



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

TO: Interested Parties / Applicant

DATE: July 3, 2008

RE: Eli Lilly & Company / 059-23436-00001

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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Federally Enforceable State Operating Permit Renewal OFFICE OF AIR QUALITY

Eli Lilly and Company – Greenfield Laboratories
2001 West Main Street
Greenfield, Indiana 46140

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

The Permittee must comply with all conditions of this permit. Noncompliance with any provisions of this permit is grounds for enforcement action; permit termination, revocation and reissuance, or modification; or denial of a permit renewal application. 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 conditions of this permit. An emergency does constitute an affirmative defense in an enforcement action provided the Permittee complies with the applicable requirements set forth in Section B, Emergency Provisions.

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 FESOP under 326 IAC 2-8.

This permit is issued in accordance with 326 IAC 2 and 40 CFR Part 70, Appendix A and contains the conditions and provisions specified in 326 IAC 2-8 as required by 42 U.S.C. 7401, et. seq. (Clean Air Act as amended by the 1990 Clean Air Act Amendments), 40 CFR Part 70.6, IC 13-15 and IC 13-17

Operation Permit No.: F059-23436-00001	
Issued by/Original Signed By: Chrystal Wagner, Section Chief Permits Branch Office of Air Quality	Issuance Date: July 3, 2008 Expiration Date: July 3, 2018

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Commercial-Institutional Steam Generating Units**

**ATTACHMENT B - 40 CFR 60, Subpart IIII - Standards of Performance for Stationary Compression
Ignition Internal Combustion Engines**

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 2-8-3(b)]

The Permittee owns and operates a stationary pharmaceutical research source.

Source Address:	2001 West Main Street, Greenfield, Indiana 46140
Mailing Address:	P.O. Box 708, Greenfield, Indiana 46140
General Source Phone Number:	317-277-1356
SIC Code:	2834 and 2879
County Location:	Hancock
Source Location Status:	Attainment for all criteria pollutants
Source Status:	Federally Enforceable State Operating Permit Program Minor Source, under PSD Rules 1 of 28 Source Categories

A.2 Emission Units and Pollution Control Equipment Summary [326 IAC 2-8-3(c)(3)]

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

- (a) One (1) natural gas-fired boiler using No. 2 fuel oil as backup, identified as 254-1, installed in 1963, exhausting through Stack 254-1, heat input capacity: 51.0 million British thermal units per hour;
- (b) One (1) natural gas-fired boiler using No. 2 fuel oil as backup, identified as 254-2, installed in 1967, exhausting through Stack 254-2, heat input capacity: 63.0 million British thermal units per hour;
- (c) One (1) natural gas-fired boiler using No. 2 fuel oil as backup, identified as 254-3, installed in 1973, exhausting through Stack 254-3, heat input capacity: 67.0 million British thermal units per hour;
- (d) One (1) natural gas-fired boiler using No. 2 fuel oil as backup, identified as 254-4, installed in 1977, exhausting through Stack 254-4, heat input capacity: 78.0 million British thermal units per hour;
- (e) One (1) natural gas-fired boiler using No. 2 fuel oil as backup, identified as 254-R, installed in 2006, exhausting through Stack 254-R, heat input capacity: 82.3 million British thermal units per hour. This is an affected facility under NSPS Subpart Dc; and
- (f) One (1) natural gas-fired, multi chamber Consumat incinerator, identified as 241-1, installed in 1981, exhausting through Stack 241-1, capacity: 350 pounds of waste per hour, heat input capacity: 2.8 million British thermal units per hour.

A.3 Insignificant Activities [326 IAC 2-7-1(21)] [326 IAC 2-8-3(c)(3)(I)]

This stationary source also includes the following insignificant activities as defined in 326 IAC 2-7-1 (21):

- (a) Three (3) natural gas-fired boilers, identified as 229-1, 229-2 and 293-1, which were installed in 1997, 1997 and 1998, respectively, heat input capacities: 1.8, 1.8, and 2.1 million British thermal units per hour, respectively. [326 IAC 6-2]
- (b) Three (3) No. 2 fuel oil-fired emergency generators, identified as 226, 241-out, and 418, heat input capacities: 2.3, 2.8 and 2.6 million British thermal units per hour, respectively.
- (c) Seven (7) natural gas-fired emergency generators, identified as 206, 223, 229, 241-penthouse, 276, 288, and 296, heat input capacities: 0.422, 0.047, 0.563, 0.375, 0.047, 0.141, and 0.657million British thermal units per hour, respectively.
- (d) Two (2) propane-fired emergency generators, identified as 212 and 290, heat input capacities: 0.478 and 4.3 million British thermal units per hour, respectively.
- (e) Two (2) No. 2 fuel oil fired emergency fire pump engines, identified as FP-B204 and FP-B208, heat input capacities: of 0.82 million British thermal units per hour, each.
- (f) One (1) diesel reciprocating internal engine emergency generator, rated at 166 horsepower (hp), identified as EG210.
- (g) One (1) natural gas-fired reciprocating internal engine emergency generator, rated at 415 horsepower (hp), identified as EG239.
- (h) One (1) No. 2 fuel oil-fired emergency generator, identified as EMG-TOX, installed in 1986, heat input capacity: 19.3 million British thermal units per hour.
- (i) One (1) diesel emergency generator rated at 1,200 horsepower (hp), identified as EG220.
- (j) One (1) diesel emergency generator rated at 2,836 horsepower (hp), identified as LC45.
- (k) One (1) No. 2 fuel oil-fired emergency generator, approved for construction in 2007, rated at 1490 horsepower (hp), with a heat input capacity of 10.42 million British thermal units per hour, identified as 254-EG. Under 40 CFR 60, Subpart IIII, this unit is considered to be an emergency stationary internal combustion engine.
- (l) A gasoline fuel transfer and dispensing operation handling less than or equal to 1,300 gallons per day, such as filling of tanks, locomotives, automobiles, having a storage capacity less than or equal to 10,500 gallons.
- (m) A petroleum fuel, other than gasoline, dispensing facility having a storage capacity less than or equal to 10,500 gallons, and dispensing less than or equal to 230,000 gallons per month.
- (n) One (1) fuel oil storage tank, identified as 254-F, installed prior to 1973, capacity: 250,000 gallons.
- (o) Activities associated with the transportation and treatment of sanitary sewage (on-site sewage treatment facility).
- (p) Asbestos abatement projects regulated by 326 IAC 14-10.
- (q) On-site fire and emergency response training approved by IDEM.

- (r) Laboratories as defined in 326 IAC 2-7-1.
- (s) Farm operations.

A.4 FESOP Applicability [326 IAC 2-8-2]

This stationary source, otherwise required to have a Part 70 Permit as described in 326 IAC 2-7-2(a), has applied to the Indiana Department of Environmental Management (IDEM), Office of Air Quality (OAQ) to renew for a Federally Enforceable State Operating Permit (FESOP).

SECTION B GENERAL CONDITIONS

B.1 Definitions [326 IAC 2-8-1]

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 2-7) shall prevail.

B.2 Permit Term [326 IAC 2-8-4(2)] [326 IAC 2-1.1-9.5] [IC 13-15-3-6(a)]

- (a) This permit, F 059-23436-00001, 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]

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; or
- (b) the emission unit to which the condition pertains permanently ceases operation.

B.4 Enforceability [326 IAC 2-8-6]

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 [326 IAC 2-8-4(4)]

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 [326 IAC 2-8-4(5)(D)]

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

B.7 Duty to Provide Information [326 IAC 2-8-4(5)(E)]

- (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 [326 IAC 2-8-3(d)] [326 IAC 2-8-4(3)(C)(i)] [326 IAC 2-8-5(1)]

- (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 Compliance Certification [326 IAC 2-8-5(a)(1)]

- (a) The Permittee shall annually submit a compliance certification report which addresses the status of the source's compliance with the terms and conditions contained in this permit, including emission limitations, standards, or work practices. All certifications shall cover the time period from January 1 to December 31 of the previous year, and shall be submitted no later than July 1 of each year to:

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

- (b) The annual compliance certification report 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) The annual compliance certification report shall include the following:
 - (1) The appropriate identification of each term or condition of this permit that is the basis of the certification;
 - (2) The compliance status;
 - (3) Whether compliance was continuous or intermittent;
 - (4) The methods used for determining the compliance status of the source, currently and over the reporting period consistent with 326 IAC 2-8-4(3); and
 - (5) Such other facts, as specified in Sections D of this permit, as IDEM, OAQ may require to determine the compliance status of the source.

The submittal by the Permittee does require the certification by an "authorized individual" as defined by 326 IAC 2-1.1-1(1).

B.10 Compliance Order Issuance [326 IAC 2-8-5(b)]

IDEM, OAQ may issue a compliance order to this Permittee upon discovery that this permit is in nonconformance with an applicable requirement. The order may require immediate compliance or contain a schedule for expeditious compliance with the applicable requirement.

