



# INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

*We Protect Hoosiers and Our Environment.*

*Mitchell E. Daniels Jr.*  
Governor

*Thomas W. Easterly*  
Commissioner

100 North Senate Avenue  
Indianapolis, Indiana 46204  
(317) 232-8603  
Toll Free (800) 451-6027  
[www.idem.IN.gov](http://www.idem.IN.gov)

TO: Interested Parties / Applicant

DATE: April 16, 2008

RE: Analytical Engineering, Inc. / 005-24041-00091

FROM: Matthew Stuckey, Branch Chief  
Permits Branch  
Office of Air Quality

## Notice of Decision: Approval - Effective Immediately

Please be advised that on behalf of the Commissioner of the Department of Environmental Management, I have issued a decision regarding the enclosed matter. Pursuant to IC 13-15-5-3, this permit is effective immediately, unless a petition for stay of effectiveness is filed and granted according to IC 13-15-6-3, and may be revoked or modified in accordance with the provisions of IC 13-15-7-1.

If you wish to challenge this decision, IC 4-21.5-3 and IC 13-15-6-1 require that you file a petition for administrative review. This petition may include a request for stay of effectiveness and must be submitted to the Office of Environmental Adjudication, 100 North Senate Avenue, Government Center North, Suite N 501E, Indianapolis, IN 46204, **within eighteen (18) calendar days of the mailing of this notice**. The filing of a petition for administrative review is complete on the earliest of the following dates that apply to the filing:

- (1) the date the document is delivered to the Office of Environmental Adjudication (OEA);
- (2) the date of the postmark on the envelope containing the document, if the document is mailed to OEA by U.S. mail; or
- (3) The date on which the document is deposited with a private carrier, as shown by receipt issued by the carrier, if the document is sent to the OEA by private carrier.

The petition must include facts demonstrating that you are either the applicant, a person aggrieved or adversely affected by the decision or otherwise entitled to review by law. Please identify the permit, decision, or other order for which you seek review by permit number, name of the applicant, location, date of this notice and all of the following:

- (1) the name and address of the person making the request;
- (2) the interest of the person making the request;
- (3) identification of any persons represented by the person making the request;
- (4) the reasons, with particularity, for the request;
- (5) the issues, with particularity, proposed for considerations at any hearing; and
- (6) identification of the terms and conditions which, in the judgment of the person making the request, would be appropriate in the case in question to satisfy the requirements of the law governing documents of the type issued by the Commissioner.

If you have technical questions regarding the enclosed documents, please contact the Office of Air Quality, Permits Branch at (317) 233-0178. Callers from within Indiana may call toll-free at 1-800-451-6027, ext. 3-0178.

Enclosures  
FNPER.dot12/03/07



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## MINOR SOURCE OPERATING PERMIT RENEWAL OFFICE OF AIR QUALITY

**Analytical Engineering, Inc.  
2555 Technology Blvd  
Columbus, Indiana, 47201**

(herein known as the Permittee) is hereby authorized to construct and operate subject to the conditions contained herein, the emission units described in Section A (Source Summary) of this permit.

This permit is issued to the above mentioned company under the provisions of 326 IAC 2-1.1, 326 IAC 2-5.1, 326 IAC 2-6.1 and 40 CFR 52.780, with conditions listed on the attached pages.

Indiana statutes from IC 13 and rules from 326 IAC, quoted in conditions in this permit, are those applicable at the time the permit was issued. The issuance or possession of this permit shall not alone constitute a defense against an alleged violation of any law, regulation or standard, except for the requirement to obtain a MSOP under 326 IAC 2-6.1.

Operation Permit No.: M005-24041-00091	
Issued by: Original signed by  Iryn Calilung, Section Chief Permits Branch Office of Air Quality	Issuance Date: April 16, 2008  Expiration Date: April 16, 2018

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## SECTION A SOURCE SUMMARY

This permit is based on information requested by the Indiana Department of Environmental Management (IDEM), Office of Air Quality (OAQ). The information describing the source contained in conditions A.1 through A.3 is descriptive information and does not constitute enforceable conditions. However, the Permittee should be aware that a physical change or a change in the method of operation that may render this descriptive information obsolete or inaccurate may trigger requirements for the Permittee to obtain additional permits or seek modification of this permit pursuant to 326 IAC 2, or change other applicable requirements presented in the permit application.

### A.1 General Information [326 IAC 2-5.1-3(c)] [326 IAC 2-6.1-4(a)]

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The Permittee owns and operates a stationary diesel engine test facility.

Source Address:	2555 Technology Blvd., Columbus, Indiana 47201
Mailing Address:	P.O. Box 2603, Columbus, Indiana 47201
Phone Number:	(812) 376-6472
SIC Code:	8711 and 8734
County Location:	Bartholomew
Source Location Status:	Attainment for all criteria pollutants
Source Status:	Minor Source Operating Permit Minor Source, under PSD or Emission Offset Rules Minor Source, Section 112 of the Clean Air Act Not in 1 of 28 Source Categories

### A.2 Emissions units and Pollution Control Equipment Summary

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This stationary source consists of the following emissions units and pollution control devices:

- (a) Ten (10) diesel engine test cells, identified as emission units TC1 through TC10, with a total maximum capacity of 5,800 hp, "limited by 21.5% total capacity" because of heat rejection capacity requirements (1247 hp total), constructed between January 2002 and March 2003, exhausting at stacks ES1 through ES10, respectively.
- (b) Four (4) diesel storage tanks, each with a maximum capacity of 500 gallons, installed in March 2006.

## SECTION B GENERAL CONDITIONS

### B.1 Definitions [326 IAC 2-1.1-1]

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Terms in this permit shall have the definition assigned to such terms in the referenced regulation. In the absence of definitions in the referenced regulation, the applicable definitions found in the statutes or regulations (IC 13-11, 326 IAC 1-2 and 326 IAC 2-1.1-1) shall prevail.

### B.2 Permit Term [326 IAC 2-6.1-7(a)][326 IAC 2-1.1-9.5][IC 13-15-3-6(a)]

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- (a) This permit, M005-24041-00091, is issued for a fixed term of ten (10) years from the issuance date of this permit, as determined in accordance with IC 4-21.5-3-5(f) and IC 13-15-5-3. Subsequent revisions, modifications, or amendments of this permit do not affect the expiration date of this permit.
- (b) If IDEM, OAQ, upon receiving a timely and complete renewal permit application, fails to issue or deny the permit renewal prior to the expiration date of this permit, this existing permit shall not expire and all terms and conditions shall continue in effect, until the renewal permit has been issued or denied.

### B.3 Term of Conditions [326 IAC 2-1.1-9.5]

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Notwithstanding the permit term of a permit to construct, a permit to operate, or a permit modification, any condition established in a permit issued pursuant to a permitting program approved in the state implementation plan shall remain in effect until:

- (a) the condition is modified in a subsequent permit action pursuant to Title I of the Clean Air Act; or
- (b) the emission unit to which the condition pertains permanently ceases operation.

### B.4 Enforceability

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Unless otherwise stated, all terms and conditions in this permit, including any provisions designed to limit the source's potential to emit, are enforceable by IDEM, the United States Environmental Protection Agency (U.S. EPA) and by citizens in accordance with the Clean Air Act.

### B.5 Severability

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The provisions of this permit are severable; a determination that any portion of this permit is invalid shall not affect the validity of the remainder of the permit.

### B.6 Property Rights or Exclusive Privilege

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

### B.7 Duty to Provide Information

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- (a) The Permittee shall furnish to IDEM, OAQ, within a reasonable time, any information that IDEM, OAQ may request in writing to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with this permit. The submittal by the Permittee does require the certification by an "authorized individual" as defined by 326 IAC 2-1.1-1(1). Upon request, the Permittee shall also furnish to IDEM, OAQ copies of records required to be kept by this permit.
- (b) For information furnished by the Permittee to IDEM, OAQ, the Permittee may include a claim of confidentiality in accordance with 326 IAC 17.1. When furnishing copies of requested records directly to U. S. EPA, the Permittee may assert a claim of confidentiality in accordance with 40 CFR 2, Subpart B.

### B.8 Certification

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- (a) Where specifically designated by this permit or required by an applicable requirement, any application form, report, or compliance certification submitted shall contain certification by an "authorized individual" of truth, accuracy, and completeness. This certification shall state that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete.

- (b) One (1) certification shall be included, using the attached Certification Form, with each submittal requiring certification. One (1) certification may cover multiple forms in one (1) submittal.
- (c) An "authorized individual" is defined at 326 IAC 2-1.1-1(1).

**B.9 Annual Notification [326 IAC 2-6.1-5(a)(5)]**

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- (a) An annual notification shall be submitted by an authorized individual to the Office of Air Quality stating whether or not the source is in operation and in compliance with the terms and conditions contained in this permit.
- (b) The annual notice shall be submitted in the format attached no later than March 1 of each year to:  
  
Compliance Branch, Office of Air Quality  
Indiana Department of Environmental Management  
100 North Senate Avenue  
MC 61-53 IGCN 1003  
Indianapolis, IN 46204-2251
- (c) The notification shall be considered timely if the date postmarked on the envelope or certified mail receipt, or affixed by the shipper on the private shipping receipt, is on or before the date it is due. If the document is submitted by any other means, it shall be considered timely if received by IDEM, OAQ on or before the date it is due.

