permittee shall conduct, or have conducted, emissions testing for one IC engine (emissions unit P001, P002, P003 or P004) in accordance with the following requirements:
 - a. The emissions testing shall be conducted on the first of the four units that begins operating after issuance of the permit. The emissions testing shall be conducted within sixty (60) days after achieving the maximum production rate at which the emissions units will be operated, but not later than one hundred and eighty (180) days after permit issuance or initial startup of the first emissions unit following permit issuance, whichever is later. Initial startup for the IC engines means the date syngas is first used in these units.

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- b. The emissions testing shall be conducted to validate the theoretical/calculated emissions factors for PE, CO, NO_x, SO₂, and VOC for syngas fuel used in the permit application and to demonstrate compliance with the allowable pound per hour mass emission rate for CO in emissions units P001-P004, in the appropriate averaging period.
- c. The following test methods shall be employed to demonstrate compliance with the theoretical/calculated emissions factors and/or allowable mass emission rates:

PE	Methods 1-5	40 CFR Part 60, Appendix A
CO	Method 10	40 CFR Part 60, Appendix A
NO _x	Method 7	40 CFR Part 60, Appendix A
SO ₂	Method 6	40 CFR Part 60, Appendix A
VOC	Method 18, 25, or 25A	40 CFR Part 60, Appendix A

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

- d. The tests shall be conducted while the emissions units are operating at or near their maximum capacity, unless otherwise specified or approved by the appropriate Ohio EPA District Office or local air agency. The tests shall be conducted when the emissions units are burning syngas generated from either tire-derived or wood-derived fuels, whichever is expected to be "worst case" for each pollutant being tested.
- e. Not later than 30 days prior to the proposed test date(s), the permittee 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 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 District Office's or local air agency's refusal to accept the results of the emission test(s).
- f. 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 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.
- g. 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 appropriate Ohio EPA District Office or local air agency 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

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appropriate Ohio EPA District Office or local air agency.

3. See 40 CFR Part 60, Subpart JJJJ (40 CFR § 60.4243 - 60.4244).

VI. Miscellaneous Requirements

None

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B. State Only Enforceable Section

I. Applicable Emissions Limitations and/or Control Requirements

1. The specific operations(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 specified in narrative form following the table.

Operations, Property, and/or Equipment - P003 - Stationary spark ignition (SI) reciprocating internal combustion engine (RICE) #3; 9.78 million Btu/hr, 1000 kW (1340 HP) GE J320 natural gas and/or syngas-fired generator controlled with catalytic oxidation

Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
None	None

2. **Additional Terms and Conditions**

- 2.a None

II. Operational Restrictions

None

III. Monitoring and/or Recordkeeping Requirements

None

IV. Reporting Requirements

None

V. Testing Requirements

None

VI. Miscellaneous Requirements

1. Modeling to demonstrate compliance with the "Toxic Air Contaminant Statute" in ORC 3704.03(F)(4)(b) was necessary because the maximum combined annual emissions

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from emissions units B001-B005, P001-P006, and P801 of benzene and 1,3-butadiene, toxic air contaminants as defined in OAC rule 3745-114-01, are greater than 1.0 ton per year. Requirements to address ORC 3704.03(F)(4)(b) are included in Part II.B.III. and IV. of this permit.

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Part III - SPECIAL TERMS AND CONDITIONS FOR SPECIFIC EMISSIONS UNIT(S)**A. State and Federally Enforceable Section****I. Applicable Emissions Limitations and/or Control Requirements**

- The specific operations(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 specified in narrative form following the table.

Operations, Property, and/or Equipment - P004 - Stationary spark ignition (SI) reciprocating internal combustion engine (RICE) #4; 9.78 million Btu/hr, 1000 kW (1340 HP) GE J320 natural gas and/or syngas-fired generator controlled with catalytic oxidation

Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
OAC rule 3745-31-05(A)(3)	Carbon monoxide (CO) emissions shall not exceed 4.33 pounds per hour (1.47 g/hp-hr) and 18.98 tons per year. The requirements of this rule also include compliance with the requirements of 40 CFR Part 60, Subpart JJJJ.
OAC rule 3745-31-05(C)	Nitrogen oxides (NO _x) emissions shall not exceed 9.9 tons per year. See Section A.2.a below.
OAC rule 3745-31-05(A)(3)(b)	See Section A.2.b below.
OAC rule 3745-17-11(B)(5)(b)	Particulate emissions (PE) shall not exceed 0.062 pound/million Btu actual heat input.
OAC rule 3745-17-07(A)(1)	Visible PE from any stack serving this emissions unit shall not exceed 20% opacity as a 6-minute average, except as provided by the rule.
OAC rule 3745-18-06(G)	This emissions unit is exempt from the requirements of OAC rule 3745-18-06(G) pursuant to OAC rule 3745-18-06(B).
OAC rule 3745-21-08(B)	See Section A.2.c below.
OAC rule 3745-110-03(F)(2)	This emissions unit is exempt from the requirements of OAC rule 3745-110-03(F)(2) pursuant to OAC rule 3745-110-03(J)(3).