B.11 Preventive Maintenance Plan [326 IAC 1-6-3] [326 IAC 2-8-4(9)] [326 IAC 2-8-5(a)(1)]

- (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) The Permittee shall implement the Preventive Maintenance Plans as necessary to ensure that failure to implement a PMP does not cause or contribute to a violation of any limitation on emissions or potential to emit.
- (c) 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).
- (d) 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.12 Emergency Provisions [326 IAC 2-8-12]

- (a) An emergency, as defined in 326 IAC 2-7-1(12), is not an affirmative defense for an action brought for noncompliance with a federal or state health-based emission limitation except as provided in 326 IAC 2-8-12.
- (b) An emergency, as defined in 326 IAC 2-7-1(12), constitutes an affirmative defense to an action brought for noncompliance with a health-based or technology-based emission limitation if the affirmative defense of an emergency is demonstrated through properly signed, contemporaneous operating logs or other relevant evidence that describe the following:
- (1) An emergency occurred and the Permittee can, to the extent possible, identify the causes of the emergency;
 - (2) The permitted facility was at the time being properly operated;
 - (3) During the period of an emergency, the Permittee took all reasonable steps to minimize levels of emissions that exceeded the emission standards or other requirements in this permit;
 - (4) For each emergency lasting one (1) hour or more, the Permittee notified IDEM, OAQ within four (4) daytime business hours after the beginning of the emergency, or after the emergency was discovered or reasonably should have been discovered;

Telephone Number: 1-800-451-6027 (ask for Office of Air Quality, Compliance Section), or
Telephone Number: 317-233-0178 (ask for Compliance Section)
Facsimile Number: 317-233-6865
 - (5) For each emergency lasting one (1) hour or more, the Permittee submitted the attached Emergency Occurrence Report Form or its equivalent, either by mail or facsimile to:

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

within two (2) working days of the time when emission limitations were exceeded due to the emergency.

The notice fulfills the requirement of 326 IAC 2-8-4(3)(C)(ii) and must contain the following:

- (A) A description of the emergency;
- (B) Any steps taken to mitigate the emissions; and
- (C) Corrective actions taken.

The notification which shall be submitted by the Permittee does not require the certification by an "authorized individual" as defined by 326 IAC 2-1.1-1(1).

- (6) The Permittee immediately took all reasonable steps to correct the emergency.
- (c) In any enforcement proceeding, the Permittee seeking to establish the occurrence of an emergency has the burden of proof.
- (d) This emergency provision supersedes 326 IAC 1-6 (Malfunctions). This permit condition is in addition to any emergency or upset provision contained in any applicable requirement.
- (e) The Permittee seeking to establish the occurrence of an emergency shall make records available upon request to ensure that failure to implement a PMP did not cause or contribute to an exceedance of any limitations on emissions. However, IDEM, OAQ may require that the Preventive Maintenance Plans required under 326 IAC 2-8-3(c)(6) be revised in response to an emergency.
- (f) Failure to notify IDEM, OAQ by telephone or facsimile of an emergency lasting more than one (1) hour in accordance with (b)(4) and (5) of this condition shall constitute a violation of 326 IAC 2-8 and any other applicable rules.
- (g) Operations may continue during an emergency only if the following conditions are met:
 - (1) If the emergency situation causes a deviation from a technology-based limit, the Permittee may continue to operate the affected emitting facilities during the emergency provided the Permittee immediately takes all reasonable steps to correct the emergency and minimize emissions.
 - (2) If an emergency situation causes a deviation from a health-based limit, the Permittee may not continue to operate the affected emissions facilities unless:
 - (A) The Permittee immediately takes all reasonable steps to correct the emergency situation and to minimize emissions; and
 - (B) Continued operation of the facilities is necessary to prevent imminent injury to persons, severe damage to equipment, substantial loss of capital investment, or loss of product or raw material of substantial economic value.

Any operations shall continue no longer than the minimum time required to prevent the situations identified in (g)(2)(B) of this condition.

- (h) The Permittee shall include all emergencies in the Quarterly Deviation and Compliance Monitoring Report.

B.13 Prior Permits Superseded [326 IAC 2-1.1-9.5]

- (a) All terms and conditions of permits established prior to F 059-23436-00001 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.14 Termination of Right to Operate [326 IAC 2-8-9] [326 IAC 2-8-3(h)]

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 nine (9) months prior to the date of expiration of the source's existing permit, consistent with 326 IAC 2-8-3(h) and 326 IAC 2-8-9.

B.15 Deviations from Permit Requirements and Conditions [326 IAC 2-8-4(3)(C)(ii)]

- (a) Deviations from any permit requirements (for emergencies see Section B - Emergency Provisions), the probable cause of such deviations, and any response steps or preventive measures taken shall be reported 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

using the attached Quarterly Deviation and Compliance Monitoring Report, or its equivalent. A deviation required to be reported pursuant to an applicable requirement that exists independent of this permit, shall be reported according to the schedule stated in the applicable requirement and does not need to be included in this report.

The Quarterly Deviation and Compliance Monitoring Report does require the certification by an "authorized individual" as defined by 326 IAC 2-1.1-1(1).

- (b) A deviation is an exceedance of a permit limitation or a failure to comply with a requirement of the permit.

B.16 Permit Modification, Reopening, Revocation and Reissuance, or Termination [326 IAC 2-8-4(5)(C)] [326 IAC 2-8-7(a)] [326 IAC 2-8-8]

- (a) This permit may be modified, reopened, revoked and reissued, or terminated for cause. The filing of a request by the Permittee for a Federally Enforceable State Operating Permit modification, revocation and reissuance, or termination, or of a notification of planned changes or anticipated noncompliance does not stay any condition of this permit. [326 IAC 2-8-4(5)(C)] The notification by the Permittee does require the certification by an "authorized individual" as defined by 326 IAC 2-1.1-1(1).

- (b) This permit shall be reopened and revised under any of the circumstances listed in IC 13-15-

7-2 or if IDEM, OAQ determines any of the following:

- (1) That this permit contains a material mistake.
 - (2) That inaccurate statements were made in establishing the emissions standards or other terms or conditions.
 - (3) That this permit must be revised or revoked to assure compliance with an applicable requirement. [326 IAC 2-8-8(a)]
- (c) Proceedings by IDEM, OAQ to reopen and revise this permit shall follow the same procedures as apply to initial permit issuance and shall affect only those parts of this permit for which cause to reopen exists. Such reopening and revision shall be made as expeditiously as practicable. [326 IAC 2-8-8(b)]
- (d) The reopening and revision of this permit, under 326 IAC 2-8-8(a), shall not be initiated before notice of such intent is provided to the Permittee by IDEM, OAQ at least thirty (30) days in advance of the date this permit is to be reopened, except that IDEM, OAQ may provide a shorter time period in the case of an emergency. [326 IAC 2-8-8(c)]

B.17 Permit Renewal [326 IAC 2-8-3(h)]

- (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 2-8-3. Such information shall be included in the application for each emission unit at this source, except those emission units included on the trivial or insignificant activities list contained in 326 IAC 2-7-1(21) and 326 IAC 2-7-1(40). 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 nine (9) months 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 2-8 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.18 Permit Amendment or Revision [326 IAC 2-8-10] [326 IAC 2-8-11.1]

- (a) Permit amendments and revisions are governed by the requirements of 326 IAC 2-8-10 or 326 IAC 2-8-11.1 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 may implement administrative amendment changes addressed in the request for an administrative amendment immediately upon submittal of the request. [326 IAC 2-8-10(b)(3)]

B.19 Operational Flexibility [326 IAC 2-8-15] [326 IAC 2-8-11.1]

- (a) The Permittee may make any change or changes at the source that are described in 326 IAC 2-8-15(b) through (d) without a prior permit revision, if each of the following conditions is met:

- (1) The changes are not modifications under any provision of Title I of the Clean Air Act;
- (2) Any approval required by 326 IAC 2-8-11.1 has been obtained;
- (3) The changes do not result in emissions which exceed the emissions allowable under this permit (whether expressed herein as a rate of emissions or in terms of total emissions);
- (4) The Permittee notifies the:

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

and

United States Environmental Protection Agency, Region V
Air and Radiation Division, Regulation Development Branch - Indiana (AR-18J)
77 West Jackson Boulevard
Chicago, Illinois 60604-3590

in advance of the change by written notification at least ten (10) days in advance of the proposed change. The Permittee shall attach every such notice to the Permittee's copy of this permit; and

- (5) The Permittee maintains records on-site, on a rolling five (5) year basis, which document all such changes and emission trades that are subject to 326 IAC 2-8-15(b) through (d). The Permittee shall make such records available, upon reasonable request, for public review.

Such records shall consist of all information required to be submitted to IDEM, OAQ in the notices specified in 326 IAC 2-8-15(b)(2), (c)(1), and (d).

- (b) Emission Trades [326 IAC 2-8-15(c)]

The Permittee may trade emissions increases and decreases at the source, where the applicable SIP provides for such emission trades without requiring a permit revision, subject to the constraints of Section (a) of this condition and those in 326 IAC 2-8-15(c).

- (c) Alternative Operating Scenarios [326 IAC 2-8-15(d)]
The Permittee may make changes at the source within the range of alternative operating scenarios that are described in the terms and conditions of this permit in accordance with 326 IAC 2-8-4(7). No prior notification of IDEM, OAQ, or U.S. EPA is required.
- (d) Backup fuel switches specifically addressed in, and limited under, Section D of this permit shall not be considered alternative operating scenarios. Therefore, the notification requirements of part (a) of this condition do not apply.

B.20 Source Modification Requirement [326 IAC 2-8-11.1]

A modification, construction, or reconstruction is governed by the requirements of 326 IAC 2 and 326 IAC 2-8-11.1.