**B.10 Preventive Maintenance Plan [326 IAC 1-6-3]**

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- (a) If required by specific condition(s) in Section D of this permit, the Permittee shall maintain and implement Preventive Maintenance Plans (PMPs) including the following information on each facility:
  - (1) Identification of the individual(s) responsible for inspecting, maintaining, and repairing emission control devices;
  - (2) A description of the items or conditions that will be inspected and the inspection schedule for said items or conditions; and
  - (3) Identification and quantification of the replacement parts that will be maintained in inventory for quick replacement.
- (b) A copy of the PMPs shall be submitted to IDEM, OAQ upon request and within a reasonable time, and shall be subject to review and approval by IDEM, OAQ. IDEM, OAQ may require the Permittee to revise its PMPs whenever lack of proper maintenance causes or is the primary contributor to an exceedance of any limitation on emissions or potential to emit. The PMPs do not require the certification by an "authorized individual" as defined by 326 IAC 2-1.1-1(1).
- (c) To the extent the Permittee is required by 40 CFR Part 60/63 to have an Operation Maintenance, and Monitoring (OMM) Plan for a unit, such Plan is deemed to satisfy the PMP requirements of 326 IAC 1-6-3 for that unit.

**B.11 Prior Permits Superseded [326 IAC 2-1.1-9.5]**

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- (a) All terms and conditions of permits established prior to 112-34556-78999 and issued pursuant to permitting programs approved into the state implementation plan have been either:
- (1) incorporated as originally stated,
  - (2) revised, or
  - (3) deleted.
- (b) All previous registrations and permits are superseded by this permit.

**B.12 Termination of Right to Operate [326 IAC 2-6.1-7(a)]**

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The Permittee's right to operate this source terminates with the expiration of this permit unless a timely and complete renewal application is submitted at least ninety (90) days prior to the date of expiration of the source's existing permit, consistent with 326 IAC 2-6.1-7.

**B.13 Permit Renewal [326 IAC 2-6.1-7]**

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- (a) The application for renewal shall be submitted using the application form or forms prescribed by IDEM, OAQ and shall include the information specified in 326 IAC 2-6.1-7. Such information shall be included in the application for each emission unit at this source. The renewal application does require the certification by an "authorized individual" as defined by 326 IAC 2-1.1-1(1).

Request for renewal shall be submitted to:

Indiana Department of Environmental Management  
Permits Branch, Office of Air Quality  
100 North Senate Avenue  
MC 61-53 IGCN 1003  
Indianapolis, Indiana 46204-2251

- (b) A timely renewal application is one that is:
- (1) Submitted at least ninety (90) days prior to the date of the expiration of this permit; and
  - (2) If the date postmarked on the envelope or certified mail receipt, or affixed by the shipper on the private shipping receipt, is on or before the date it is due. If the document is submitted by any other means, it shall be considered timely if received by IDEM, OAQ on or before the date it is due.
- (c) If the Permittee submits a timely and complete application for renewal of this permit, the source's failure to have a permit is not a violation of 326 IAC 2-6.1 until IDEM, OAQ takes final action on the renewal application, except that this protection shall cease to apply if, subsequent to the completeness determination, the Permittee fails to submit by the deadline specified in writing by IDEM, OAQ any additional information identified as being needed to process the application.

**B.14 Permit Amendment or Revision [326 IAC 2-5.1-3(e)(3)][326 IAC 2-6.1-6]**

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- (a) Permit amendments and revisions are governed by the requirements of 326 IAC 2-6.1-6 whenever the Permittee seeks to amend or modify this permit.

- (b) Any application requesting an amendment or modification of this permit shall be submitted to:

Indiana Department of Environmental Management  
Permits Branch, Office of Air Quality  
100 North Senate Avenue  
MC 61-53 IGCN 1003  
Indianapolis, Indiana 46204-2251

Any such application shall be certified by an "authorized individual" as defined by 326 IAC 2-1.1-1(1).

- (c) The Permittee shall notify the OAQ within thirty (30) calendar days of implementing a notice-only change. [326 IAC 2-6.1-6(d)]

**B.15 Source Modification Requirement**

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A modification, construction, or reconstruction is governed by the requirements of 326 IAC 2.

**B.16 Inspection and Entry**

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~~[326 IAC 2-5.1-3(e)(4)(B)]~~~~[326 IAC 2-6.1-5(a)(4)]~~~~[IC 13-14-2-2]~~~~[IC 13-17-3-2]~~~~[IC 13-30-3-1]~~

Upon presentation of proper identification cards, credentials, and other documents as may be required by law, and subject to the Permittee's right under all applicable laws and regulations to assert that the information collected by the agency is confidential and entitled to be treated as such, the Permittee shall allow IDEM, OAQ, U.S. EPA, or an authorized representative to perform the following:

- (a) Enter upon the Permittee's premises where a permitted source is located, or emissions related activity is conducted, or where records must be kept under the conditions of this permit;
- (b) As authorized by the Clean Air Act, IC 13-14-2-2, IC 13-17-3-2, and IC 13-30-3-1, have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;
- (c) As authorized by the Clean Air Act, IC 13-14-2-2, IC 13-17-3-2, and IC 13-30-3-1, inspect, at reasonable times, any facilities, equipment (including monitoring and air pollution control equipment), practices, or operations regulated or required under this permit;
- (d) As authorized by the Clean Air Act, IC 13-14-2-2, IC 13-17-3-2, and IC 13-30-3-1, sample or monitor, at reasonable times, substances or parameters for the purpose of assuring compliance with this permit or applicable requirements; and
- (e) As authorized by the Clean Air Act, IC 13-14-2-2, IC 13-17-3-2, and IC 13-30-3-1, utilize any photographic, recording, testing, monitoring, or other equipment for the purpose of assuring compliance with this permit or applicable requirements.

**B.17 Transfer of Ownership or Operational Control [326 IAC 2-6.1-6]**

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- (a) The Permittee must comply with the requirements of 326 IAC 2-6.1-6 whenever the Permittee seeks to change the ownership or operational control of the source and no other change in the permit is necessary.
- (b) Any application requesting a change in the ownership or operational control of the source shall contain a written agreement containing a specific date for transfer of permit responsibility, coverage and liability between the current and new Permittee. The application shall be submitted to:

Indiana Department of Environmental Management  
Permits Branch, Office of Air Quality  
100 North Senate Avenue  
MC 61-53 IGCN 1003  
Indianapolis, Indiana 46204-2251

The application which shall be submitted by the Permittee does require the certification by an "authorized individual" as defined by 326 IAC 2-1.1-1(1).

- (c) The Permittee may implement notice-only changes addressed in the request for a notice-only change immediately upon submittal of the request. [326 IAC 2-6.1-6(d)(3)]

**B.18 Annual Fee Payment [326 IAC 2-1.1-7]**

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- (a) The Permittee shall pay annual fees to IDEM, OAQ within thirty (30) calendar days of receipt of a billing.
- (b) The Permittee may call the following telephone numbers: 1-800-451-6027 or 317-233-4230 (ask for OAQ, Billing, Licensing, and Training Section), to determine the appropriate permit fee.

**B.19 Credible Evidence [326 IAC 1-1-6]**

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For the purpose of submitting compliance certifications or establishing whether or not the Permittee has violated or is in violation of any condition of this permit, nothing in this permit shall preclude the use, including the exclusive use, of any credible evidence or information relevant to whether the Permittee would have been in compliance with the condition of this permit if the appropriate performance or compliance test or procedure had been performed

## SECTION C SOURCE OPERATION CONDITIONS

Entire Source

### Emission Limitations and Standards [326 IAC 2-6.1-5(a)(1)]

C.1 Particulate Emission Limitations For Processes with Process Weight Rates Less Than One Hundred (100) Pounds per Hour [326 IAC 6-3-2]

Pursuant to 326 IAC 6-3-2(e)(2), particulate emissions from any process not exempt under 326 IAC 6-3-1(b) or (c) which has a maximum process weight rate less than 100 pounds per hour and the methods in 326 IAC 6-3-2(b) through (d) do not apply shall not exceed 0.551 pounds per hour.

C.2 Permit Revocation [326 IAC 2-1.1-9]

Pursuant to 326 IAC 2-1.1-9 (Revocation of Permits), this permit to operate may be revoked for any of the following causes:

- (a) Violation of any conditions of this permit.
- (b) Failure to disclose all the relevant facts, or misrepresentation in obtaining this permit.
- (c) Changes in regulatory requirements that mandate either a temporary or permanent reduction of discharge of contaminants. However, the amendment of appropriate sections of this permit shall not require revocation of this permit.
- (d) Noncompliance with orders issued pursuant to 326 IAC 1-5 (Episode Alert Levels) to reduce emissions during an air pollution episode.
- (e) For any cause which establishes in the judgment of IDEM, the fact that continuance of this permit is not consistent with purposes of this article.