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<p>40 CFR Part 60, Subpart JJJJ (applicable only when natural gas is burned in this emissions unit)</p>	<p>NO_x emissions shall not exceed 2.0 g/hp-hr.</p> <p>Volatile organic compound (VOC) emissions shall not exceed 1.0 g/hp-hr.</p> <p>The CO emission limitation specified by this rule is less stringent than the emission limitation established pursuant to OAC rule 3745-31-05(A)(3).</p> <p>See Section A.1.2.d below.</p>
<p>40 CFR Part 63, Subpart ZZZZ (applicable only when natural gas is burned in this emissions unit)</p>	<p>Pursuant to 40 CFR Part 63, Subpart ZZZZ (40 CFR § 63.6590(c)), new stationary reciprocating internal combustion engines (RICE) located at an area source of HAP emissions must meet the requirements of this part by meeting the requirements of 40 CFR Part 60 Subpart JJJJ for spark ignition engines.</p> <p>Pursuant to 40 CFR Part 63, Subpart ZZZZ (40 CFR § 63.6665), the General Provisions in 40 CFR § 63.1 through 63.15 do not apply to a stationary RICE located at an area source of HAP emissions.</p> <p>See Section A.1.2.e below.</p>

2. Additional Terms and Conditions

2.a Permit to Install 06-08168 for this air contaminant source takes into account the following voluntary restrictions (including the use of any applicable air pollution control equipment) as proposed by the permittee for the purposes of avoiding Best Available Technology (BAT) requirements for NO_x emissions under OAC rule 3745-31-05(A)(3):

- i. The fuel usage in emissions unit P004 shall not cause NO_x emissions to exceed 9.9 tons per year based on the following equation:

$$[(C_{SG} * H) + (C_{NG} * 1,020 \text{ Btu/scf})] * EF_{NOx} / 2000 \text{ lbs/ton} \leq 9.9 \text{ tons per year}$$

Where:

- C_{NG} = total natural gas combusted in emissions unit P001, in million scf per year;
- C_{SG} = total syngas combusted in emissions unit P001, in million scf per year;
- H = heat content of syngas, in Btu/scf; and
- EF_{NOx} = the NO_x emission factor for syngas demonstrated pursuant to the most recent stack testing of the IC engines (P001-P004) required in Section A.V.2, while burning

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syngas and/or natural gas, in lb/million Btu; manufacturer guarantees NOx emission factor is the same for all gaseous fuels, including syngas fuel and natural gas.

2.b The Best Available Technology (BAT) requirements under 3745-31-05(A)(3) do not apply to the sulfur dioxide (SO₂), volatile organic compound (VOC), or the particulate emissions from this air contaminant source since the uncontrolled potential to emit for SO₂, VOC, and particulate emissions is less than ten tons per year.

2.c The permittee has satisfied the "latest available control techniques and operating practices" required pursuant to OAC rule 3745-21-08(B).

On November 5, 2002, OAC rule 3745-21-08 was revised to delete paragraph (B); therefore, paragraph (B) is no longer part of the State regulations. However, that rule revision has not yet been submitted to the 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 3745-21-08, the requirement to satisfy the "best available control techniques and operating practices" still exists as part of the federally-approved SIP for Ohio.

2.d See 40 CFR Part 60, Subpart JJJJ (40 CFR § 60.4230 - 60.4248).

2.e See 40 CFR Part 63, Subpart ZZZZ (40 CFR § 63.6580 - 63.6675).

II. Operational Restrictions

1. The permittee shall burn only natural gas and/or syngas fuel in this emissions unit.

III. Monitoring and/or Recordkeeping Requirements

1. For each day during which the permittee burns a fuel other than natural gas and/or syngas fuel, the permittee shall maintain a record of the type and quantity of fuel burned in this emissions unit.
2. The permittee shall maintain monthly records of the natural gas and syngas fuel usage in this unit in million scf.
3. The permittee shall collect and analyze representative samples of syngas on at least a monthly basis for heat content for each feedstock converted during the month. The permittee shall perform the analyses for heat content in accordance with appropriate ASTM methods, such as D240 Standard Test Method for Heat of Combustion of Liquid Hydrocarbon Fuels by Bomb Calorimeter, D1945 Standard Test Method for Analysis of Natural Gas by Gas Chromatography, and D1946 Standard Method for Analysis of Reformed Gas by GC (Fixed Gases), or equivalent methods as approved by the director.

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4. The permittee shall collect and record the following information each month*:
 - a. the heat content of the syngas generated, in Btu/scf; and
 - b. the feedstock used to generate the syngas analyzed for heat content pursuant to Section A.III.2.

*Ohio EPA may require more frequent heat content sampling and analysis if monthly sample data shows a high degree of variability for syngas fuel heat content.

5. See 40 CFR Part 60, Subpart JJJJ (40 CFR § 60.4245 and 60.4246).

IV. Reporting Requirements

1. The permittee shall submit deviation (excursion) reports that identify each day when a fuel other than natural gas and/or syngas fuel was burned in this emissions unit. Each report shall be submitted within 30 days after the deviation occurs.
2. The permittee shall submit deviation (excursion) reports which identify any fuel use exceedances that cause the NO_x limitation of 9.9 tons per year to be exceeded. These reports shall be submitted in accordance with the reporting requirements specified in Part 1 - General Terms and Conditions, Section A of this permit.
3. The permittee shall submit quarterly reports which specify the heat content analytical results for syngas for the previous three calendar months. These reports shall be submitted in accordance with the General Terms and Conditions of this permit.