B.21 Inspection and Entry [326 IAC 2-8-5(a)(2)] [IC 13-14-2-2] [IC 13-17-3-2] [IC13-30-3-1]

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 FESOP 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.22 Transfer of Ownership or Operational Control [326 IAC 2-8-10]

- (a) The Permittee must comply with the requirements of 326 IAC 2-8-10 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 administrative amendment changes addressed in the request for an administrative amendment immediately upon submittal of the request. [326 IAC 2-8-10(b)(3)]

B.23 Annual Fee Payment [326 IAC 2-7-19] [326 IAC 2-8-4(6)] [326 IAC 2-8-16][326 IAC 2-1.1-7]

- (a) The Permittee shall pay annual fees to IDEM, OAQ within thirty (30) calendar days of receipt of a billing. Pursuant to 326 IAC 2-7-19(b), if the Permittee does not receive a bill from IDEM, OAQ the applicable fee is due April 1 of each year.
- (b) Failure to pay may result in administrative enforcement action or revocation of this permit.
- (c) 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.24 Credible Evidence [326 IAC 2-8-4(3)] [326 IAC 2-8-5] [62 FR 8314] [326 IAC 1-1-6]

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 2-8-4(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 one hundred (100) pounds per hour and the methods in 326 IAC 6-3-2(b) through (d) do not apply shall not exceed five hundred fifty-one thousandths (0.551) pounds per hour.

C.2 Overall Source Limit [326 IAC 2-8]

The purpose of this permit is to limit this source's potential to emit to less than major source levels for the purpose of Section 502(a) of the Clean Air Act.

(a) Pursuant to 326 IAC 2-8:

- (1) The potential to emit any regulated pollutant, except particulate matter (PM), from the entire source shall be limited to less than one hundred (100) tons per twelve (12) consecutive month period. This limitation shall also make the requirements of 326 IAC 2-2 (Prevention of Significant Deterioration (PSD)) and 326 IAC 2-3 (Emission Offset) not applicable;
- (2) The potential to emit any individual hazardous air pollutant (HAP) from the entire source shall be limited to less than ten (10) tons per twelve (12) consecutive month period; and
- (3) The potential to emit any combination of HAPs from the entire source shall be limited to less than twenty-five (25) tons per twelve (12) consecutive month period.

(b) The potential to emit particulate matter (PM) from the entire source shall be limited to less than one hundred (100) tons per twelve (12) consecutive month period. This limitation shall make the requirements of 326 IAC 2-2 (Prevention of Significant Deterioration (PSD)) not applicable.

(c) This condition shall include all emission points at this source including those that are insignificant as defined in 326 IAC 2-7-1(21). The source shall be allowed to add insignificant activities not already listed in this permit, provided that the source's potential to emit does not exceed the above specified limits.

(d) Section D of this permit contains independently enforceable provisions to satisfy this requirement.

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 and in Section D.2 of this permit.

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

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 Stack Height [326 IAC 1-7]

The Permittee shall comply with the applicable provisions of 326 IAC 1-7 (Stack Height Provisions), for all exhaust stacks through which a potential (before controls) of twenty-five (25) tons per year or more of particulate matter or sulfur dioxide is emitted.

C.8 Asbestos Abatement Projects [326 IAC 14-10] [326 IAC 18] [40 CFR 61, Subpart M]

- (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 two hundred sixty (260) linear feet on pipes or one hundred sixty (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 61-52 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 seventy-five hundredths (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 Accredited 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 Accredited Asbestos Inspector to thoroughly inspect the affected portion of the facility for the presence of asbestos.

Testing Requirements [326 IAC 2-8-4(3)]

C.9 Performance Testing [326 IAC 3-6]

- (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.10 Compliance Requirements [326 IAC 2-1.1-11]

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 2-8-4] [326 IAC 2-8-5(a)(1)]

C.11 Compliance Monitoring [326 IAC 2-8-4(3)] [326 IAC 2-8-5(a)(1)]

Unless otherwise specified in this permit, all monitoring and record keeping requirements not already legally required shall be implemented within ninety (90) days of permit issuance. If required by Section D, the Permittee shall be responsible for installing any necessary equipment and initiating any required monitoring related to that equipment. If due to circumstances beyond its control, that equipment cannot be installed and operated within ninety (90) days, the Permittee may extend the compliance schedule related to the equipment for an additional ninety (90) days provided the Permittee notifies:

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

in writing, prior to the end of the initial ninety (90) day compliance schedule, with full justification of the reasons for the inability to meet this date.

The notification 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).

Unless otherwise specified in the approval for the new emission unit(s), compliance monitoring for new emission units or emission units added through a permit revision shall be implemented when operation begins.

C.12 Monitoring Methods [326 IAC 3] [40 CFR 60] [40 CFR 63]

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.

Corrective Actions and Response Steps [326 IAC 2-8-4] [326 IAC 2-8-5(a)(1)]

C.13 Risk Management Plan [326 IAC 2-8-4] [40 CFR 68]

If a regulated substance, as defined in 40 CFR 68, is present at a source in more than a threshold quantity, the Permittee must comply with the applicable requirements of 40 CFR 68.

C.14 Response to Abnormal or Out-of-Range Compliance Monitoring Measurements [326 IAC 2-8-4] [326 IAC 2-8-5]

(a) Upon detecting a measurement required by a compliance monitoring condition of this permit that is outside the normal or usual range of values for the monitoring parameter, 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 abnormal or out-of-range monitoring values (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 normal or usual operating range, as applicable.
- (c) A determination of whether the Permittee has used acceptable procedures in response to a measurement indicating abnormal or out-of-range values 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;
 - (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.
- (f) The existence of an abnormal or out-of-range value for a compliance monitoring condition is not a deviation from this permit. The existence of the abnormal or out-of-range value may be evidence that an emission limitation or standard may have been exceeded.

C.15 Actions Related to Noncompliance Demonstrated by a Stack Test [326 IAC 2-8-4] [326 IAC 2-8-5]

- (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 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 2-8-4(3)]

C.16 General Record Keeping Requirements [326 IAC 2-8-4(3)] [326 IAC 2-8-5]

- (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 2-8-4(3)(C)] [326 IAC 2-1.1-11]

- (a) The Permittee shall submit the attached Quarterly Deviation and Compliance Monitoring Report or its equivalent. Any deviation from permit requirements, the date(s) of each deviation, the cause of the deviation, and the response steps taken must be reported. This report shall be submitted within thirty (30) days of the end of the reporting period. The Quarterly Deviation and Compliance Monitoring Report shall include the certification by an "authorized individual" as defined by 326 IAC 2-1.1-1(1).
- (b) The report required in (a) of this condition and 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
- (c) 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.
- (d) 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).
- (e) 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.
- (h) The Permittee shall make the information required to be documented and maintained in accordance with (c) in Section C - General Record Keeping Requirements available for review upon a request for inspection by IDEM, OAQ. The general public may request this information from the IDEM, OAQ under 326 IAC 17.1.

Stratospheric Ozone Protection

C.18 Compliance with 40 CFR 82 and 326 IAC 22-1

The Permittee shall comply with all applicable provisions of 40 CFR Part 82, wherever applicable to activities at the source.

SECTION D.1

FACILITY OPERATION CONDITIONS

Facility Description [326 IAC 2-8-4(1)]: Boilers

- (a) One (1) natural gas-fired boiler using No. 2 fuel oil as backup, identified as 254-1, installed in 1963, exhausting through Stack 254-1, heat input capacity: 51.0 million British thermal units per hour.
- (b) One (1) natural gas-fired boiler using No. 2 fuel oil as backup, identified as 254-2, installed in 1967, exhausting through Stack 254-2, heat input capacity: 63.0 million British thermal units per hour.
- (c) One (1) natural gas-fired boiler using No. 2 fuel oil as backup, identified as 254-3, installed in 1973, exhausting through Stack 254-3, heat input capacity: 67.0 million British thermal units per hour.
- (d) One (1) natural gas-fired boiler using No. 2 fuel oil as backup, identified as 254-4, installed in 1977, exhausting through Stack 254-4, heat input capacity: 78.0 million British thermal units per hour.
- (e) One (1) natural gas-fired boiler using No. 2 fuel oil as backup, identified as 254-R, installed in 2006, exhausting through Stack 254-R, heat input capacity: 82.3 million British thermal units per hour. This is an affected facility under NSPS Subpart Dc.

Insignificant Activities

- (a) Three (3) natural gas-fired boilers, identified as 229-1, 229-2 and 293-1, which were installed in 1997, 1997 and 1998, respectively, heat input capacities: 1.8, 1.8, and 2.1 million British thermal units per hour, respectively. [326 IAC 6-2]

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

Emission Limitations and Standards [326 IAC 2-8-4(1)]

D.1.1 PSD and FESOP Minor Limits [326 IAC 2-2] [326 IAC 2-8] [326 IAC 7-1.1] [326 IAC 7-2]

- (a) The total usage of natural gas for the eight (8) boilers, identified as 254-1, 254-2, 254-3, 254-4, 254-R, 229-1, 229-2 and 293-1 shall be less than 738.0 million cubic feet per twelve (12) consecutive month period, with compliance determined at the end of each month. Each gallon of No. 2 (distillate) fuel oil is equivalent to 200 cubic feet of natural gas.
- (b) The total usage of No.2 (distillate) fuel oil for the five (5) boilers, identified as 254-1, 254-2, 254-3, 254-4 and 254-R shall not exceed 3,332,000 gallons per twelve (12) consecutive month period with compliance determined at the end of each month and the sulfur content of the No.2 (distillate) fuel oil shall be limited to 0.35%.
 - (1) Compliance with this sulfur content limit will also satisfy the requirements for 326 IAC 7-1.1 (Sulfur Dioxide Emission Limitations). Pursuant to 326 IAC 7-2-1, compliance with this limit shall be demonstrated on a calendar month average.