C.3 Opacity [326 IAC 5-1]

Pursuant to 326 IAC 5-1-2 (Opacity Limitations), except as provided in 326 IAC 5-1-3 (Temporary Alternative Opacity Limitations), opacity shall meet the following, unless otherwise stated in this permit:

- (a) Opacity shall not exceed an average of forty percent (40%) in any one (1) six (6) minute averaging period as determined in 326 IAC 5-1-4.
- (b) Opacity shall not exceed sixty percent (60%) for more than a cumulative total of fifteen (15) minutes (sixty (60) readings as measured according to 40 CFR 60, Appendix A, Method 9 or fifteen (15) one (1) minute nonoverlapping integrated averages for a continuous opacity monitor) in a six (6) hour period.

C.4 Open Burning [326 IAC 4-1] [IC 13-17-9]

The Permittee shall not open burn any material except as provided in 326 IAC 4-1-3, 326 IAC 4-1-4 or 326 IAC 4-1-6. The previous sentence notwithstanding, the Permittee may open burn in accordance with an open burning approval issued by the Commissioner under 326 IAC 4-1-4.1.

C.5 Incineration [326 IAC 4-2] [326 IAC 9-1-2]

The Permittee shall not operate an incinerator or incinerate any waste or refuse except as provided in 326 IAC 4-2 and 326 IAC 9-1-2.

C.6 Fugitive Dust Emissions [326 IAC 6-4]

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The Permittee shall not allow fugitive dust to escape beyond the property line or boundaries of the property, right-of-way, or easement on which the source is located, in a manner that would violate 326 IAC 6-4 (Fugitive Dust Emissions).

C.7 Asbestos Abatement Projects [326 IAC 14-10] [326 IAC 18] [40 CFR 61, Subpart M]

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- (a) Notification requirements apply to each owner or operator. If the combined amount of regulated asbestos containing material (RACM) to be stripped, removed or disturbed is at least 260 linear feet on pipes or 160 square feet on other facility components, or at least thirty-five (35) cubic feet on all facility components, then the notification requirements of 326 IAC 14-10-3 are mandatory. All demolition projects require notification whether or not asbestos is present.
- (b) The Permittee shall ensure that a written notification is sent on a form provided by the Commissioner at least ten (10) working days before asbestos stripping or removal work or before demolition begins, per 326 IAC 14-10-3, and shall update such notice as necessary, including, but not limited to the following:
- (1) When the amount of affected asbestos containing material increases or decreases by at least twenty percent (20%); or
- (2) If there is a change in the following:
- (A) Asbestos removal or demolition start date;
- (B) Removal or demolition contractor; or
- (C) Waste disposal site.
- (c) The Permittee shall ensure that the notice is postmarked or delivered according to the guidelines set forth in 326 IAC 14-10-3(2).
- (d) The notice to be submitted shall include the information enumerated in 326 IAC 14-10-3(3).

All required notifications shall be submitted to:

Indiana Department of Environmental Management  
Asbestos Section, Office of Air Quality  
100 North Senate Avenue  
MC 61-53 IGCN 1003  
Indianapolis, Indiana 46204-2251

The notice shall include a signed certification from the owner or operator that the information provided in this notification is correct and that only Indiana licensed workers and project supervisors will be used to implement the asbestos removal project. The notifications do not require a certification by an "authorized individual" as defined by 326 IAC 2-1.1-1(1).

- (e) Procedures for Asbestos Emission Control  
The Permittee shall comply with the applicable emission control procedures in 326 IAC 14-10-4 and 40 CFR 61.145(c). Per 326 IAC 14-10-1, emission control requirements are applicable for any removal or disturbance of RACM greater than three (3) linear feet on pipes or three (3) square feet on any other facility components or a total of at least 0.75 cubic feet on all facility components.

- (f) **Demolition and Renovation**  
The Permittee shall thoroughly inspect the affected facility or part of the facility where the demolition or renovation will occur for the presence of asbestos pursuant to 40 CFR 61.145(a).
- (g) **Indiana Licensed Asbestos Inspector**  
The Permittee shall comply with 326 IAC 14-10-1(a) that requires the owner or operator, prior to a renovation/demolition, to use an Indiana Licensed Asbestos Inspector to thoroughly inspect the affected portion of the facility for the presence of asbestos. The requirement to use an Indiana Licensed Asbestos inspector is not federally enforceable.

### **Testing Requirements [326 IAC 2-6.1-5(a)(2)]**

#### **C.8 Performance Testing [326 IAC 3-6]**

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- (a) All testing shall be performed according to the provisions of 326 IAC 3-6 (Source Sampling Procedures), except as provided elsewhere in this permit, utilizing any applicable procedures and analysis methods specified in 40 CFR 51, 40 CFR 60, 40 CFR 61, 40 CFR 63, 40 CFR 75, or other procedures approved by IDEM, OAQ.

A test protocol, except as provided elsewhere in this permit, shall be submitted to:

Indiana Department of Environmental Management  
Compliance Data Section, Office of Air Quality  
100 North Senate Avenue  
MC 61-53 IGCN 1003  
Indianapolis, Indiana 46204-2251

no later than thirty-five (35) days prior to the intended test date. The protocol submitted by the Permittee does not require certification by an "authorized individual" as defined by 326 IAC 2-1.1-1(1).

- (b) The Permittee shall notify IDEM, OAQ of the actual test date at least fourteen (14) days prior to the actual test date. The notification submitted by the Permittee does not require certification by an "authorized individual" as defined by 326 IAC 2-1.1-1(1).
- (c) Pursuant to 326 IAC 3-6-4(b), all test reports must be received by IDEM, OAQ not later than forty-five (45) days after the completion of the testing. An extension may be granted by IDEM, OAQ if the Permittee submits to IDEM, OAQ, a reasonable written explanation not later than five (5) days prior to the end of the initial forty-five (45) day period.

### **Compliance Requirements [326 IAC 2-1.1-11]**

#### **C.9 Compliance Requirements [326 IAC 2-1.1-11]**

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The commissioner may require stack testing, monitoring, or reporting at any time to assure compliance with all applicable requirements by issuing an order under 326 IAC 2-1.1-11. Any monitoring or testing shall be performed in accordance with 326 IAC 3 or other methods approved by the commissioner or the U. S. EPA.

## **Compliance Monitoring Requirements [326 IAC 2-6.1-5(a)(2)]**

### **C.10 Compliance Monitoring [326 IAC 2-1.1-11]**

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Compliance with applicable requirements shall be documented as required by this permit. The Permittee shall be responsible for installing any necessary equipment and initiating any required monitoring related to that equipment. All monitoring and record keeping requirements not already legally required shall be implemented when operation begins.

### **C.11 Monitoring Methods [326 IAC 3] [40 CFR 60] [40 CFR 63]**

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Any monitoring or testing required by Section D of this permit shall be performed according to the provisions of 326 IAC 3, 40 CFR 60, Appendix A, 40 CFR 60 Appendix B, 40 CFR 63, or other approved methods as specified in this permit.

### **C.12 Instrument Specifications [326 IAC 2-1.1-11]**

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- (a) When required by any condition of this permit, an analog instrument used to measure a parameter related to the operation of an air pollution control device shall have a scale such that the expected maximum reading for the normal range shall be no less than twenty percent (20%) of full scale.
- (b) The Permittee may request that the IDEM, OAQ approve the use of an instrument that does not meet the above specifications provided the Permittee can demonstrate that an alternative instrument specification will adequately ensure compliance with permit conditions requiring the measurement of the parameters.

## **Corrective Actions and Response Steps**

### **C.13 Response to Excursions or Exceedances**

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- (a) Upon detecting an excursion or exceedance, the Permittee shall restore operation of the emissions unit (including any control device and associated capture system) to its normal or usual manner of operation as expeditiously as practicable in accordance with good air pollution control practices for minimizing emissions.
- (b) The response shall include minimizing the period of any startup, shutdown or malfunction and taking any necessary corrective actions to restore normal operation and prevent the likely recurrence of the cause of an excursion or exceedance (other than those caused by excused startup or shutdown conditions). Corrective actions may include, but are not limited to, the following:
  - (1) initial inspection and evaluation;
  - (2) recording that operations returned to normal without operator action (such as through response by a computerized distribution control system); or
  - (3) any necessary follow-up actions to return operation to within the indicator range, designated condition, or below the applicable emission limitation or standard, as applicable.
- (c) A determination of whether the Permittee has used acceptable procedures in response to an excursion or exceedance will be based on information available, which may include, but is not limited to, the following:
  - (1) monitoring results;
  - (2) review of operation and maintenance procedures and records; and/or

- (3) inspection of the control device, associated capture system, and the process.
- (d) Failure to take reasonable response steps shall be considered a deviation from the permit.
- (e) The Permittee shall maintain the following records:
  - (1) monitoring data;
  - (2) monitor performance data, if applicable; and
  - (3) corrective actions taken.