V. Testing Requirements

1. Compliance with the emission limitation(s) in Section A.I.1. of these terms and conditions shall be determined in accordance with the following method(s):
 - a. Emission Limitation:
 CO emissions shall not exceed 4.33 pounds per hour (1.47 g/hp-hr) and 18.98 tons per year.

Applicable Compliance Method:

The lbs/hr emission limitation is based upon the emission factor for syngas from the permittee's permit application (0.443 lb/Million Btu) multiplied by the maximum rated capacity of P004 (9.78 Million Btu/hr). Compliance with the tons per year emission limitation is demonstrated by the following equation:

$$18.98 \text{ tons per year} \geq [(C_{SG} * H) + (C_{NG} * 1,020 \text{ Btu/scf})] * EF_{CO} / 2000 \text{ lbs/ton}$$

Where:

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EF_{CO} = the CO emission factor for syngas demonstrated pursuant to the stack testing required in Section A.V.2

If required, the permittee shall demonstrate compliance with the lbs/hr emission limitation for this emissions unit in accordance with the stack testing required in Section A.V.2.

- b. Emission Limitation:
 NO_x emissions shall not exceed 9.9 tons per year.

Applicable Compliance Method:

Compliance with the tons per year emission limitation is demonstrated by the following equation:

$$9.9 \text{ tons per year} \geq [(C_{SG} * H) + (C_{NG} * 1,020 \text{ Btu/scf})] * EF_{NOX}/2000 \text{ lbs/ton}$$

- c. Emission Limitation:
 Particulate emissions (PE) shall not exceed 0.062 lb/million Btu actual heat input.

Applicable Compliance Method:

Compliance with the 0.062 lb/million Btu emission limitation is demonstrated by the following equations:

- i. for combustion of natural gas, by using the emissions factor for internal combustion of natural gas of 0.010 lb/million Btu from AP-42, Table 3.2-2 (7/00); and
- ii. for combustion of syngas, by adding the emissions factor for internal combustion of natural gas of 0.010 lb/million Btu from AP-42, Table 3.2-2 (7/00) and the maximum particulate present in the syngas (0.0082 lb/million Btu) specified in the permittee's permit application.

If required, PE shall be determined according to test Methods 1 - 5, as set forth in the "Appendix on Test Methods" in 40 CFR, Part 60 "Standards of Performance for New Stationary Sources", and the procedures specified in OAC rule 3745-17-03(B)(10). Alternative U.S. EPA-approved test methods may be used with prior approval from Ohio EPA, Southeast District Office.

- d. Emission Limitation:
 Visible PE from any stack serving this emissions unit shall not exceed 20% opacity as a 6-minute average, except as provided by the rule.

Applicable Compliance Method:

If required, visible PE shall be determined according to test Method 9 as set forth in the "Appendix on Test Methods" in 40 CFR, Part 60 "Standards of

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Performance for New Stationary Sources" as such appendix existed on July 1, 2002.

- e. Emission Limitation:
NO_x emissions shall not exceed 2.0 g/hp-hr.

Applicable Compliance Method:

Compliance with the g/hp-hr emission limitation is demonstrated by the manufacturer guarantee presented in the permittee's permit application.

If required, NO_x emissions shall be determined according to test Methods 1 - 4, and 7 as set forth in the "Appendix on Test Methods" in 40 CFR, Part 60 "Standards of Performance for New Stationary Sources". Alternative U.S. EPA-approved test methods may be used with prior approval from Ohio EPA, Southeast District Office.

- f. Emission Limitation:
VOC emissions shall not exceed 1.0 g/hp-hr.

Applicable Compliance Method:

Compliance with the g/hp-hr emission limitation is demonstrated by the manufacturer guarantee presented in the permittee's permit application.

If required, VOC emissions shall be determined according to test Methods 1 - 4, and 18, 25, or 25A as set forth in the "Appendix on Test Methods" in 40 CFR, Part 60 "Standards of Performance for New Stationary Sources". Alternative U.S. EPA-approved test methods may be used with prior approval from Ohio EPA, Southeast District Office.

- 2. The permittee shall conduct, or have conducted, emissions testing for one IC engine (emissions unit P001, P002, P003 or P004) in accordance with the following requirements:
 - a. The emissions testing shall be conducted on the first of the four units that begins operating after issuance of the permit. The emissions testing shall be conducted within sixty (60) days after achieving the maximum production rate at which the emissions units will be operated, but not later than one hundred and eighty (180) days after permit issuance or initial startup of the first emissions unit following permit issuance, whichever is later. Initial startup for the IC engines means the date syngas is first used in these units.

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- b. The emissions testing shall be conducted to validate the theoretical/calculated emissions factors for PE, CO, NO_x, SO₂, and VOC for syngas fuel used in the permit application and to demonstrate compliance with the allowable pound per hour mass emission rate for CO in emissions units P001-P004, in the appropriate averaging period.
- c. The following test methods shall be employed to demonstrate compliance with the theoretical/calculated emissions factors and/or allowable mass emission rates:

PE	Methods 1-5	40 CFR Part 60, Appendix A
CO	Method 10	40 CFR Part 60, Appendix A
NO _x	Method 7	40 CFR Part 60, Appendix A
SO ₂	Method 6	40 CFR Part 60, Appendix A
VOC	Method 18, 25, or 25A	40 CFR Part 60, Appendix A

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

- d. The tests shall be conducted while the emissions units are operating at or near their maximum capacity, unless otherwise specified or approved by the appropriate Ohio EPA District Office or local air agency. The tests shall be conducted when the emissions units are burning syngas generated from either tire-derived or wood-derived fuels, whichever is expected to be "worst case" for each pollutant being tested.
- e. Not later than 30 days prior to the proposed test date(s), the permittee 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 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 District Office's or local air agency's refusal to accept the results of the emission test(s).
- f. 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 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.
- g. 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 appropriate Ohio EPA District Office or local air agency 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

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appropriate Ohio EPA District Office or local air agency.