As a result of these limitations, the potential to emit SO₂ is limited to 83.0 tons per year, CO is limited to 31.0 tons per year, and NO_x is limited to 36.9 tons per year from these facilities. Thus, the potential to emit SO₂, CO and NO_x is limited to less than one hundred (100) tons per year from the entire source, including the potential to emit from all other facilities. These limits render the requirements of PSD (326 IAC 2-2) and Part 70 (326 IAC 2-7) not applicable.

D.1.2 Nitrogen Oxides (NO_x) From Boiler 254-4 [326 IAC 2-8-4(12)(A)] [326 IAC 2-2-3]

Pursuant to 326 IAC 2-2-3 (PSD BACT), as determined in Construction Permit No. 30-07-93-0074, nitrogen oxide emissions from boiler 254-4 shall be limited to 0.23 pounds per million Btu heat input.

D.1.3 Particulate [326 IAC 6-2-2(b), (c)]

- (a) Pursuant to 326 IAC 6-2-2(b), the particulate matter emissions from the two (2) boilers; identified as 254-1 and 254-2, shall each not exceed 0.39 pound per million British thermal units (lb/mmBtu).
- (b) Pursuant to 326 IAC 6-2-2(c), the particulate matter emissions from boiler 254-3 shall not exceed 0.35 pound per million British thermal units (lb/mmBtu).

These limitations are based on the following equation:

$$Pt = 0.87 / Q^{0.16}$$

Where:

Pt = Pounds of particulate matter emitted per million Btu (lb/mmBtu) heat input.

Q = Total source maximum operating capacity rating in million Btu per hour (mmBtu/hr) heat input. The maximum operating capacity rating is defined as the maximum capacity at which the facility is operated or the nameplate capacity, whichever is specified in the facility's operation permit application, except when some lower capacity is contained in the facility's operation permit, in which case, the capacity specified in the operation permit shall be used.

D.1.4 Particulate [326 IAC 6-2-1] [326 IAC 6-2-4]

- (a) Pursuant to 326 IAC 6-2-4, the PM emissions from the one (1) boiler, identified as 254-R, shall not exceed 0.24 pound per million British thermal units.
- (b) Pursuant to 326 IAC 6-2-4, the particulate matter emissions from the one (1) boiler; identified as 229-1, shall not exceed 0.23 pound per million British thermal units (lb/mmBtu).
- (c) Pursuant to 326 IAC 6-2-4, the particulate matter emissions from the one (1) boiler; identified as 229-2, shall not exceed 0.23 pound per million British thermal units (lb/mmBtu).
- (d) Pursuant to 326 IAC 6-2-4, the particulate matter emissions from the one (1) boiler; identified as 293-1, shall not exceed 0.23 pound per million British thermal units (lb/mmBtu).
- (e) Pursuant to 326 IAC 6-2-1(g) and Construction Permit No.: 30-07-93-0074, the particulate matter emissions from boiler 254-4 shall not exceed 0.015 lb/mmBtu.

These limitations are based on the following equation:

$$Pt = 1.09/Q^{0.26}$$

Where:

Pt = Pounds of particulate matter emitted per million Btu (lb/mmBtu) heat input.

Q = Total source maximum operating capacity rating in million Btu per hour (mmBtu/hr) heat input. The maximum operating capacity rating is defined as the maximum capacity at which the facility is operated or the nameplate capacity, whichever is specified in the facility's permit application, except when some lower capacity is contained in the facility's operation permit; in which case, the capacity specified in the operation permit shall be used.

D.1.5 Preventive Maintenance Plan [326 IAC 2-7-5(13)]

A Preventive Maintenance Plan, in accordance with Section B - Preventive Maintenance Plan, of this permit, is required for boilers identified as 254-1, 254-2, 254-3, 254-4, and 254-R when combusting No. 2 fuel oil only.

Compliance Determination Requirements

D.1.6 Sulfur Dioxide Emissions and Sulfur Content

Compliance with Conditions D.1.1(b) shall be determined utilizing one of the following options:

- (a) Pursuant to 326 IAC 3-7-4, the Permittee shall demonstrate that the sulfur dioxide emissions do not exceed the sulfur content limitation in Condition D.1.1(b) by:
 - (1) Providing vendor analysis of fuel delivered, if accompanied by a vendor certification, or;
 - (2) Analyzing the oil sample to determine the sulfur content of the oil via the procedures in 40 CFR 60, Appendix A, Method 19.
 - (A) Oil samples may be collected from the fuel tank immediately after the fuel tank is filled and before any oil is combusted; and
 - (B) If a partially empty fuel tank is refilled, a new sample and analysis would be required upon filling.
- (b) Compliance may also be determined by conducting a stack test for sulfur dioxide emissions from the boilers using 40 CFR 60, Appendix A, Method 6 in accordance with the procedures in 326 IAC 3-6.

A determination of noncompliance pursuant to any of the methods specified in (a) or (b) above shall not be refuted by evidence of compliance pursuant to the other method.

Compliance Monitoring Requirements [326 IAC 2-7-6(1)] [326 IAC 2-7-5(1)]

D.1.7 Visible Emissions Notations

- (a) Visible emission notations of the five (5) boilers, identified as 254-1, 254-2, 254-3, 254-4 and 254-R, stack exhausts shall be performed once per day during normal daylight operations when combusting No. 2 fuel oil. A trained employee shall record whether emissions are normal or abnormal.
- (b) For processes operated continuously, "normal" means those conditions prevailing, or expected to prevail, eighty percent (80%) of the time the process is in operation, not counting startup or shut down time.
- (c) In the case of batch or discontinuous operations, readings shall be taken during that part of the operation that would normally be expected to cause the greatest emissions.
- (d) A trained employee is an employee who has worked at the plant at least one (1) month and has been trained in the appearance and characteristics of normal visible emissions for that specific process.
- (e) If abnormal emissions are observed, the Permittee shall take reasonable response steps in accordance with Section C - Response to Abnormal or Out-of-Range Compliance Monitoring Measurements. Failure to take response steps in accordance with Section C - Response to Abnormal or Out-of-Range Compliance Monitoring Measurements shall be considered a deviation from this permit.

Record Keeping and Reporting Requirement [326 IAC 2-7-5(3)] [326 IAC 2-7-19]

D.1.8 Record Keeping Requirements

- (a) To document compliance with Condition D.1.1, the Permittee shall maintain records in

accordance with (1) through (9) below. Records maintained for (1) through (9) shall be taken monthly and shall be complete and sufficient to establish compliance with the SO₂, NO_x, and CO emission limits established in Condition D.1.1.

- (1) Calendar dates covered in the compliance determination period;
- (2) Actual fuel oil usage each month;
- (3) Actual natural gas usage each month;
- (4) Average sulfur content of fuel oil used;
- (5) Average higher heating value of the fuel oil used;
- (6) Average sulfur dioxide emission rate for boilers;

If the fuel supplier certification is used to demonstrate compliance, when burning alternate fuels and not determining compliance pursuant to 326 IAC 3-7-4, the following, as a minimum, shall be maintained:

- (7) Fuel supplier certifications;
 - (8) The name of the fuel supplier; and
 - (9) A statement from the fuel supplier that certifies the sulfur content of the fuel oil.
- (b) To document compliance with Condition D.1.7, the Permittee shall maintain a daily record of visible emission notations of the five (5) boilers, identified as 254-1, 254-2, 254-3, 254-4 and 254-R, stack exhausts while combusting fuel oil. The Permittee shall include in its daily record when a visible emission notation is not taken and the reason for the lack of visible emission notation (i.e., the boilers did not operate that day).

D.1.9 Reporting Requirements

- (a) The Permittee shall certify, on the form provided, that natural gas was fired in the boiler at all times during each quarter. Alternatively, the Permittee shall report the number of days during which an alternate fuel was burned during each quarter. The natural gas-fired boiler certification does require the certification by the “authorized individual” as defined by 326 IAC 2-1.1-1(1). The report submitted by the Permittee does require the certification by the “authorized individual” as defined by 326 IAC 2-1.1-1(1).
- (b) A quarterly summary of the information to document compliance with Condition D.1.1 shall be submitted to the address listed in Section C - General Reporting Requirements, of this permit, using the reporting forms located at the end of this permit, or their equivalent, within thirty (30) days after the end of the six (6) month period being reported. The report submitted by the Permittee does require the certification by the “authorized individual” as defined by 326 IAC 2-1.1-1(1).

New Source Performance Standards (NSPS) Requirements [326 IAC 12-1]

D.1.10 General Provisions Relating to NSPS Dc [326 IAC 12-1] [40 CFR Part 60, Subpart A]

- (a) Pursuant to 40 CFR 60.1, the Permittee shall comply with the provisions of 40 CFR Part 60, Subpart A – General Provisions, which are incorporated by reference as 326 IAC 12-1-1 for the one (1) boiler, identified as 254-R.
- (b) Pursuant to 40 CFR 60.10, the Permittee shall submit all required notifications and reports to:

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

D.1.11 NSPS Dc (Standards for Performance of Small Industrial-Commercial-Institutional Steam Generating Units) Requirements [40 CFR Part 60, Subpart Dc] [326 IAC 12-1]

Pursuant to CFR Part 60, Subpart Dc, the Permittee shall comply with the provisions of 40 CFR Part 60, Subpart Dc for the one (1) boiler identified as 254-R as specified as follows. The full text of Subpart Dc may be found in Attachment A to this Permit.