**C.14 Actions Related to Noncompliance Demonstrated by a Stack Test**

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- (a) When the results of a stack test performed in conformance with Section C - Performance Testing, of this permit exceed the level specified in any condition of this permit, the Permittee shall take appropriate response actions. The Permittee shall submit a description of these response actions to IDEM, OAQ, within thirty (30) days of receipt of the test results. The Permittee shall take appropriate action to minimize excess emissions from the affected facility while the response actions are being implemented.
- (b) A retest to demonstrate compliance shall be performed within one hundred twenty (120) days of receipt of the original test results. Should the Permittee demonstrate to IDEM, OAQ that retesting in one-hundred and twenty (120) days is not practicable, IDEM, OAQ may extend the retesting deadline.
- (c) IDEM, OAQ reserves the authority to take any actions allowed under law in response to noncompliant stack tests.

The response action documents submitted pursuant to this condition do require the certification by an "authorized individual" as defined by 326 IAC 2-1.1-1(1).

**Record Keeping and Reporting Requirements [326 IAC 2-6.1-5(a)(2)]**

**C.15 Malfunctions Report [326 IAC 1-6-2]**

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Pursuant to 326 IAC 1-6-2 (Records; Notice of Malfunction):

- (a) A record of all malfunctions, including startups or shutdowns of any facility or emission control equipment, which result in violations of applicable air pollution control regulations or applicable emission limitations shall be kept and retained for a period of three (3) years and shall be made available to the Indiana Department of Environmental Management (IDEM), Office of Air Quality (OAQ) or appointed representative upon request.
- (b) When a malfunction of any facility or emission control equipment occurs which lasts more than one (1) hour, said condition shall be reported to OAQ, using the Malfunction Report Forms (2 pages). Notification shall be made by telephone or facsimile, as soon as practicable, but in no event later than four (4) daytime business hours after the beginning of said occurrence.
- (c) Failure to report a malfunction of any emission control equipment shall constitute a violation of 326 IAC 1-6, and any other applicable rules. Information of the scope and expected duration of the malfunction shall be provided, including the items specified in 326 IAC 1-6-2(a)(1) through (6).

- (d) Malfunction is defined as any sudden, unavoidable failure of any air pollution control equipment, process, or combustion or process equipment to operate in a normal and usual manner. [326 IAC 1-2-39]

C.16 General Record Keeping Requirements [326 IAC 2-6.1-5]

- (a) Records of all required monitoring data, reports and support information required by this permit shall be retained for a period of at least five (5) years from the date of monitoring sample, measurement, report, or application. These records shall be physically present or electronically accessible at the source location for a minimum of three (3) years. The records may be stored elsewhere for the remaining two (2) years as long as they are available upon request. If the Commissioner makes a request for records to the Permittee, the Permittee shall furnish the records to the Commissioner within a reasonable time.
- (b) Unless otherwise specified in this permit, all record keeping requirements not already legally required shall be implemented within ninety (90) days of permit issuance.

C.17 General Reporting Requirements [326 IAC 2-1.1-11] [326 IAC 2-6.1-2] [IC 13-14-1-13]

- (a) Reports required by conditions in Section D of this permit shall be submitted to:  
  
Indiana Department of Environmental Management  
Compliance Data Section, Office of Air Quality  
100 North Senate Avenue  
MC 61-53 IGCN 1003  
Indianapolis, Indiana 46204-2251
- (b) Unless otherwise specified in this permit, any notice, report, or other submission required by this permit shall be considered timely if the date postmarked on the envelope or certified mail receipt, or affixed by the shipper on the private shipping receipt, is on or before the date it is due. If the document is submitted by any other means, it shall be considered timely if received by IDEM, OAQ on or before the date it is due.
- (c) Unless otherwise specified in this permit, all reports required in Section D of this permit shall be submitted within thirty (30) days of the end of the reporting period. All reports do require the certification by an "authorized individual" as defined by 326 IAC 2-1.1-1(1).
- (d) Reporting periods are based on calendar years, unless otherwise specified in this permit. For the purpose of this permit "calendar year" means the twelve (12) month period from January 1 to December 31 inclusive.

## SECTION D.1 EMISSIONS UNIT OPERATION CONDITIONS

### Facility Description:

- (a) Ten (10) diesel engine test cells, identified as emission units TC1 through TC10, with a total maximum capacity of 5,800 hp, "limited by 21.5% total capacity" because of heat rejection capacity requirements (1,247 hp total), constructed between January 2002 and March 2003, exhausting at stacks ES1 through ES10, respectively.

(The information describing the process contained in this facility description box is descriptive information and does not constitute enforceable conditions.)

### Emission Limitations and Standards

#### D.1.1 Nitrogen Oxides (NO<sub>x</sub>) [326 IAC 2-6-1]

- (a) In order to remain below the 21.5% "total capacity" the diesel test cells shall use less than 558,012 gallons per twelve (12) consecutive month period, with compliance determined at the end of each month. This will limit NO<sub>x</sub> PTE to less than 100 tons per year at a rate of 355 pounds of NO<sub>x</sub> per 1000 gallons of diesel fuel. Therefore, the source is subject to 326 IAC 2-6-1, Minor Source Operating Permit Program.
- (b) Any changes or modifications which may increase the potential emissions to 100 tons per year or more of NO<sub>x</sub> must be approved by the IDEM, OAQ before such changes may occur.

#### D.1.2 Preventive Maintenance Plan

A Preventive Maintenance Plan, in accordance with Section B - Preventive Maintenance Plan, of this permit, is required for this emissions unit.

### Compliance Determination Requirements

#### D.1.3 Testing Requirements [326 IAC 2-6.1-5(a)(2)][326 IAC 2-1.1-11]

Within 180 days after issuance of MSOP Renewal 005-24041-00091, in order to demonstrate compliance with Condition D.1.1(a), the Permittee shall perform NO<sub>x</sub> testing for at least one (1) of the ten (10) engine test cells, identified as TC1 through TC10, utilizing methods as approved by the Commissioner. As long as the one-time testing demonstrates compliance, such one time testing shall be sufficient for the operation life of the source. Provided no significant modification occurs to the test cells that could impact its emissions, no further testing of the test cells will be required. Testing shall be conducted in accordance with Section C - Performance Testing.

### Record Keeping and Reporting Requirements [326 IAC 2-5.1-3(e)(2)] [ 326 IAC 2-6.1-5(a)(2)]

#### D.1.4 Record Keeping Requirements

- (a) To document compliance with Condition D.1.1, the Permittee shall keep and maintain monthly records at the source of the total amount of diesel fuel used at the source.
- (b) All records shall be maintained in accordance with Section C - General Record Keeping Requirements of this permit.

**INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT  
OFFICE OF AIR QUALITY**

**MINOR SOURCE OPERATING PERMIT (MSOP) RENEWAL  
CERTIFICATION**

Source Name: Analytical Engineering, Inc.  
Source Address: 2555 Technology Road  
Mailing Address: P.O. Box 2603, Columbus, Indiana 47202  
MSOP No.: M005-24041-00091

**This certification shall be included when submitting monitoring, testing reports/results or other documents as required by this permit.**

Please check what document is being certified:

- Annual Compliance Notification
- Test Result (specify) \_\_\_\_\_
- Report (specify) \_\_\_\_\_
- Notification (specify) \_\_\_\_\_
- Affidavit (specify) \_\_\_\_\_
- Other (specify) \_\_\_\_\_

I certify that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete.

Signature:

Printed Name:

Title/Position:

Date:

**INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT  
OFFICE OF AIR QUALITY  
Compliance Branch**

**MINOR SOURCE OPERATING PERMIT RENEWAL  
ANNUAL NOTIFICATION**

This form should be used to comply with the notification requirements under 326 IAC 2-6.1-5(a)(5).

<b>Company Name:</b>	Analytical Engineering, Inc.
<b>Address:</b>	2555 Technology Blvd.
<b>City:</b>	Columbus, Indiana 47202
<b>Phone #:</b>	(812) 376-6472
<b>MSOP #:</b>	005-24041-00091

I hereby certify that Analytical Engineering Inc., is

- still in operation.  
 no longer in operation.

I hereby certify that Analytical Engineering, Inc., is

- in compliance with the requirements of MSOP 005-24041-00091  
 not in compliance with the requirements of MSOP 005-24041-00091

<b>Authorized Individual (typed):</b>
<b>Title:</b>
<b>Signature:</b>
<b>Date:</b>

If there are any conditions or requirements for which the source is not in compliance, provide a narrative description of how the source did or will achieve compliance and the date compliance was, or will be achieved.

<b>Noncompliance:</b>

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT  
OFFICE OF AIR QUALITY  
COMPLIANCE DATA SECTION

**MSOP Quarterly Report**

Source Name: Analytical Engineering, Inc.  
Source Address: 2555 Technology Blvd., Columbus, Indiana 47201  
Mailing Address: P.O. Box 2603, Columbus, Indiana 47201  
MSOP Permit No.: M 005-24041-00091  
Facility: Diesel Test Cell Engines  
Parameter: diesel fuel  
Limit: Test Cells #1-10 shall use less than 558,012 gallons of diesel fuel per (12) consecutive months total, rolled on a monthly basis, with compliance determined at the end of each month.