3. See 40 CFR Part 60, Subpart JJJJ (40 CFR § 60.4243 - 60.4244).

VI. Miscellaneous Requirements

None

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B. State Only Enforceable Section

I. Applicable Emissions Limitations and/or Control Requirements

1. The specific operations(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 specified in narrative form following the table.

Operations, Property, and/or Equipment - P004 - Stationary spark ignition (SI) reciprocating internal combustion engine (RICE) #4; 9.78 million Btu/hr, 1000 kW (1340 HP) GE J320 natural gas and/or syngas-fired generator controlled with catalytic oxidation

Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
None	None

2. **Additional Terms and Conditions**

- 2.a None

II. Operational Restrictions

None

III. Monitoring and/or Recordkeeping Requirements

None

IV. Reporting Requirements

None

V. Testing Requirements

None

VI. Miscellaneous Requirements

1. Modeling to demonstrate compliance with the "Toxic Air Contaminant Statute" in ORC 3704.03(F)(4)(b) was necessary because the maximum combined annual emissions

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from emissions units B001-B005, P001-P006, and P801 of benzene and 1,3-butadiene, toxic air contaminants as defined in OAC rule 3745-114-01, are greater than 1.0 ton per year. Requirements to address ORC 3704.03(F)(4)(b) are included in Part II.B.III. and IV. of this permit.

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Part III - SPECIAL TERMS AND CONDITIONS FOR SPECIFIC EMISSIONS UNIT(S)

A. State and Federally Enforceable Section

I. Applicable Emissions Limitations and/or Control Requirements

1. The specific operations(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 specified in narrative form following the table.

Operations, Property, and/or Equipment - P005 - Waste handling operations (char and condensate/wastewater handling); controlled with baghouse and carbon adsorber

Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
OAC rule 3745-31-05(C)	Volatile organic compound (VOC) emissions shall not exceed 6.66 tons per year. See Section A.I.2.a below.
OAC rule 3745-31-05(A)(3)(b)	See Section A.I.2.b below.
OAC rule 3745-17-07(A)(1)	Visible PE from any stack serving this emissions unit shall not exceed 20% opacity as a 6-minute average, except as provided by the rule.
OAC rules 3745-17-07(B) and 3745-17-08	Exempt. See Section A.I.2.c below.
OAC rule 3745-17-11(B)(1)	PE shall not exceed 6.52 pounds per hour.
OAC rule 3745-21-08(B)	See Section A.I.2.d below.

2. Additional Terms and Conditions

- 2.a Permit to Install 06-08168 for this air contaminant source takes into account the following voluntary restrictions (including the use of any applicable air pollution control equipment) as proposed by the permittee for the purposes of avoiding Best Available Technology (BAT) requirements for VOC under OAC rule 3745-31-05(A)(3):
 - i. carbon adsorber for VOC (specifically benzene, toluene, and 1,3-butadiene) from char degassing and condensate handling.

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- 2.b** The Best Available Technology (BAT) requirements under 3745-31-05(A)(3) do not apply to the carbon monoxide (CO) and particulate emissions from this air contaminant source since the uncontrolled potential to emit for CO and particulate is less than ten tons per year.
- 2.c** This facility is located in Coshocton County, which is not identified in Appendix A of OAC rule 3745-17-08. Therefore, the fugitive dust emissions from this emissions unit are exempt from the fugitive dust control requirements and visible emission limitation established in OAC rules 3745-17-08(B) and 3745-17-07(B), respectively.
- 2.d** The permittee has satisfied the "latest available control techniques and operating practices" required pursuant to OAC rule 3745-21-08(B).

On November 5, 2002, OAC rule 3745-21-08 was revised to delete paragraph (B); therefore, paragraph (B) is no longer part of the State regulations. However, that rule revision has not yet been submitted to the 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 3745-21-08, the requirement to satisfy the "best available control techniques and operating practices" still exists as part of the federally-approved SIP for Ohio.

II. Operational Restrictions

- 1. All VOC emissions collected from this emissions unit and not accounted for in emissions unit P801 shall be vented to the carbon adsorber when the emissions unit is in operation.

III. Monitoring and/or Recordkeeping Requirements

- 1. The permittee shall perform daily checks, when the emissions unit is in operation and when the weather conditions allow, for any visible particulate emissions from the stack serving this emissions unit. The presence or absence of any visible emissions shall be noted in an operations log. If visible emissions are observed, the permittee shall also note the following in the operations log:
 - a. the color of the emissions;
 - b. whether the emissions are representative of normal operations;
 - c. if the emissions are not representative of normal operations, the cause of the abnormal emissions;

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- d. the total duration of any visible emission incident; and
- e. any corrective actions taken to minimize or eliminate the visible emissions.