- (1) 40 CFR 60.40c: Applicability and delegation of authority
- (2) 40 CFR 60.41c: Definitions
- (3) 40 CFR 60.42c (d), (g), (h)(1), (i) and (j): Standard for sulfur dioxide (SO₂)
- (4) 40 CFR 60.43c (c) and (d): Standard for particulate matter (PM)
- (5) 40 CFR 60.44c (g) and (h): Compliance and performance test methods and procedures for sulfur dioxide
- (6) 40 CFR 60.45c (a)(8): Compliance and performance test methods and procedures for particulate matter
- (7) 40 CFR 60.46c (e): Emission monitoring for sulfur dioxide
- (8) 40 CFR 60.48c (a), (b), (d), (e)(1), (e)(2), (e)(4), (e)(5), (e)(11), (f)(1), (g), (i) and (j): Reporting and recordkeeping requirements

SECTION D.2

FACILITY OPERATION CONDITIONS

Facility Description [326 IAC 2-8-4(1)]: Incinerator

- (f) One (1) natural gas-fired, multi chamber Consumat incinerator, identified as 241-1, installed in 1981, exhausting through Stack 241-1, capacity: 350 pounds of waste per hour, heat input capacity: 2.8 million British thermal units per hour.

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

Emission Limitations and Standards [326 IAC 2-8-4(1)]

D.2.1 Incinerator [326 IAC 4-2-2]

Pursuant to 326 IAC 4-2-2, the one (1) natural gas-fired incinerator, identified as 241-1, shall:

- (a) Consist of primary and secondary chambers or the equivalent.
- (b) Be equipped with a primary burner unless burning only wood products.
- (c) Comply with 326 IAC 5-1 and 326 IAC 2.
- (d) Be maintained, operated, and burn waste in accordance with:
 - (1) The manufacturer's specifications; or
 - (2) An operation and maintenance plan as specified in 326 IAC 4-2-2(c) as follows:
 - (A) The operation and maintenance plan must be designed to meet the particulate matter emission limitation specified in Condition D.2.1(e) and include the following:
 - (i) Procedures for receiving, handling, and charging waste.
 - (ii) Procedures for incinerator startup and shutdown.
 - (iii) Procedures for responding to a malfunction.
 - (iv) Procedures for maintaining proper combustion air supply levels.
 - (v) Procedures for operating the incinerator and associated air pollution control systems.
 - (vi) Procedures for handling ash.
 - (vii) A list of wastes that can be burned in the incinerator.
 - (B) Each incinerator operator shall review the plan before initial implementation of the operation and maintenance plan and annually thereafter.
 - (C) The operation and maintenance plan must be readily accessible to incinerator operators.

- (D) The owner or operator of the incinerator shall notify the department, in writing, thirty (30) days after the operation and maintenance plan is initially developed pursuant to this section; and
- (e) Not emit particulate matter (PM) emissions in excess of 0.3 pound per 1,000 pounds of dry exhaust gas under standard conditions corrected to 50% excess air.

If any of the requirements above are not met, then the Permittee shall stop charging the incinerator until adjustments are made that address the underlying cause of the deviation.

D.2.2 Carbon Monoxide [326 IAC 9-1-2]

Pursuant to 326 IAC 9-1-2(a)(3), the Permittee shall not operate a refuse incinerator or refuse burning equipment unless the waste gas stream is burned in a direct-flame afterburner or secondary chamber.

D.2.3 Hazardous Air Pollutants (HAPs) Limitations [326 IAC 2-8]

- (a) The total annual waste throughput to the incinerator shall be less than a total of 591 tons per twelve (12) consecutive month period, with compliance determined at the end of each month.

Compliance with the waste throughput and use of the EPA emission factor for HCl emissions for incinerators, combined with the unrestricted potential to emit HAPs from all other facilities at the source, shall limit the potential to emit any single HAP to less than ten (10) tons per year, and the potential to emit of total combined HAPs to less than twenty-five (25) tons per year, with compliance determined at the end of each month, and shall render the requirements of 326 IAC 2-7, Part 70 not applicable to the source.

D.2.4 Medical Waste Incinerator Emission Guideline Exemption [326 IAC 12] [40 CFR Part 60.30e, Subpart Ce]

The weight of the fuel feed stream to incinerator, identified as 241-1, shall be comprised of ten percent (10%) or less, in aggregate, of hospital waste and medical/infectious waste as measured on a calendar quarter basis. Compliance with this limit and the record keeping requirement in Section D.2.7, qualifies the incinerator, ID#241-1 as a "co-fired combustor" as defined by 40 CFR 60.51c and exempts it from 40 CFR Part 60.30e, Subpart Ce.

D.2.5 40 CFR Part 60.2500, Subpart DDDD Emission Guidelines for Existing Sources: Commercial and Industrial Solid Waste Incineration Units [326 IAC 12] [40 CFR Part 60.2500]

The weight of the waste-feed stream to the incinerator identified as 241-1, shall be comprised of thirty percent (30%) or greater, in aggregate, of municipal solid waste or refuse-derived fuel, as defined in 40 CFR 60 Subpart Ea, Subpart Eb, Subpart AAAA and Subpart BBBB, and the incinerator has the capacity to burn less than 35 tons/day municipal solid waste or refuse-derived fuel, as measured on a calendar quarter basis. As specified in 40 CFR 60.2555(c), due to the above limit and the record keeping requirement in Section D.2.7, the incinerator is exempt from 40 CFR Part 60, Subpart DDDD.

D.2.6 40 CFR Part 60.2980, Subpart FFFF New Source Performance Standard for Other Solid Waste Incineration Units That Commenced Construction On or Before December 9, 2004 [326 IAC 11-9] [326 IAC 12] [40 CFR Part 60.2980]

The requirements of the New Source Performance Standard for Other Solid Waste Incineration Units That Commenced Construction On or Before December 9, 2004, 40 CFR 60.2980, Subpart FFFF, do not apply to the one (1) natural gas-fired, multi chamber Consumat incinerator, identified as 241-1. The unit is exempt from subpart FFFF because the facility does not meet the definition of other solid waste incineration (OSWI) under 40 CFR 60.3078. This facility does not accept waste materials for incineration other than those generated on site.

Record Keeping and Reporting Requirement [326 IAC 2-7-5(3)] [326 IAC 2-7-19]

D.2.7 Record Keeping Requirements

To document compliance with Conditions D.2.3, D.2.4 and D.2.5, the Permittee shall maintain records in accordance with (1) and (2) below. Records maintained for (1) and (2) shall be taken monthly and shall be complete and sufficient to establish compliance with the waste throughput limits established in Conditions D.2.3, D.2.4 and D.2.5. Records necessary to demonstrate compliance shall be available within 30 days of the end of each compliance period.

- (1) Total throughput of waste burned per month in the incinerator.
- (2) The weight on a calendar quarter basis, in aggregate of hospital waste and medical/infectious waste, the weight of municipal waste combusted, and the weight of all other fuels and waste combusted in the incinerator.

D.2.8 Reporting Requirements

A quarterly summary of the information to document compliance with Condition D.2.3 shall be submitted to the address listed in Section C - General Reporting Requirements, of this permit, using the reporting forms located at the end of this permit, or their equivalent, within thirty (30) days after the end of the quarter being reported. The report submitted by the Permittee does require the certification by the "authorized individual" as defined by 326 IAC 2-1.1-1(1).

SECTION D.3

FACILITY OPERATION CONDITIONS

Facility Description [326 IAC 2-8-4(1)] of Insignificant Activity [326 IAC 2-7-1(21)]: Emergency Generator

- (k) One (1) No. 2 fuel oil-fired emergency generator, approved for construction in 2007, rated at 1490 horsepower (hp), with a heat input capacity of 10.42 million British thermal units per hour, identified as 254-EG. Under 40 CFR 60, Subpart IIII, this unit is considered to be an emergency stationary internal combustion engine.

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

New Source Performance Standards (NSPS) Requirements [326 IAC 2-8-4(1)]

D.3.1 General Provisions Relating to New Source Performance Standards [326 IAC 12-1] [40 CFR Part 60, Subpart A]

- (a) Pursuant to 40 CFR 60.1, the Permittee shall comply with the provisions of 40 CFR Part 60 Subpart A – General Provisions, which are incorporated by reference as 326 IAC 12-1 for emergency generator 254-EG, except as otherwise specified in 40 CFR Part 60, Subpart IIII.

- (b) Pursuant to 40 CFR 60.19, the Permittee shall submit all required notifications and reports to:

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

D.3.2 Standards of Performance for Stationary Compression Ignition Internal Combustion Engines [40 CFR Part 60, Subpart IIII] [326 IAC 12]

Pursuant to 40 CFR Part 60, Subpart IIII, the Permittee shall comply with the provisions of Standards of Performance for Stationary Compression Ignition Internal Combustion Engines, which are incorporated by reference as 326 IAC 12, for emergency generator 254-EG as follows. The full text of Subpart IIII may be found in Attachment B to this permit.