YEAR: \_\_\_\_\_

Month	Diesel Fuel Oil Usage for This Month (gallons)	Diesel Fuel Oil Usage for Previous 11 Months (gallons)	Diesel Fuel Oil Usage for 12-Month Period (gallons)

- No deviation occurred in this quarter.
- Deviations occurred in this quarter.  
Deviation has been reported on: \_\_\_\_\_

Submitted By: \_\_\_\_\_

Title/Position: \_\_\_\_\_

Signature: \_\_\_\_\_

Date: \_\_\_\_\_

Phone: \_\_\_\_\_

Attach a signed certification to complete this report.

### MALFUNCTION REPORT

#### INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT OFFICE OF AIR QUALITY FAX NUMBER - 317 233-6865

**This form should only be used to report malfunctions applicable to Rule 326 IAC 1-6 and to qualify for the exemption under 326 IAC 1-6-4.**

THIS FACILITY MEETS THE APPLICABILITY REQUIREMENTS BECAUSE IT HAS POTENTIAL TO EMIT 25 TONS/YEAR PARTICULATE MATTER ?\_\_\_\_\_, 25 TONS/YEAR SULFUR DIOXIDE ?\_\_\_\_\_, 25 TONS/YEAR NITROGEN OXIDES?\_\_\_\_\_, 25 TONS/YEAR VOC ?\_\_\_\_\_, 25 TONS/YEAR HYDROGEN SULFIDE ?\_\_\_\_\_, 25 TONS/YEAR TOTAL REDUCED SULFUR ?\_\_\_\_\_, 25 TONS/YEAR REDUCED SULFUR COMPOUNDS ?\_\_\_\_\_, 25 TONS/YEAR FLUORIDES ?\_\_\_\_\_, 100TONS/YEAR CARBON MONOXIDE ?\_\_\_\_\_, 10 TONS/YEAR ANY SINGLE HAZARDOUS AIR POLLUTANT ?\_\_\_\_\_, 25 TONS/YEAR ANY COMBINATION HAZARDOUS AIR POLLUTANT ?\_\_\_\_\_, 1 TON/YEAR LEAD OR LEAD COMPOUNDS MEASURED AS ELEMENTAL LEAD ?\_\_\_\_\_, OR IS A SOURCE LISTED UNDER 326 IAC 2-5.1-3(2) ?\_\_\_\_\_. EMISSIONS FROM MALFUNCTIONING CONTROL EQUIPMENT OR PROCESS EQUIPMENT CAUSED EMISSIONS IN EXCESS OF APPLICABLE LIMITATION \_\_\_\_\_.

THIS MALFUNCTION RESULTED IN A VIOLATION OF: 326 IAC \_\_\_\_\_ OR, PERMIT CONDITION # \_\_\_\_\_ AND/OR PERMIT LIMIT OF \_\_\_\_\_

THIS INCIDENT MEETS THE DEFINITION OF 'MALFUNCTION' AS LISTED ON REVERSE SIDE ? Y N

THIS MALFUNCTION IS OR WILL BE LONGER THAN THE ONE (1) HOUR REPORTING REQUIREMENT ? Y N

COMPANY: \_\_\_\_\_ PHONE NO. ( ) \_\_\_\_\_  
LOCATION: (CITY AND COUNTY) \_\_\_\_\_  
PERMIT NO. \_\_\_\_\_ AFS PLANT ID: \_\_\_\_\_ AFS POINT ID: \_\_\_\_\_ INSP: \_\_\_\_\_  
CONTROL/PROCESS DEVICE WHICH MALFUNCTIONED AND REASON: \_\_\_\_\_

DATE/TIME MALFUNCTION STARTED: \_\_\_\_/\_\_\_\_/20\_\_\_\_ \_\_\_\_\_ AM / PM

ESTIMATED HOURS OF OPERATION WITH MALFUNCTION CONDITION: \_\_\_\_\_

DATE/TIME CONTROL EQUIPMENT BACK-IN SERVICE \_\_\_\_/\_\_\_\_/20\_\_\_\_ \_\_\_\_\_ AM/PM

TYPE OF POLLUTANTS EMITTED: TSP, PM-10, SO2, VOC, OTHER: \_\_\_\_\_

ESTIMATED AMOUNT OF POLLUTANT EMITTED DURING MALFUNCTION: \_\_\_\_\_

MEASURES TAKEN TO MINIMIZE EMISSIONS: \_\_\_\_\_

REASONS WHY FACILITY CANNOT BE SHUTDOWN DURING REPAIRS:

CONTINUED OPERATION REQUIRED TO PROVIDE ESSENTIAL\* SERVICES: \_\_\_\_\_  
CONTINUED OPERATION NECESSARY TO PREVENT INJURY TO PERSONS: \_\_\_\_\_  
CONTINUED OPERATION NECESSARY TO PREVENT SEVERE DAMAGE TO EQUIPMENT: \_\_\_\_\_  
INTERIM CONTROL MEASURES: (IF APPLICABLE) \_\_\_\_\_

MALFUNCTION REPORTED BY: \_\_\_\_\_ TITLE: \_\_\_\_\_  
(SIGNATURE IF FAXED)

MALFUNCTION RECORDED BY: \_\_\_\_\_ DATE: \_\_\_\_\_ TIME: \_\_\_\_\_

\*SEE PAGE 2

**Please note - This form should only be used to report malfunctions applicable to Rule 326 IAC 1-6 and to qualify for the exemption under 326 IAC 1-6-4.**

**326 IAC 1-6-1 Applicability of rule**

Sec. 1. This rule applies to the owner or operator of any facility required to obtain a permit under 326 IAC 2-5.1 or 326 IAC 2-6.1.

**326 IAC 1-2-39 "Malfunction" definition**

Sec. 39. Any sudden, unavoidable failure of any air pollution control equipment, process, or combustion or process equipment to operate in a normal and usual manner.

**\*Essential services** are interpreted to mean those operations, such as, the providing of electricity by power plants. Continued operation solely for the economic benefit of the owner or operator shall not be sufficient reason why a facility cannot be shutdown during a control equipment shutdown.

If this item is checked on the front, please explain rationale:

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# Indiana Department of Environmental Management Office of Air Quality

## Technical Support Document (TSD) for a Minor Source Operating Permit (MSOP) Renewal

### Source Background and Description

**Source Name:** Analytical Engineering, Inc.  
**Source Location:** 2555 Technology Blvd., Columbus, Indiana 47201  
**County:** Bartholomew  
**SIC Code:** 8711 and 8734  
**Permit Renewal No.:** M005-24041-00091  
**Permit Reviewer:** Janet Mobley

The Office of Air Quality (OAQ) has reviewed the operating permit renewal application from Analytical Engineering, Inc. for a stationary diesel engine test operation. This operation includes the following emission units and pollution control devices:

- (a) Ten (10) diesel engine test cells, identified as emission units TC1 through TC10, with a total maximum capacity of 5,800 hp, "limited by 21.5% total capacity"\* because of heat rejection capacity requirements (1247 hp total), constructed between January 2002 and March 2003, exhausting at stacks ES1 through ES10, respectively.
- (b) Four (4) diesel storage tanks, each with a maximum capacity of 500 gallons, installed in March 2006.

\* limited by 21.5% total capacity" refers to the maximum cooling tower capacity to run the test cells as a percentage of total dyno capability. The test cells are for research and development and are only ran part of the day and at power levels much lower than the test cell's capacity.

### Emission Units and Pollution Control Equipment Constructed and/or Operated without a Permit

There are no unpermitted facilities operating at this source during this review process.

### History

On December 7, 2006, Analytical Engineering, Inc. submitted an application to the OAQ requesting to renew its operating permit. Analytical Engineering, Inc. was issued a Minor Source Operating Permit No. 005-14641-00091 on March 20, 2002.

### Existing Approvals

Since the issuance of the Minor Source Operating Permit (005-14641-00091) on March 20, 2002, the source has constructed or has been operating under the following approvals as well:

MSOP Notice Only Change No. (005-23145-00091) issued on July 5, 2006.

All terms and conditions of previous permits issued pursuant to permitting programs approved into the state implementation plan have been either incorporated as originally stated, revised, or deleted by this permit. All previous registrations and permits are superseded by this permit.

### Enforcement Issue

There are no enforcement actions pending.

### Emission Calculations

See Appendix A of this document for detailed emissions calculations (pages 1 through 7).

### County Attainment Status

The source is located in Bartholomew County.