If visible emissions are present, a visible emission incident has occurred. The observer does not have to document the exact start and end times for the visible emission incident under item (d) above or continue the daily check until the incident has ended. The observer may indicate that the visible emission incident was continuous during the observation period (or, if known, continuous during the operation of the emissions unit). With respect to the documentation of corrective actions, the observer may indicate that no corrective actions were taken if the visible emissions were representative of normal operations, or specify the minor corrective actions that were taken to ensure that the emissions unit continued to operate under normal conditions, or specify the corrective actions that were taken to eliminate abnormal visible emissions.

- 2. The permittee shall comply with either Section A.III.2.a. or 2.b, below, for the carbon adsorption systems controlling emissions from this unit:
 - a. When two or more carbon canisters are utilized in series, the permittee shall:
 - i. Monitor for breakthrough between the primary (first) and secondary (second) carbon canisters at times when there is actual flow to the carbon canister. For a carbon adsorption system that does not regenerate the carbon bed directly on site in the control device (e.g., a carbon canister), the concentration level of the organic compounds in the exhaust vent stream from the carbon adsorption system shall be monitored on a regular schedule. The device shall be monitored on a daily basis or at intervals no greater than 20 percent of the design carbon replacement interval, whichever is greater. As an alternative to conducting this monitoring, a permittee may replace the carbon in the carbon adsorption system with fresh carbon at a regular predetermined time interval that is less than the carbon replacement interval that is determined by the maximum design flow rate and the organic concentration in the gas stream vented to the carbon adsorption system;
 - ii. Replace the exhausted carbon canister with a fresh carbon canister immediately when VOC breakthrough as defined by the canister supplier is detected. For this section, "immediately" means within twenty-four (24) hours; and
 - iii. Maintain a supply of at least one fresh carbon canister for each series of canisters in use at the facility.
 - b. When single carbon canisters are utilized, the permittee shall:
 - i. Monitor for breakthrough from the carbon canisters at times when there is actual flow to the carbon canister. For a carbon adsorption system that does not regenerate the carbon directly on site in the control device (e.g., a carbon canister), the concentration level of the organic compounds in

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- the exhaust vent stream from the carbon adsorption system shall be monitored on a regular schedule. The device shall be monitored on a daily basis or at intervals no greater than 20 percent of the design carbon replacement interval, whichever is greater. As an alternative to conducting this monitoring, a permittee may replace the carbon in the carbon adsorption system with fresh carbon at a regular predetermined time interval that is less than the carbon replacement interval that is determined by the maximum design flow rate and the organic concentration in the gas stream vented to the carbon adsorption system;
- ii. For the single canister option, replace canisters immediately when breakthrough is determined as follows:
 - (a) For canisters less than or equal to 55 gallon drum size, breakthrough is any reading of VOC above background, or
 - (b) For canisters larger than 55 gallons, breakthrough is defined as the ppmv VOC concentration specified by the canister supplier;
 - . For purposes of Section 2.b., the term "immediately" shall be defined to mean within eight (8) hours for canisters with historical replacement intervals of two weeks or less or within twenty-four (24) hours for canisters with a historical replacement interval of more than two weeks;
 - iv. Maintain a supply of at least one fresh carbon canister for each single carbon canister system used at each the facility; and,
 - v. Replace single carbon canisters with a multiple canister system at any time provided canister monitoring is continued until the additional canisters are installed, at which time monitoring will follow the multiple canister method specified in Section 2.a.
3. The permittee shall maintain records of dates and times when the control devices are monitored, when breakthrough is measured, and shall record the date and time then the existing carbon in the control device is replaced with fresh carbon canister.

IV. 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 and (b) describe any corrective actions taken to minimize or eliminate the visible particulate emissions. These reports shall be submitted to the Ohio EPA, Southeast District Office by January 31 and July 31 of each year and shall cover the previous 6-month period.
2. The permittee shall submit quarterly written reports that identify each occurrence when the carbon in any of the carbon canisters is not replaced at the predetermined interval specified in Section A.III.2.

V. Testing Requirements

1. Compliance with the emission limitation(s) in Section A.I.1. of these terms and

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conditions shall be determined in accordance with the following method(s):

- a. Emission Limitation:
Volatile organic compound (VOC) emissions shall not exceed 6.66 tons per year.

Applicable Compliance Method:

Compliance with the tons per year emission limitation is demonstrated by the following equation:

$$\begin{aligned}
 \text{VOC (tons/yr)} &= [(0.0322 \text{ lbmol/hr} \times 44 \text{ lbs/lbmol non-HAP VOC}) + \\
 & ((0.0124 \text{ lbmol/hr} \times 78 \text{ lbs/lbmol benzene} \times (1 - 0.95)) + ((0.0085 \\
 & \times 92 \text{ lbs/lbmol toluene} \times (1 - 0.95)) + ((0.0034 \text{ lbmol/hr} \times 54 \\
 & \text{ lbs/lbmol} \times (1 - 0.93)) \times 8760 \times 1 \text{ lb/2000 tons}] \\
 &= (1.42 \text{ lb/hr} + 0.05 \text{ lb/hr} + 0.04 \text{ lb/hr} + 0.01 \text{ lb/hr}) \times \\
 & 8760 \times 1 \text{ lb/2000 tons} \\
 &= 6.66 \text{ tons per year}
 \end{aligned}$$