- (1) 40 CFR 60.4200(a)(2): Am I subject to this subpart?
- (2) 40 CFR 60.4200(a)(3): Am I subject to this subpart?
- (3) 40 CFR 60.4205(a): What emission standards must I meet for emergency engines if I am an owner or operator of a stationary CI internal combustion engine?
- (4) 40 CFR 60.4206: How long must I meet the emission standards if I am an owner or operator of a stationary CI internal combustion engine?
- (5) 40 CFR 60.4207(a), (b) and (c): What fuel requirements must I meet if I am an owner or operator of a stationary CI internal combustion engine subject to this subpart?
- (6) 40 CFR 60.4208: What is the deadline for importing or installing stationary CI ICE produced in the previous model year?
- (7) 40 CFR 60.4209(a): What are the monitoring requirements if I am an owner or operator of a stationary CI internal combustion engine?
- (8) 40 CFR 60.4211(a), (b) and (e): What are my compliance requirements if I am an owner or operator of a stationary CI internal combustion engine?
- (9) 40 CFR 60.4212: What test methods and other procedures must I use if I am an owner or operator of a stationary CI internal combustion engine with a displacement of less than 30 liters per cylinder?

- (10) 40 CFR 60.4214(b): What are my notification, reporting, and recordkeeping requirements if I am an owner or operator of a stationary CI internal combustion engine?
- (11) 40 CFR 60.4218: What parts of the General Provisions apply to me?
- (12) 40 CFR 60.4219: What definitions apply to this subpart?
- (13) Table 1: Emission Standards for Stationary Pre-2007 Model Year Engines With a Displacement of <10 Liters per Cylinder and 2007-2010 Model Year Engines >2,237 KW (3,000 HP) and With a Displacement of <10 Liters per Cylinder
- (14) Table 8: Applicability of General Provisions to Subpart IIII

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

**FEDERALLY ENFORCEABLE STATE OPERATING PERMIT (FESOP)
CERTIFICATION**

Source Name: Eli Lilly and Company – Greenfield Laboratories
Source Address: 2001 West Main Street, Greenfield, Indiana 46140
Mailing Address: P.O. Box 708, Greenfield, Indiana 46140
FESOP No.: F 059-23436-00001

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 Certification Letter
- 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
100 North Senate Avenue
MC 61-53 IGCN 1003
Indianapolis, Indiana 46204-2251
Phone: 317-233-0178
Fax: 317-233-6865**

**FEDERALLY ENFORCEABLE STATE OPERATING PERMIT (FESOP)
EMERGENCY OCCURRENCE REPORT**

Source Name: Eli Lilly and Company – Greenfield Laboratories
Source Address: 2001 West Main Street, Greenfield, Indiana 46140
Mailing Address: P.O. Box 708, Greenfield, Indiana 46140
FESOP No.: F 059-23436-00001

This form consists of 2 pages

Page 1 of 2

- | |
|---|
| <input type="checkbox"/> This is an emergency as defined in 326 IAC 2-7-1(12) <ul style="list-style-type: none">• The Permittee must notify the Office of Air Quality (OAQ), within four (4) business hours (1-800-451-6027 or 317-233-0178, ask for Compliance Section); and• The Permittee must submit notice in writing or by facsimile within two (2) working days (Facsimile Number: 317-233-6865), and follow the other requirements of 326 IAC 2-7-16 |
|---|

If any of the following are not applicable, mark N/A

Facility/Equipment/Operation:
Control Equipment:
Permit Condition or Operation Limitation in Permit:
Description of the Emergency:
Describe the cause of the Emergency:

If any of the following are not applicable, mark N/A

Page 2 of 2

Date/Time Emergency started:
Date/Time Emergency was corrected:
Was the facility being properly operated at the time of the emergency? Y N Describe:
Type of Pollutants Emitted: TSP, PM-10, SO ₂ , VOC, NO _x , CO, Pb, other:
Estimated amount of pollutant(s) emitted during emergency:
Describe the steps taken to mitigate the problem:
Describe the corrective actions/response steps taken:
Describe the measures taken to minimize emissions:
If applicable, describe the reasons why continued operation of the facilities are necessary to prevent imminent injury to persons, severe damage to equipment, substantial loss of capital investment, or loss of product or raw materials of substantial economic value:

Form Completed by: _____

Title / Position: _____

Date: _____

Phone: _____

A certification is not required for this report.

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

**FEDERALLY ENFORCEABLE STATE OPERATING PERMIT (FESOP)
QUARTERLY NATURAL GAS-FIRED BOILER CERTIFICATION**

Source Name: Eli Lilly and Company – Greenfield Laboratories
Source Address: 2001 West Main Street, Greenfield, Indiana 46140
Mailing Address: P.O. Box 708, Greenfield, Indiana 46140
FESOP No.: F 059-23436-00001

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

Report period

Beginning: _____

Ending: _____

Boiler Affected

Alternate Fuel

Days burning alternate fuel

From

To

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:

Attach a signed certification to complete this report.

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

FESOP Quarterly Report

Source Name: Eli Lilly and Company – Greenfield Laboratories
Source Address: 2001 West Main Street, Greenfield, Indiana 46140
Mailing Address: P.O. Box 708, Greenfield, Indiana 46140
FESOP No.: F 059-23436-00001
Facilities: Eight (8) boilers, identified as 254-1, 254-2, 254-3, 254-4, 254-R, 229-1, 229-2 and 293-1.
Parameter: Natural gas usage.
Limits: Less than 738 million cubic feet of natural gas per twelve (12) consecutive month period, with compliance determined at the end of each month. Each gallon of No. 2 fuel oil used shall be considered equivalent to using 200 cubic feet of natural gas.

QUARTER: _____ YEAR: _____

Month	Natural gas usage (mmcf)	Natural gas usage (mmcf)	Natural gas usage (mmcf)

- No deviation occurred in this quarter.
 Deviation/s occurred in this quarter.
Deviation has been reported on _____

Submitted by: _____

Title/Position: _____

Signature: _____

Date: _____

Phone: _____

Attach a signed certification to complete this report.

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

FESOP Quarterly Report

Source Name: Eli Lilly and Company – Greenfield Laboratories
Source Address: 2001 West Main Street, Greenfield, Indiana 46140
Mailing Address: P.O. Box 708, Greenfield, Indiana 46140
FESOP No.: F 059-23436-00001
Facility: Eight (8) boilers, identified as 254-1, 254-2, 254-3, 254-4, 254-R, 229-1, 229-2 and 293-1.
Parameter: Fuel oil usage.
Limits: Less than 3,332 kgals of fuel oil per twelve (12) consecutive month period, with compliance determined at the end of each month.

QUARTER: _____ YEAR: _____

Month	Fuel oil usage (gallons)	Fuel oil usage (gallons)	Fuel oil usage (gallons)

- No deviation occurred in this quarter.
- Deviation/s occurred in this quarter.
Deviation has been reported on _____

Submitted by: _____

Title/Position: _____

Signature: _____

Date: _____

Phone: _____

Attach a signed certification to complete this report.

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

FESOP Quarterly Report

Source Name: Eli Lilly and Company – Greenfield Laboratories
 Source Address: 2001 West Main Street, Greenfield, Indiana 46140
 Mailing Address: P.O. Box 708, Greenfield, Indiana 46140
 FESOP No.: F 059-23436-00001
 Facility: One (1) natural gas-fired incinerator, identified as 241-1.
 Parameter: Waste throughput
 Limit: Less than 591 tons of waste per twelve (12) consecutive month period, with compliance determined at the end of each month.

QUARTER: _____ YEAR: _____

Month	Waste Throughput (tons)	Waste Throughput (tons)	Column 1 + Column 2 (tons)
	This Month	Previous 11 Months	12 Month Total

- No deviation occurred in this quarter.
- Deviation/s occurred in this quarter.
 Deviation has been reported on _____

Submitted by: _____

Title/Position: _____

Signature: _____

Date: _____

Phone: _____

Attach a signed certification to complete this report.

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

**FEDERALLY ENFORCEABLE STATE OPERATING PERMIT (FESOP)
QUARTERLY DEVIATION AND COMPLIANCE MONITORING REPORT**

Source Name: Eli Lilly and Company – Greenfield Laboratories
Source Address: 2001 West Main Street, Greenfield, Indiana 46140
Mailing Address: P.O. Box 708, Greenfield, Indiana 46140
FESOP No.: F 059-23436-00001

Months: _____ to _____ Year: _____

Page 1 of 2

<p>This report shall be submitted quarterly based on a calendar year. Any deviation from the requirements, the date(s) of each deviation, the probable cause of the deviation, and the response steps taken must be reported. A deviation required to be reported pursuant to an applicable requirement that exists independent of the permit, shall be reported according to the schedule stated in the applicable requirement and does not need to be included in this report. Additional pages may be attached if necessary. If no deviations occurred, please specify in the box marked "No deviations occurred this reporting period".</p>	
<input type="checkbox"/> NO DEVIATIONS OCCURRED THIS REPORTING PERIOD.	
<input type="checkbox"/> THE FOLLOWING DEVIATIONS OCCURRED THIS REPORTING PERIOD	
Permit Requirement (specify permit condition #)	
Date of Deviation:	Duration of Deviation:
Number of Deviations:	
Probable Cause of Deviation:	
Response Steps Taken:	
Permit Requirement (specify permit condition #)	
Date of Deviation:	Duration of Deviation:
Number of Deviations:	
Probable Cause of Deviation:	
Response Steps Taken:	

Permit Requirement (specify permit condition #)	
Date of Deviation:	Duration of Deviation:
Number of Deviations:	
Probable Cause of Deviation:	
Response Steps Taken:	
Permit Requirement (specify permit condition #)	
Date of Deviation:	Duration of Deviation:
Number of Deviations:	
Probable Cause of Deviation:	
Response Steps Taken:	
Permit Requirement (specify permit condition #)	
Date of Deviation:	Duration of Deviation:
Number of Deviations:	
Probable Cause of Deviation:	
Response Steps Taken:	

Form Completed by: _____

Title / Position: _____

Date: _____

Phone: _____

A certification is not required for this report.