Pollutant	Status
PM	Attainment
PM-10	Attainment
SO <sub>2</sub>	Attainment
NO <sub>x</sub>	Attainment
8-hour Ozone	Attainment
CO	Attainment
Lead	Attainment

- (a) Bartholomew County has been classified as unclassifiable or attainment for PM<sub>2.5</sub>. U.S. EPA has not yet established the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2 for PM 2.5 emissions. Therefore, until the U.S.EPA adopts specific provisions for PSD review for PM<sub>2.5</sub> emissions, it has directed states to regulate PM<sub>10</sub> emissions as surrogate for PM<sub>2.5</sub> emissions.
- (b) Volatile organic compounds (VOC) and Nitrogen Oxides (NO<sub>x</sub>) are regulated under the Clean Air Act (CAA) for the purposes of attaining and maintaining the National Ambient Air Quality Standards (NAAQS) for ozone. Therefore, VOC emissions and NO<sub>x</sub> emissions are considered when evaluating the rule applicability relating to ozone. Bartholomew County has been designated as attainment or unclassifiable for ozone. Therefore, VOC emissions and NO<sub>x</sub> emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2. See the State Rule Applicability for the source section.
- (c) Bartholomew County has been classified as attainment or unclassifiable for all other criteria pollutants. Therefore, these emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2. See the State Rule Applicability for the source section.
- (d) On October 25, 2006, the Indiana Air Pollution Control Board finalized a rule revision to 326 IAC 1-4-1 revoking the one-hour ozone standard in Indiana.
- (e) Fugitive Emissions  
Since this type of operation is not one of the twenty-eight (28) listed source categories under 326 IAC 2-2 and since there are no applicable New Source Performance Standards that were in effect on August 7, 1980, the fugitive particulate matter (PM) and volatile organic compound (VOC) emissions are not counted toward determination of PSD and Emission Offset applicability.

### Unrestricted Potential Emissions

This table reflects the unrestricted potential emissions of the source.

Pollutant	Potential To Emit (tons/year)
PM	3.0
PM-10	3.0
SO <sub>2</sub>	2.0
VOC	5.0
CO	15.6
NO <sub>x</sub>	10.25

The type of engine testing being done at Analytical Engineering is the same type of engine testing conducted at Cummins Engine Co., Columbus Technical Center - Plant 5, 1900 McKinley Ave., Columbus. The emission factors are based on 1994 actual test data of these diesel engine test cells. However, using either the 1994 test data or AP-42 emission factor, the resulting PTE would be less than 100 tons per year.

- (a) The potential to emit (as defined in 326 IAC 2-7-1(29)) of pollutants is less than 100 tons per year. Therefore, the source is not subject to the provisions of 326 IAC 2-7. Therefore, the source will be issued a MSOP.
- (b) The potential to emit (as defined in 326 IAC 2-7-1(29)) of any single HAP is less than ten (10) tons per year and/or the potential to emit (as defined in 326 IAC 2-7-1(29)) of a combination of HAPs is less than twenty-five (25) tons per year.
- (c) Fugitive Emissions  
 Since this type of operation is not one of the twenty-eight (28) listed source categories under 326 IAC 2-2 and since there are no applicable New Source Performance Standards that were in effect on August 7, 1980, the fugitive emissions are not counted toward determination of PSD and Emission Offset applicability.

**Actual Emissions**

No previous emission data has been received from the source.

**Potential to Emit After Issuance**

The table below summarizes the potential to emit, reflecting all limits of the emission units. Any control equipment is considered enforceable only after issuance of this MSOP and only to the extent that the effect of the control equipment is made practically enforceable in the permit.

Process/emission unit	Potential To Emit (tons/year)						HAPs
	PM	PM-10	SO <sub>2</sub>	VOC	CO	NO <sub>x</sub>	
Ten (10) diesel engine test cells	3.0	3.0	2.0	5.0*	15.6	< 99	Single 0.0451*
Total Emissions	3.0	3.0	2.0	5.0	15.6	< 99	0.145*

\*The maximum HAP will not exceed the VOC emissions.

- (a) This existing stationary source is not major for PSD because the emissions of each criteria pollutant are less than two hundred fifty (< 250) tons per year, and is not one of the 28 listed source categories.
- (b) Fugitive Emissions  
 Since this type of operation is not one of the twenty-eight (28) listed source categories

under 326 IAC 2-2 or 326 IAC 2-3, fugitive emissions are not counted toward the determination of PSD and Emission Offset applicability.

### **Federal Rule Applicability**

- (a) There are no New Source Performance Standards (NSPS) (326 IAC 12 and 40 CFR Part 60) included in the permit for this source.
- (b) The two 500 gallon No. 2 diesel storage tanks, are not subject to the requirements of the New Source Performance Standard for Standards of Performance for Volatile Organic Liquid Storage Vessels (including Petroleum Liquid Storage Vessels) for which Construction, Reconstruction, or Modification Commenced After July 23, 1984, 40 CFR 60.110, Subpart Kb due to having capacities of less than 40 cubic meters each and construction date of 2006, which is after the applicability date of July 23, 1984.
- (c) There are no National Emission Standards for Hazardous Air Pollutants (NESHAPs) (326 IAC 14, 326 IAC 20 and 40 CFR Part 63) included in this permit renewal.
- (d) The engine test cells are not subject to the requirements of the National Emission Standards for Hazardous Air Pollutants (NESHAPs) for Reciprocating Internal Combustion Engines (RICE), 40 CFR 63.6585, Subpart ZZZZ due to the internal combustion engines being tested at a stationary engine test cell.

### **State Rule Applicability - Entire Source**

#### 326 IAC 6-3-2 (Particulate Emission Limitations for Manufacturing Processes)

Since this facility only test engine cells and does not produce a product, the requirements of 326 IAC 6-3-2 do not apply to any of the facilities at this source.

#### 326 IAC 2-2 (Prevention of Significant Deterioration)

This source does not have potential emissions of 250 tons per year or more of any pollutant subject to regulation under the Clean Air Act (CAA) and it is not one of the twenty-eight (28) listed sources, therefore, this source is a minor source for PSD purposes.

#### 326 IAC 2-6 (Emission Reporting)

This source is located in Bartholomew County and the potential to emit NO<sub>x</sub> is less than one hundred (100) tons per year. Therefore, 326 IAC 2-6 does not apply.

#### 326 IAC 5-1 (Opacity Limitations)

Pursuant to 326 IAC 5-1-2 (Opacity Limitations), except as provided in 326 IAC 5-1-3 (Temporary Exemptions), opacity shall meet the following, unless otherwise stated in this permit:

- (a) Opacity shall not exceed an average of forty percent (40%) any one (1) six (6) minute averaging period as determined in 326 IAC 5-1-4.
- (b) Opacity shall not exceed sixty percent (60%) for more than a cumulative total of fifteen (15) minutes (sixty (60) readings) as measured according to 40 CFR 60, Appendix A, Method 9 or fifteen (15) one (1) minute nonoverlapping integrated averages for a continuous opacity monitor in a six (6) hour period.

#### 326 IAC 2-6.1 Minor Source Operating Permit Program

In the past, testing was not required for NO<sub>x</sub> because the source was limited to 550,012 gallons of diesel fuel burned per year and the NO<sub>x</sub> emissions were limited to 355 pounds of NO<sub>x</sub> per 1000

gallons of diesel fuel burned, pursuant to permit NSR/MSOP 005-14641-00091, issued March 20, 2002, but stack testing is being required by issuance of this renewal.

#### 326 IAC 2-7 (Part 70 Permit Program)

Engine test cell design restricts the total maximum power output of the engine test cells due to engine cooling requirements. Only 21.5% of the total maximum power output (5800 hp) will be available for testing purposes. The potential to emit is limited by the heat rejection capacity of the process water cooling towers that are used to transport the heat rejected by the engine and the dynamometer in each test cell. As a result, engine emissions are based on 1251 hp due to these design restrictions. The supporting documentation for this data was reviewed previously in the issuance of M005-14641-00091.

The emission factors used are based on 1994 actual stack test data that was verified by IDEM, Compliance Section, of similar diesel engine testing cells at Cummins Engine Co., (T005-7466-00002). By using either the 1994 test data or AP-42 emission factor to ensure that the potential-to-emit NO<sub>x</sub> emissions will not exceed 100 tons per year, the result would be that either are less than 100 tons per year. The potential-to-emit of less than 100 tons per year of NO<sub>x</sub> is equivalent to 558,012 gallons of diesel fuel. Therefore, the source will not be subject to 326 IAC 2-7.

### **State Rule Applicability - Individual Facilities**

#### 326 IAC 2-4.1 (Major Sources of Hazardous Air Pollutants (HAP))

The operation of diesel engine test cells will emit less than 10 tons per year of a single HAP and less than 25 tons per year of a combination of HAPs. Therefore, 326 IAC 2-4.1 does not apply.

#### 326 IAC 8-1-6 (New Facilities - General Reduction Requirement)

This source does not have potential VOC emissions equal to or greater than twenty five (25) tons per year, therefore this source is not subject to the provisions of 326 IAC 8-1-6.

#### 326 IAC 10-1-1 Nitrogen Oxide Rules

The source is not located in Clark or Floyd county and is not subject to these rules.