Where (per the permittee's permit application):

0.0322 lbmol/hr = loading rate of non-HAP VOC to carbon adsorber from char handling

0.0124 lbmol/hr = loading rate of benzene to carbon adsorber from char handling, oil/water separation, light oil decanting, and wastewater operations

0.0085 lbmol/hr = loading rate of toluene to carbon adsorber from char handling, oil/water separation, light oil decanting, and wastewater operations

0.0034 lbmol/hr = loading rate of 1,3-Butadiene to carbon adsorber from char handling

95% = carbon adsorber control efficiency for benzene and toluene

93% = carbon adsorber control efficiency for 1,3-Butadiene

0% = carbon adsorber control efficiency for non-HAP VOC

- b. Emission Limitation:
PE shall not exceed 6.52 pounds per hour.

Applicable Compliance Method:

If required, PE shall be determined according to test Methods 1 - 5, as set forth in the "Appendix on Test Methods" in 40 CFR, Part 60 "Standards of Performance for New Stationary Sources", and the procedures specified in OAC rule 3745-17-03(B)(10). Alternative U.S. EPA-approved test methods may be used with prior approval from Ohio EPA, Southeast District Office.

- c. Emission Limitation:

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Visible PE from any stack serving this emissions unit shall not exceed 20% opacity as a 6-minute average, except as provided by the rule.

Applicable Compliance Method:

If required, visible PE shall be determined according to test Method 9 as set forth in the "Appendix on Test Methods" in 40 CFR, Part 60 "Standards of Performance for New Stationary Sources" as such appendix existed on July 1, 2002.

VI. Miscellaneous Requirements

None

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B. State Only Enforceable Section

I. Applicable Emissions Limitations and/or Control Requirements

1. The specific operations(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 specified in narrative form following the table.

Operations, Property, and/or Equipment - P005 - Waste handling operations (char and condensate/wastewater handling); controlled with baghouse and carbon adsorber

Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
None	None

2. **Additional Terms and Conditions**

- 2.a None

II. Operational Restrictions

None

III. Monitoring and/or Recordkeeping Requirements

None

IV. Reporting Requirements

None

V. Testing Requirements

None

VI. Miscellaneous Requirements

1. Modeling to demonstrate compliance with the "Toxic Air Contaminant Statute" in ORC 3704.03(F)(4)(b) was necessary because the maximum combined annual emissions from emissions units B001-B005, P001-P006, and P801 of benzene and 1,3-butadiene,

Emissions Unit ID: P005

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toxic air contaminants as defined in OAC rule 3745-114-01, are greater than 1.0 ton per year. Requirements to address ORC 3704.03(F)(4)(b) are included in Part II.B.III. and IV. of this permit.

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Part III - SPECIAL TERMS AND CONDITIONS FOR SPECIFIC EMISSIONS UNIT(S)**A. State and Federally Enforceable Section****I. Applicable Emissions Limitations and/or Control Requirements**

1. The specific operations(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 specified in narrative form following the table.

Operations, Property, and/or Equipment - P006 - 29 million Btu/hour enclosed syngas fuel flare for testing and startup operations

Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
OAC rule 3745-31-05(A)(3)(b)	Carbon monoxide (CO) emissions shall not exceed 9.9 tons per year. Sulfur dioxide (SO ₂) emissions shall not exceed 9.9 tons per year. Volatile organic compound (VOC) emissions shall not exceed 9.9 tons per year. Nitrogen oxides (NO _x) emissions shall not exceed 7.03 tons per year. Particulate emissions (PE) shall not exceed 1.04 tons per year. See Section A.I.2.a below.
OAC rule 3745-18-06(G)	This emissions unit is exempt from the requirements of OAC rule 3745-18-06(G) pursuant to OAC rule 3745-18-06(B).
OAC rule 3745-21-08(B)	See Section A.I.2.b below.

2. Additional Terms and Conditions

- 2.a Permit to Install 06-08168 for this air contaminant source takes into account the following voluntary restrictions (including the use of any applicable air pollution control equipment) as proposed by the permittee for the purpose of avoiding Best Available Technology (BAT) requirements for CO, SO₂, VOC, NO_x, and particulate emissions under OAC rule 3745-31-05(A)(3):

Emissions Unit ID: P006

- i. the maximum amount of syngas fuel usage in emissions unit P006 shall not exceed 99,000 million Btu per year (for NO_x and PE);
- ii. the fuel usage in emissions unit P006 shall not cause SO₂ emissions to exceed 9.9 tons per year based on the following equation:

$$(C_{SG} * H * S)/2000 \text{ lbs/ton} \leq 9.9 \text{ tons per year}$$

Where:

- C_{SG} = total syngas combusted in emissions unit P006, in million scf per year;
- H = heat content of syngas, in Btu/scf (from monitoring requirements in Section A.III.3 and 4); and
- S = sulfur content of syngas, in lb/million Btu;

- iii. the fuel usage in emissions unit P006 shall not cause CO emissions to exceed 9.9 tons per year based on the following equation:

$$(C_{SG} * H * 0.20 \text{ lb/million Btu})/2000 \text{ lbs/ton} \leq 9.9 \text{ tons per year}$$