Indiana Department of Environmental Management
Office of Air Quality

Attachment A for a
Federally Enforceable State Operating Permit (FESOP) Renewal

Source Background and Description

Source Name:	Eli Lilly and Company – Greenfield Laboratories
Source Location:	2001 West Main Street, Greenfield, Indiana 46140
County:	Hancock
SIC Code:	2834, 2879
Permit Renewal No.:	F059-23436-00001
Permit Reviewer:	Stephanie Wilkerson

Title 40: Protection of Environment

PART 60—STANDARDS OF PERFORMANCE FOR NEW STATIONARY SOURCES

Subpart Dc—Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units

Source: 72 FR 32759, June 13, 2007, unless otherwise noted.

§ 60.40c Applicability and delegation of authority.

(a) Except as provided in paragraph (d) of this section, the affected facility to which this subpart applies is each steam generating unit for which construction, modification, or reconstruction is commenced after June 9, 1989 and that has a maximum design heat input capacity of 29 megawatts (MW) (100 million British thermal units per hour (MMBtu/hr)) or less, but greater than or equal to 2.9 MW (10 MMBtu/hr).

(b) In delegating implementation and enforcement authority to a State under section 111(c) of the Clean Air Act, §60.48c(a)(4) shall be retained by the Administrator and not transferred to a State.

(c) Steam generating units that meet the applicability requirements in paragraph (a) of this section are not subject to the sulfur dioxide (SO₂) or particulate matter (PM) emission limits, performance testing requirements, or monitoring requirements under this subpart (§§60.42c, 60.43c, 60.44c, 60.45c, 60.46c, or 60.47c) during periods of combustion research, as defined in §60.41c.

(d) Any temporary change to an existing steam generating unit for the purpose of conducting combustion research is not considered a modification under §60.14.

(e) Heat recovery steam generators that are associated with combined cycle gas turbines and meet the applicability requirements of subpart GG or KKKK of this part are not subject to this subpart. This subpart will continue to apply to all other heat recovery steam generators that are capable of combusting more than or equal to 2.9 MW (10 MMBtu/hr) heat input of fossil fuel but less than or equal to 29 MW (100 MMBtu/hr) heat input of fossil fuel. If the heat recovery steam generator is subject to this subpart, only emissions resulting from combustion of fuels in the steam generating unit are subject to this subpart. (The gas turbine emissions are subject to subpart GG or KKKK, as applicable, of this part).

(f) Any facility covered by subpart AAAA of this part is not covered by this subpart.

(g) Any facility covered by an EPA approved State or Federal section 111(d)/129 plan implementing subpart BBBB of this part is not covered by this subpart.

§ 60.41c Definitions.

As used in this subpart, all terms not defined herein shall have the meaning given them in the Clean Air Act and in subpart A of this part.

Annual capacity factor means the ratio between the actual heat input to a steam generating unit from an individual fuel or combination of fuels during a period of 12 consecutive calendar months and the potential heat input to the steam generating unit from all fuels had the steam generating unit been operated for 8,760 hours during that 12-month period at the maximum design heat input capacity. In the case of steam generating units that are rented or leased, the actual heat input shall be determined based on the combined heat input from all operations of the affected facility during a period of 12 consecutive calendar months.

Coal means all solid fuels classified as anthracite, bituminous, subbituminous, or lignite by the American Society of Testing and Materials in ASTM D388 (incorporated by reference, see §60.17), coal refuse, and petroleum coke. Coal-derived synthetic fuels derived from coal for the purposes of creating useful heat, including but not limited to solvent refined coal, gasified coal, coal-oil mixtures, and coal-water mixtures, are also included in this definition for the purposes of this subpart.

Coal refuse means any by-product of coal mining or coal cleaning operations with an ash content greater than 50 percent (by weight) and a heating value less than 13,900 kilojoules per kilogram (kJ/kg) (6,000 Btu per pound (Btu/lb) on a dry basis.

Cogeneration steam generating unit means a steam generating unit that simultaneously produces both electrical (or mechanical) and thermal energy from the same primary energy source.

Combined cycle system means a system in which a separate source (such as a stationary gas turbine, internal combustion engine, or kiln) provides exhaust gas to a steam generating unit.

Combustion research means the experimental firing of any fuel or combination of fuels in a steam generating unit for the purpose of conducting research and development of more efficient combustion or more effective prevention or control of air pollutant emissions from combustion, provided that, during these periods of research and development, the heat generated is not used for any purpose other than preheating combustion air for use by that steam generating unit (*i.e.* , the heat generated is released to the atmosphere without being used for space heating, process heating, driving pumps, preheating combustion air for other units, generating electricity, or any other purpose).

Conventional technology means wet flue gas desulfurization technology, dry flue gas desulfurization technology, atmospheric fluidized bed combustion technology, and oil hydrodesulfurization technology.

Distillate oil means fuel oil that complies with the specifications for fuel oil numbers 1 or 2, as defined by the American Society for Testing and Materials in ASTM D396 (incorporated by reference, see §60.17).

Dry flue gas desulfurization technology means a SO₂control system that is located between the steam generating unit and the exhaust vent or stack, and that removes sulfur oxides from the combustion gases of the steam generating unit by contacting the combustion gases with an alkaline reagent and water, whether introduced separately or as a premixed slurry or solution and forming a dry powder material. This definition includes devices where the dry powder material is subsequently converted to another form. Alkaline reagents used in dry flue gas desulfurization systems include, but are not limited to, lime and sodium compounds.

Duct burner means a device that combusts fuel and that is placed in the exhaust duct from another source (such as a stationary gas turbine, internal combustion engine, kiln, etc.) to allow the firing of additional fuel to heat the exhaust gases before the exhaust gases enter a steam generating unit.

Emerging technology means any SO₂control system that is not defined as a conventional technology under this section, and for which the owner or operator of the affected facility has received approval from the Administrator to operate as an emerging technology under §60.48c(a)(4).

Federally enforceable means all limitations and conditions that are enforceable by the Administrator, including the requirements of 40 CFR parts 60 and 61, requirements within any applicable State implementation plan, and any permit requirements established under 40 CFR 52.21 or under 40 CFR 51.18 and 51.24.

Fluidized bed combustion technology means a device wherein fuel is distributed onto a bed (or series of beds) of limestone aggregate (or other sorbent materials) for combustion; and these materials are forced upward in the device by the flow of combustion air and the gaseous products of combustion. Fluidized bed combustion technology includes, but is not limited to, bubbling bed units and circulating bed units.

Fuel pretreatment means a process that removes a portion of the sulfur in a fuel before combustion of the fuel in a steam generating unit.

Heat input means heat derived from combustion of fuel in a steam generating unit and does not include the heat derived from preheated combustion air, recirculated flue gases, or exhaust gases from other sources (such as stationary gas turbines, internal combustion engines, and kilns).

Heat transfer medium means any material that is used to transfer heat from one point to another point.

Maximum design heat input capacity means the ability of a steam generating unit to combust a stated maximum amount of fuel (or combination of fuels) on a steady state basis as determined by the physical design and characteristics of the steam generating unit.

Natural gas means: (1) A naturally occurring mixture of hydrocarbon and nonhydrocarbon gases found in geologic formations beneath the earth's surface, of which the principal constituent is methane; or (2) liquefied petroleum (LP) gas, as defined by the American Society for Testing and Materials in ASTM D1835 (incorporated by reference, see §60.17).

Noncontinental area means the State of Hawaii, the Virgin Islands, Guam, American Samoa, the Commonwealth of Puerto Rico, or the Northern Mariana Islands.

Oil means crude oil or petroleum, or a liquid fuel derived from crude oil or petroleum, including distillate oil and residual oil.

Potential sulfur dioxide emission rate means the theoretical SO₂ emissions (nanograms per joule (ng/J) or lb/MMBtu heat input) that would result from combusting fuel in an uncleaned state and without using emission control systems.

Process heater means a device that is primarily used to heat a material to initiate or promote a chemical reaction in which the material participates as a reactant or catalyst.

Residual oil means crude oil, fuel oil that does not comply with the specifications under the definition of distillate oil, and all fuel oil numbers 4, 5, and 6, as defined by the American Society for Testing and Materials in ASTM D396 (incorporated by reference, see §60.17).

Steam generating unit means a device that combusts any fuel and produces steam or heats water or any other heat transfer medium. This term includes any duct burner that combusts fuel and is part of a combined cycle system. This term does not include process heaters as defined in this subpart.

Steam generating unit operating day means a 24-hour period between 12:00 midnight and the following midnight during which any fuel is combusted at any time in the steam generating unit. It is not necessary for fuel to be combusted continuously for the entire 24-hour period.