### **Testing Requirements**

The emission factors are from stack test data done in 1994 that were verified by IDEM and the U.S. EPA for Cummins Engine Company, Inc., permit (T005-7466-00002) EF Reference: 1994 Source Testing Data, SCC No. 2-04-004-02. These emission factors were utilized in the PTE calculations for Analytical Engineering, Inc., however, they will be verified through a one time stack test.

Within 180 days after issuance of MSOP Renewal 005-24041-00091, in order to demonstrate compliance with Condition D.1.1(a), the Permittee shall perform a one-time stack test for NO<sub>x</sub> for at least one (1) of the ten (10) engine test cells, identified as TC1 through TC10, utilizing methods as approved by the Commissioner. As long as the one-time testing demonstrates compliance, such one time testing shall be sufficient for the operation life of the source. Provided no significant modification occurs to the test cells that could impact its emissions, no further testing of the test cells will be required. Testing shall be conducted in accordance with Section C - Performance Testing.

### **Compliance Determination and Monitoring Requirements**

Despite burning diesel fuel, visible emission evaluations are not required because PM is significantly less than 25 tpy and there is no control device. PM emissions are three (3) tons per year.

### **Recommendation**

The staff recommends to the Commissioner that the Minor Source Operating Permit Renewal be approved. This recommendation is based on the following facts and conditions:

Unless otherwise stated, information used in this review was derived from the application and additional information submitted by the applicant.

An application for the purposes of this review was received on December 7, 2006. Additional information was received on February 6, 2007 and February 1, 2008.

### **Conclusion**

The operation of this diesel engine test cell operation shall be subject to the conditions of the attached MSOP Renewal No.: M005-24041-00091.

**Appendix A: Emission Summary**

**Company Name: Analytical Engineering, Inc.**  
**Address City IN Zip: 2555 Technology Blvd., Columbus, Indiana 47201**  
**Permit No: M005-24041-00091**  
**Reviewer: Janet Mobley**  
**Date: December 19, 2006**

**Uncontrolled Emissions**

<b>Emission Units</b>	<b>PM</b>	<b>PM<sub>10</sub></b>	<b>SO<sub>2</sub></b>	<b>VOC</b>	<b>CO</b>	<b>NOx</b>	<b>HAPs</b>
Ten Test Cells	3.0	3.0	2.0	5.0	15.6	99.06	
<b>Total</b>	3.0	3.0	2.0	5.0	15.6	10.25	0.0451 Single HAP/Formaldehyde 0.145 Total HAPs

**Appendix A: - NOx Potential to Emit (PTE) Calculations**

Company Name: Analytical Engineering, Inc.

Address: 2555 Technology Blvd., Columbus, Indiana 47201

Permit: M005-24041-00091

Date: December 19, 2006

Reviewer: Janet Mobley

Total Dynamometer Capacity: 5800 hp

Test Cell and Exhaust Stack Number	Test Cell Completion Date	Description of Work to be Performed	Dyno Power (hp)	Max Run Time (hours/yr)	Max Fuel Usage <sup>a</sup> (gal/hour)	Potential Fuel Used <sup>b</sup> (gal/hour)	NO <sub>x</sub> Factor based on Cummins <sup>c</sup> (lbs/kgal#2D)	NO <sub>x</sub> Factor based on 1998 US EPA Std.	NO <sub>x</sub> PTE based on Cummins EF (tons/yr)	NO <sub>x</sub> PTE based on EF from 1998 US EPA Std. (tons/yr)
1	July 15, 2002	Diesel Engine Development	400	8760	20.4	4.4	355	172.5	6.83	3.32
2	June 1, 2002	Diesel Engine Development	400	8760	20.4	4.4	355	172.5	6.83	3.32
3	March 1, 2003	Diesel Engine Development	1500	8760	76.6	16.5	355	172.5	25.62	12.45
4	April 15, 2002	Diesel Engine Development	500	8760	25.5	5.5	355	172.5	8.54	4.15
5	March 1, 2002	Diesel Engine Development	500	8760	25.5	5.5	355	172.5	8.54	4.15
6	October 15, 2001	Diesel Engine Development	400	8760	20.4	4.4	355	172.5	6.83	3.32
7	November 30, 2001	Diesel Engine Development	600	8760	30.7	6.6	355	172.5	10.25	4.98
8	January 15, 2002	Diesel Engine Development	600	8760	30.7	6.6	355	172.5	10.25	4.98
9	December 1, 2002	Cold Start Testing for Diesel Engines	300	8760	15.3	3.3	355	172.5	5.12	2.49
10	March 1, 2003	Cold Start Testing for Diesel Engines	600	8760	30.7	6.6	355	172.5	10.25	4.98
<b>Total for 10 Test Cells</b>			5800	87600	296.3	63.7			<b>99.06</b>	<b>48.1</b>

a) Max Fuel Usage based on AP-42 brake-specific fuel consumption 7000 Btu/hp-hr = .3627 lbs#2D/hp-hr

b) Maximum design capacity is 21.5% of hp capacity due to the heat rejection capability of the process cooling water.

c) Cummins Engine Co., Inc. Title V Operating permit for diesel engine test cells: T005-7466-00002, Emission Factor Ref: SCC 2-04-004-02

d) U.S. EPA 1998 Certification Standard for Heavy-Duty Diesel Engines

## Appendix A - PM10 Potential to Emit (PTE) Calculations

Company Name: Analytical Engineering, Inc.

Address: 2555 Technology Blvd., Columbus, Indiana 47201

Permit: M005-24041-00091

Date: December 19, 2006

Reviewer: Janet Mobley

Total Dynamometer Capacity: 5800 hp

Test Cell and Exhaust Stack Number	Test Cell Completion Date	Description of Work to be Performed	Dyno Power (hp)	Max Run Time (hours/yr)	Max Fuel Usage <sup>a</sup> (gal/hour)	Potential Fuel Used <sup>b</sup> (gal/hour)	PM 10 Factor based on Cummins <sup>c</sup> (lbs/kgal#2D)	PM 10 Factor based on 1998 US EPA Std. (lbs/kgal#2D)	PM 10 PTE based on Cummins EF (tons/yr)	PTE based on EF from 1998 US EPA Std. (tons/yr)
1	July 15, 2002	Diesel Engine Development	400	8760	20.4	4.4	10.7	4.31	0.21	0.08
2	June 1, 2002	Diesel Engine Development	400	8760	20.4	4.4	10.7	4.31	0.21	0.08
3	March 1, 2003	Diesel Engine Development	1500	8760	76.6	16.5	10.7	4.31	0.77	0.31
4	April 15, 2002	Diesel Engine Development	500	8760	25.5	5.5	10.7	4.31	0.26	0.1
5	March 1, 2002	Diesel Engine Development	500	8760	25.5	5.5	10.7	4.31	0.26	0.1
6	October 15, 2001	Diesel Engine Development	400	8760	20.4	4.4	10.7	4.31	0.21	0.08
7	November 30, 2001	Diesel Engine Development	600	8760	30.7	6.6	10.7	4.31	0.31	0.12
8	January 15, 2002	Diesel Engine Development	600	8760	30.7	6.6	10.7	4.31	0.31	0.12
9	December 1, 2002	Cold Start Testing for Diesel Engines	300	8760	15.3	3.3	10.7	4.31	0.15	0.06
10	March 1, 2003	Cold Start Testing for Diesel Engines	600	8760	30.7	6.6	10.7	4.31	0.31	0.12
<b>Total for 10 Test Cells</b>			<b>5800</b>	<b>87600</b>	<b>296.3</b>	<b>63.7</b>			<b>3.00</b>	<b>1.2</b>

a) Max Fuel Usage based on AP-42 brake-specific fuel consumption 7000 Btu/hp-hr = .3627 lbs#2D/hp-hr

b) Maximum design capacity is 21.5% of hp capacity due to the heat rejection capability of the process cooling water.

c) Cummins Engine Co., Inc. Title V Operating permit for diesel engine test cells: T005-7466-00002, Emission Factor Ref: SCC 2-04-004-02

d) U.S. EPA 1998 Certification Standard for Heavy-Duty Diesel Engines

**Appendix A - SO<sub>2</sub> Potential To Emit (PTE) Calculations**

Company Name: Analytical Engineering, Inc.  
 Address: 2555 Technology Blvd., Columbus, Indiana 47201  
 Permit: M005-24041-00091  
 Date: December 19, 2006  
 Reviewer: Janet Mobley