Where:

- C_{SG} = total syngas combusted in emissions unit P006, in million scf per year;
- H = heat content of syngas, in Btu/scf (from monitoring requirements in Section A.III.3 and 4 below); and
- 0.20 lb/million Btu = CO emissions factor for syngas fuel combustion; and

- iv. the fuel usage in emissions unit P006 shall not cause VOC emissions to exceed 9.9 tons per year based on the following equation:

$$(C_{SG} * H * 0.140 \text{ lb/million Btu})/2000 \text{ lbs/ton} \leq 9.9 \text{ tons per year}$$

Where:

- C_{SG} = total syngas combusted in emissions unit P006, in million scf per year;
- H = heat content of syngas, in Btu/scf (from monitoring requirements in Section A.III.3 and 4 below); and
- 0.140 lb/million Btu = VOC emissions factor for syngas fuel combustion.

- 2.b** The permittee has satisfied the "latest available control techniques and operating practices" required pursuant to OAC rule 3745-21-08(B).

On November 5, 2002, OAC rule 3745-21-08 was revised to delete paragraph (B); therefore, paragraph (B) is no longer part of the State regulations. However,

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that rule revision has not yet been submitted to the 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 3745-21-08, the requirement to satisfy the "best available control techniques and operating practices" still exists as part of the federally-approved SIP for Ohio.

II. Operational Restrictions

1. The permittee shall burn only syngas fuel in this emissions unit.
2. A pilot flame shall be maintained at all times in the flare's pilot light burner.

III. Monitoring and/or Recordkeeping Requirements

1. For each day during which the permittee burns a fuel other than syngas fuel, the permittee shall maintain a record of the type and quantity of fuel burned in this emissions unit.
2. The permittee shall maintain monthly records of the syngas fuel usage in this unit in million Btu and in million scf.
3. The permittee shall collect and analyze representative samples of syngas on at least a monthly basis for sulfur content and heat content for each feedstock converted during the month. The permittee shall perform the analyses for sulfur content and heat content in accordance with appropriate ASTM methods, such as D240 Standard Test Method for Heat of Combustion of Liquid Hydrocarbon Fuels by Bomb Calorimeter, D5504 Standard Test Method for Determination of Sulfur Compounds in Natural Gas and Gaseous Fuels by Gas Chromatography and Chemiluminescence, D1945 Standard Test Method for Analysis of Natural Gas by Gas Chromatography, and D1946 Standard Method for Analysis of Reformed Gas by GC (Fixed Gases), or equivalent methods as approved by the director.
4. The permittee shall collect and record the following information each month*:
 - a. the sulfur content of the syngas burned in this unit, in lb/scf;
 - b. the heat content of the syngas burned in this unit, in Btu/scf; and
 - b. the feedstock used to generate the syngas analyzed for sulfur and heat content pursuant to Section A.III.2.

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*Ohio EPA may require more frequent sulfur and heat content sampling and analysis if monthly sample data shows a high degree of variability for syngas fuel heat content.

5. The permittee shall record all periods of time during which there was no pilot flame or the flare was inoperable.
6. 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. For each day during which the permittee does not maintain the flare as required, the permittee shall maintain a record of the date, time, and duration of each period when the flare is not operated and maintained as required in this permit.

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IV. Reporting Requirements

1. The permittee shall submit deviation (excursion) reports that identify each day when a fuel other than syngas fuel was burned in this emissions unit. Each report shall be submitted within 30 days after the deviation occurs.
2. The permittee shall submit deviation (excursion) reports which identify (i) any fuel use that exceeds 99,000 million Btu per year and (ii) any fuel use exceedances that cause the CO or VOC limitations of 9.9 tons per year to be exceeded. These reports shall be submitted in accordance with the reporting requirements specified in Part 1 - General Terms and Conditions, Section A of this permit.
3. The permittee shall submit quarterly reports which specify the heat and sulfur content analytical results for syngas burned in this unit for the previous three calendar months. These reports shall be submitted in accordance with the General Terms and Conditions of this permit.
4. The permittee shall submit quarterly deviation reports that identify all periods of time during which the flare was not operated and maintained as required in this permit. The reports shall include the date, time, and duration of each such period. These reports shall be submitted in accordance with the reporting requirements specified in Part 1 - General Terms and Conditions, Section A of this permit.

V. Testing Requirements

1. Compliance with the emission limitation(s) in Section A.I.1. of these terms and conditions shall be determined in accordance with the following method(s):
 - a. Emission Limitation:
CO emissions shall not exceed 9.9 tons per year.

Applicable Compliance Method:
Compliance with the tons per year emission limitation shall be demonstrated by multiplying the emission factor from the permittee's permit application (0.20 lb/million Btu) by the actual annual syngas fuel usage, then dividing by 2000 lbs/ton.
 - b. Emission Limitation:
SO₂ emissions shall not exceed 9.9 tons per year.

Applicable Compliance Method:

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Compliance with the tons per year emission limitation shall be demonstrated by the following equation:

$$(C_{SG} * H * S)/2000 \text{ lbs/ton} \leq 9.9 \text{ tons per year}$$

Where:

- C_{SG} = total syngas combusted in emissions unit P006, in million scf per year;
 H = heat content of syngas, in Btu/scf (from monitoring requirements in Section A.III.3 and 4); and
 S = sulfur content of syngas, in lb/million Btu.