Total Dynamometer Capacity: 5800 hp

Test Cell and Exhaust Stack Number	Test Cell Completion Date	Description of Work to be Performed	Dyno Power (hp)	Max Run Time (hours/year)	Max Fuel Usage <sup>a</sup> (gal/hour)	Potential Fuel Used <sup>b</sup> (gal/hour)	SO <sub>2</sub> Factor based on Cummins <sup>c</sup> (lbs/kgal#2D)	SO <sub>2</sub> PTE based on Cummins EF (tons/yr)
1	July 15, 2002	Diesel Engine Development	400	8760	20.4	4.4	7.09	0.14
2	June 1, 2002	Diesel Engine Development	400	8760	20.4	4.4	7.09	0.14
3	March 1, 2003	Diesel Engine Development	1500	8760	76.6	16.5	7.09	0.51
4	April 15, 2002	Diesel Engine Development	500	8760	25.5	5.5	7.09	0.17
5	March 1, 2002	Diesel Engine Development	500	8760	25.5	5.5	7.09	0.17
6	October 15, 2001	Diesel Engine Development	400	8760	20.4	4.4	7.09	0.14
7	November 30, 2001	Diesel Engine Development	600	8760	30.7	6.6	7.09	0.20
8	January 15, 2002	Diesel Engine Development	600	8760	30.7	6.6	7.09	0.20
9	December 1, 2002	Cold Start Testing for Diesel Engines	300	8760	15.3	3.3	7.09	0.10
10	March 1, 2003	Cold Start Testing for Diesel Engines	600	8760	30.7	6.6	7.09	0.20
<b>Total for 10 Test Cells</b>			<b>5800</b>	<b>87600</b>	<b>296.3</b>	<b>63.7</b>		<b>2.0</b>

- a) Max Fuel Usage based on AP-42 brake-specific fuel consumption 7000 Btu/hp-hr = .3627 lbs#2D/hp-hr
- b) Maximum design capacity is 21.5% of hp capacity due to the heat rejection capability of the process cooling water.
- c) Cummins Engine Co., Inc. Title V Operating permit for diesel engine test cells: T005-7466-00002, Emission Factor Ref: SCC 2-04-004-02
- d) U.S. EPA 1998 Certification Standard for Heavy-Duty Diesel Engines

**Appendix A - VOC Potential To Emit (PTE) Calculations**

Company Name: Analytical Engineering, Inc.  
 Address: 2555 Technology Blvd., Columbus, Indiana 47201  
 Permit: M005-24041-00091  
 Date: December 19, 2006  
 Reviewer: Janet Mobley

Total Dynamometer Capacity: 5800 hp

Test Cell and Exhaust Stack Number	Test Cell Completion Date	Description of Work to be Performed	Dyno Power (hp)	Max Run Time (hours/year)	Max Fuel Usage <sup>a</sup> (gal/hour)	Potential Fuel Used <sup>b</sup> (gal/hour)	VOC Factor based on Cummins <sup>c</sup> (lbs/kgal#2D)	VOC PTE based on Cummins EF (tons/yr)
1	July 15, 2002	Diesel Engine Development	400	8760	20.4	4.4	17.9	0.34
2	June 1, 2002	Diesel Engine Development	400	8760	20.4	4.4	17.9	0.34
3	March 1, 2003	Diesel Engine Development	1500	8760	76.6	16.5	17.9	1.29
4	April 15, 2002	Diesel Engine Development	500	8760	25.5	5.5	17.9	0.43
5	March 1, 2002	Diesel Engine Development	500	8760	25.5	5.5	17.9	0.43
6	October 15, 2001	Diesel Engine Development	400	8760	20.4	4.4	17.9	0.34
7	November 30, 2001	Diesel Engine Development	600	8760	30.7	6.6	17.9	0.52
8	January 15, 2002	Diesel Engine Development	600	8760	30.7	6.6	17.9	0.52
9	December 1, 2002	Cold Start Testing for Diesel Engines	300	8760	15.3	3.3	17.9	0.26
10	March 1, 2003	Cold Start Testing for Diesel Engines	600	8760	30.7	6.6	17.9	0.52
<b>Total for 10 Test Cells</b>			<b>5800</b>	<b>87600</b>	<b>296.3</b>	<b>63.7</b>		<b>5.0</b>

- a) Max Fuel Usage based on AP-42 brake-specific fuel consumption 7000 Btu/hp-hr = .3627 lbs#2D/hp-hr
- b) Maximum design capacity is 21.5% of hp capacity due to the heat rejection capability of the process cooling water.
- c) Cummins Engine Co., Inc. Title V Operating permit for diesel engine test cells: T005-7466-00002, Emission Factor Ref: SCC 2-04-004-02
- d) U.S. EPA 1998 Certification Standard for Heavy-Duty Diesel Engines

**Appendix A - CO Potential To Emit (PTE) Calculations**

Company Name: Analytical Engineering, Inc.  
 Address: 2555 Technology Blvd., Columbus, Indiana 47201  
 Permit: M005-24041-00091  
 Date: December 19, 2006  
 Reviewer: Janet Mobley

Total Dynamometer Capacity: 5800 hp

Test Cell and Exhaust Stack Number	Test Cell Completion Date	Description of Work to be Performed	Dyno Power (hp)	Max Run Time (hours/year)	Max Fuel Usage <sup>a</sup> (gal/hour)	Potential Fuel Used <sup>b</sup> (gal/hour)	CO Factor based on Cummins <sup>c</sup> (lbs/kgal#2D)	CO PTE based on Cummins EF (tons/yr)
1	July 15, 2002	Diesel Engine Development	400	8760	20.4	4.4	55.8	1.07
2	June 1, 2002	Diesel Engine Development	400	8760	20.4	4.4	55.8	1.07
3	March 1, 2003	Diesel Engine Development	1500	8760	76.6	16.5	55.8	4.03
4	April 15, 2002	Diesel Engine Development	500	8760	25.5	5.5	55.8	1.34
5	March 1, 2002	Diesel Engine Development	500	8760	25.5	5.5	55.8	1.34
6	October 15, 2001	Diesel Engine Development	400	8760	20.4	4.4	55.8	1.07
7	November 30, 2001	Diesel Engine Development	600	8760	30.7	6.6	55.8	1.61
8	January 15, 2002	Diesel Engine Development	600	8760	30.7	6.6	55.8	1.61
9	December 1, 2002	Cold Start Testing for Diesel Engines	300	8760	15.3	3.3	55.8	0.81
10	March 1, 2003	Cold Start Testing for Diesel Engines	600	8760	30.7	6.6	55.8	1.61
<b>Total for 10 Test Cells</b>			<b>5800</b>	<b>87600</b>	<b>296.3</b>	<b>63.7</b>		<b>15.6</b>

- a) Max Fuel Usage based on AP-42 brake-specific fuel consumption 7000 Btu/hp-hr = .3627 lbs#2D/hp-hr
- b) Maximum design capacity is 21.5% of hp capacity due to the heat rejection capability of the process cooling water.
- c) Cummins Engine Co., Inc. Title V Operating permit for diesel engine test cells: T005-7466-00002, Emission Factor Ref: SCC 2-04-004-02
- d) U.S. EPA 1998 Certification Standard for Heavy-Duty Diesel Engines

Appendix A - HAPs Potential to Emit (PTE) Calculations

Company Name: Analytical Engineering, Inc.

Address: 2555 Technology Blvd., Columbus, Indiana 47201

Permit: M005-24041-00091

Date: February 6, 2007

Reviewer: Janet Mobley

Calculations based on the AP-42 Emission Factor Table 3.3-2							Calculations based on HAPs Emission Factors from Cummins			
Source	Pollutant	AP-42 Emission Factor Table 3.3- 2 (lb/MMBtu)	AP-42 Emission Factor Table 3.3-2 (lb/gal)**	AEI Potential Fuel Used* (gal/yr)	Potential HAPs (AP- 42 Emission Factor Table (lbs/yr)	Potential HAPs (AP- 42 Emission Factor Table (tons/yr)	HAPs Content (Cummins Calcs) (lb/gal)	AEI Potential Fuel Used (gal/yr)	Potential HAPs (Cummins HAP Content) (lbs/yr)	Potential HAPs (Cummins HAP Content) (tons/yr)
AEI 10	Acetaldehyde	7.67E-04	1.05E-04	558,012	59	0.0293	0.0002	558,012	112	0.056
Test	Acrolein	9.25E-05	1.27E-05	558,012	7	0.0035	0.00002	558,012	11	0.006
Cells Total	Benzene	9.33E-04	1.28E-04	558,012	71	0.0357	0.0002	558,012	112	0.056
Maximum	1,3, Butadiene	3.91E-05	5.36E-06	558,012	3	0.0015	0.00001	558,012	6	0.003
Allowable	Formaldehyde	1.18E-03	1.62E-04	558,012	90	0.0451	0.0003	558,012	167	0.084
Annual	Toluene	4.09E-04	5.61E-05	558,012	31	0.0156	0.0001	558,012	56	0.028
Fuel	Xylenes	2.85E-04	3.91E-05	558,012	22	0.0109	0.00007	558,012	39	0.02
Usage	Polycyclic Organic Matter	8.48E-05	1.16E-05	558,012	6	0.0032	0.00004	558,012	22	0.011
Total Potential HAPs:					290	0.1449			525	0.262

\* Potential Maximum Fuel Used is based on current permit

\*\* Conversion based on AP-42 assumption of 19,300 Btu/lbm heating value of #2 diesel fuel at a density of 7.1 lb/gallon  
1,000,000 Btu = 1 MMBtu

Calculations were provided by Analytical Engineering, Inc.