- d. Emission Limitation:
 VOC emissions shall not exceed 9.9 tons per year.

Applicable Compliance Method:

Compliance with the tons per year emission limitation shall be demonstrated by the following equation:

$$(C_{SG} * H * 0.140 \text{ lb/million Btu})/2000 \text{ lbs/ton} \leq 9.9 \text{ tons per year}$$

- e. Emission Limitation:
 NO_x emissions shall not exceed 7.03 tons per year.

Applicable Compliance Method:

Compliance with the tons per year emission limitation shall be demonstrated by multiplying the emission factor for NO_x from the permittee's permit application of 0.142 lb/Million Btu by the actual annual fuel usage, then dividing by 2000 lbs/ton.

- b. Emission Limitation:
 PE shall not exceed 1.04 tons per year.

Applicable Compliance Method:

Compliance with the tons per year emission limitation shall be demonstrated by multiplying the emission factor from AP-42, Table 13.5-1, 9/1991, converted to lb/Million Btu (0.021 lb/million Btu), by the actual annual fuel usage, then dividing by 2000 lbs/ton.

VI. Miscellaneous Requirements

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Facility ID: 0616010090

Emissions Unit ID: P006

None

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B. State Only Enforceable Section

I. Applicable Emissions Limitations and/or Control Requirements

1. The specific operations(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 specified in narrative form following the table.

Operations, Property, and/or Equipment -P006 - 29 million Btu/hour enclosed syngas fuel flare for testing and startup operations

Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
None	None

2. **Additional Terms and Conditions**

- 2.a None

II. Operational Restrictions

None

III. Monitoring and/or Recordkeeping Requirements

None

IV. Reporting Requirements

None

V. Testing Requirements

None

VI. Miscellaneous Requirements

1. Modeling to demonstrate compliance with the "Toxic Air Contaminant Statute" in ORC 3704.03(F)(4)(b) was necessary because the maximum combined annual emissions from emissions units B001-B005, P001-P006, and P801 of benzene and 1,3-butadiene,

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toxic air contaminants as defined in OAC rule 3745-114-01, are greater than 1.0 ton per year. Requirements to address ORC 3704.03(F)(4)(b) are included in Part II.B.III. and IV. of this permit.

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Part III - SPECIAL TERMS AND CONDITIONS FOR SPECIFIC EMISSIONS UNIT(S)

A. State and Federally Enforceable Section

I. Applicable Emissions Limitations and/or Control Requirements

1. The specific operations(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 specified in narrative form following the table.

Operations, Property, and/or Equipment - P801 - Fugitive leaks of VOCs from the converters, condensate handling equipment and syngas conditioning and mixing equipment

Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
ORC 3704.03(T)(4)	See Section A.I.2.a. below.
40 CFR Part 61 Subparts J and V	See Sections A.I.2.b-c below.

2. Additional Terms and Conditions

- 2.a The Best Available Technology (BAT) requirements under OAC rule 3745-31-05(A)(3) do not apply to the carbon monoxide (CO) and volatile organic compound (VOC) emissions from this air contaminant source since the calculated annual emission rate for CO and VOC is less than ten tons per year taking into account the federally enforceable rule requirements of 40 CFR Part 61, Subparts J and V.
- 2.b See 40 CFR Part 61, Subpart J (40 CFR § 61.112)
- 2.c See 40 CFR Part 61, Subpart V (40 CFR § 61.242-1 through 61.244)

II. Operational Restrictions

1. See 40 CFR Part 61, Subpart J (40 CFR § 61.110 - 112) and 40 CFR Part 61, Subpart V (40 CFR § 61.240 - 247)

III. Monitoring and/or Recordkeeping Requirements

1. See 40 CFR Part 61, Subpart J (40 CFR § 61.110 - 112) and 40 CFR Part 61, Subpart

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V (40 CFR § 61.240 - 247)

IV. Reporting Requirements

1. See 40 CFR Part 61, Subpart J (40 CFR § 61.110 - 112) and 40 CFR Part 61, Subpart V (40 CFR § 61.240 - 247)

V. Testing Requirements

None

VI. Miscellaneous Requirements

None

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B. State Only Enforceable Section

I. Applicable Emissions Limitations and/or Control Requirements

1. The specific operations(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 specified in narrative form following the table.

Operations, Property, and/or Equipment -P801 - Fugitive leaks of VOCs from the converters, condensate handling equipment and syngas conditioning and mixing equipment

Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
None	None

2. **Additional Terms and Conditions**

- 2.a None

II. Operational Restrictions

None

III. Monitoring and/or Recordkeeping Requirements

None

IV. Reporting Requirements

None

V. Testing Requirements

None

VI. Miscellaneous Requirements

1. Modeling to demonstrate compliance with the "Toxic Air Contaminant Statute" in ORC 3704.03(F)(4)(b) was necessary because the maximum combined annual emissions from emissions units B001-B005, P001-P006, and P801 of benzene and 1,3-butadiene,

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DTI Application: 06 09160

Facility ID: 0616010090

Emissions Unit ID: P801

toxic air contaminants as defined in OAC rule 3745-114-01, are greater than 1.0 ton per year. Requirements to address ORC 3704.03(F)(4)(b) are included in Part II.B.III. and IV. of this permit.