Wet flue gas desulfurization technology means an SO₂ control system that is located between the steam generating unit and the exhaust vent or stack, and that removes sulfur oxides from the combustion gases of the steam generating unit by contacting the combustion gases with an alkaline slurry or solution and forming a liquid material. This definition includes devices where the liquid material is subsequently converted to

another form. Alkaline reagents used in wet flue gas desulfurization systems include, but are not limited to, lime, limestone, and sodium compounds.

Wet scrubber system means any emission control device that mixes an aqueous stream or slurry with the exhaust gases from a steam generating unit to control emissions of PM or SO₂.

Wood means wood, wood residue, bark, or any derivative fuel or residue thereof, in any form, including but not limited to sawdust, sanderdust, wood chips, scraps, slabs, millings, shavings, and processed pellets made from wood or other forest residues.

§ 60.42c Standard for sulfur dioxide (SO₂).

(a) Except as provided in paragraphs (b), (c), and (e) of this section, on and after the date on which the performance test is completed or required to be completed under §60.8, whichever date comes first, the owner or operator of an affected facility that combusts only coal shall neither: cause to be discharged into the atmosphere from the affected facility any gases that contain SO₂ in excess of 87 ng/J (0.20 lb/MMBtu) heat input or 10 percent (0.10) of the potential SO₂ emission rate (90 percent reduction), nor cause to be discharged into the atmosphere from the affected facility any gases that contain SO₂ in excess of 520 ng/J (1.2 lb/MMBtu) heat input. If coal is combusted with other fuels, the affected facility shall neither: cause to be discharged into the atmosphere from the affected facility any gases that contain SO₂ in excess of 87 ng/J (0.20 lb/MMBtu) heat input or 10 percent (0.10) of the potential SO₂ emission rate (90 percent reduction), nor cause to be discharged into the atmosphere from the affected facility any gases that contain SO₂ in excess of the emission limit is determined pursuant to paragraph (e)(2) of this section.

(b) Except as provided in paragraphs (c) and (e) of this section, on and after the date on which the performance test is completed or required to be completed under §60.8, whichever date comes first, the owner or operator of an affected facility that:

(1) Combusts only coal refuse alone in a fluidized bed combustion steam generating unit shall neither:

(i) Cause to be discharged into the atmosphere from that affected facility any gases that contain SO₂ in excess of 87 ng/J (0.20 lb/MMBtu) heat input or 20 percent (0.20) of the potential SO₂ emission rate (80 percent reduction); nor

(ii) Cause to be discharged into the atmosphere from that affected facility any gases that contain SO₂ in excess of SO₂ in excess of 520 ng/J (1.2 lb/MMBtu) heat input. If coal is fired with coal refuse, the affected facility subject to paragraph (a) of this section. If oil or any other fuel (except coal) is fired with coal refuse, the affected facility is subject to the 87 ng/J (0.20 lb/MMBtu) heat input SO₂ emissions limit or the 90 percent SO₂ reduction requirement specified in paragraph (a) of this section and the emission limit is determined pursuant to paragraph (e)(2) of this section.

(2) Combusts only coal and that uses an emerging technology for the control of SO₂ emissions shall neither:

(i) Cause to be discharged into the atmosphere from that affected facility any gases that contain SO₂ in excess of 50 percent (0.50) of the potential SO₂ emission rate (50 percent reduction); nor

(ii) Cause to be discharged into the atmosphere from that affected facility any gases that contain SO₂ in excess of 260 ng/J (0.60 lb/MMBtu) heat input. If coal is combusted with other fuels, the affected facility is subject to the 50 percent SO₂ reduction requirement specified in this paragraph and the emission limit determined pursuant to paragraph (e)(2) of this section.

(c) On and after the date on which the initial performance test is completed or required to be completed under §60.8, whichever date comes first, no owner or operator of an affected facility that combusts coal, alone or in combination with any other fuel, and is listed in paragraphs (c)(1), (2), (3), or (4) of this section shall cause to be discharged into the atmosphere from that affected facility any gases that contain SO₂ in excess of the emission limit determined pursuant to paragraph (e)(2) of this section. Percent reduction requirements are not applicable to affected facilities under paragraphs (c)(1), (2), (3), or (4).

- (1) Affected facilities that have a heat input capacity of 22 MW (75 MMBtu/hr) or less.
 - (2) Affected facilities that have an annual capacity for coal of 55 percent (0.55) or less and are subject to a federally enforceable requirement limiting operation of the affected facility to an annual capacity factor for coal of 55 percent (0.55) or less.
 - (3) Affected facilities located in a noncontinental area.
 - (4) Affected facilities that combust coal in a duct burner as part of a combined cycle system where 30 percent (0.30) or less of the heat entering the steam generating unit is from combustion of coal in the duct burner and 70 percent (0.70) or more of the heat entering the steam generating unit is from exhaust gases entering the duct burner.
- (d) On and after the date on which the initial performance test is completed or required to be completed under §60.8, whichever date comes first, no owner or operator of an affected facility that combusts oil shall cause to be discharged into the atmosphere from that affected facility any gases that contain SO₂ in excess of 215 ng/J (0.50 lb/MMBtu) heat input; or, as an alternative, no owner or operator of an affected facility that combusts oil shall combust oil in the affected facility that contains greater than 0.5 weight percent sulfur. The percent reduction requirements are not applicable to affected facilities under this paragraph.
- (e) On and after the date on which the initial performance test is completed or required to be completed under §60.8, whichever date comes first, no owner or operator of an affected facility that combusts coal, oil, or coal and oil with any other fuel shall cause to be discharged into the atmosphere from that affected facility any gases that contain SO₂ in excess of the following:

(1) The percent of potential SO₂ emission rate or numerical SO₂ emission rate required under paragraph (a) or (b)(2) of this section, as applicable, for any affected facility that

- (i) Combusts coal in combination with any other fuel;
- (ii) Has a heat input capacity greater than 22 MW (75 MMBtu/hr); and
- (iii) Has an annual capacity factor for coal greater than 55 percent (0.55); and

(2) The emission limit determined according to the following formula for any affected facility that combusts coal, oil, or coal and oil with any other fuel:

$$E_s = \frac{(K_a H_a + K_b H_b + K_c H_c)}{(H_a + H_b + H_c)}$$

Where:

E_s = SO₂ emission limit, expressed in ng/J or lb/MMBtu heat input;

K_a = 520 ng/J (1.2 lb/MMBtu);

K_b = 260 ng/J (0.60 lb/MMBtu);

K_c = 215 ng/J (0.50 lb/MMBtu);

H_a = Heat input from the combustion of coal, except coal combusted in an affected facility subject to paragraph (b)(2) of this section, in Joules (J) [MMBtu];

H_b = Heat input from the combustion of coal in an affected facility subject to paragraph (b)(2) of this section, in J (MMBtu); and

$H_cK_aH_b$ = Heat input from the combustion of oil, in J (MMBtu).

(f) Reduction in the potential SO₂emission rate through fuel pretreatment is not credited toward the percent reduction requirement under paragraph (b)(2) of this section unless:

(1) Fuel pretreatment results in a 50 percent (0.50) or greater reduction in the potential SO₂emission rate; and

(2) Emissions from the pretreated fuel (without either combustion or post-combustion SO₂control) are equal to or less than the emission limits specified under paragraph (b)(2) of this section.

(g) Except as provided in paragraph (h) of this section, compliance with the percent reduction requirements, fuel oil sulfur limits, and emission limits of this section shall be determined on a 30-day rolling average basis.

(h) For affected facilities listed under paragraphs (h)(1), (2), or (3) of this section, compliance with the emission limits or fuel oil sulfur limits under this section may be determined based on a certification from the fuel supplier, as described under §60.48c(f), as applicable.

(1) Distillate oil-fired affected facilities with heat input capacities between 2.9 and 29 MW (10 and 100 MMBtu/hr).

(2) Residual oil-fired affected facilities with heat input capacities between 2.9 and 8.7 MW (10 and 30 MMBtu/hr).

(3) Coal-fired facilities with heat input capacities between 2.9 and 8.7 MW (10 and 30 MMBtu/hr).

(i) The SO₂emission limits, fuel oil sulfur limits, and percent reduction requirements under this section apply at all times, including periods of startup, shutdown, and malfunction.

(j) Only the heat input supplied to the affected facility from the combustion of coal and oil is counted under this section. No credit is provided for the heat input to the affected facility from wood or other fuels or for heat derived from exhaust gases from other sources, such as stationary gas turbines, internal combustion engines, and kilns.

§ 60.43c Standard for particulate matter (PM).

(a) On and after the date on which the initial performance test is completed or required to be completed under §60.8, whichever date comes first, no owner or operator of an affected facility that commenced construction, reconstruction, or modification on or before February 28, 2005, that combusts coal or combusts mixtures of coal with other fuels and has a heat input capacity of 8.7 MW (30 MMBtu/hr) or greater, shall cause to be discharged into the atmosphere from that affected facility any gases that contain PM in excess of the following emission limits:

(1) 22 ng/J (0.051 lb/MMBtu) heat input if the affected facility combusts only coal, or combusts coal with other fuels and has an annual capacity factor for the other fuels of 10 percent (0.10) or less.

(2) 43 ng/J (0.10 lb/MMBtu) heat input if the affected facility combusts coal with other fuels, has an annual capacity factor for the other fuels greater than 10 percent (0.10), and is subject to a federally enforceable requirement limiting operation of the affected facility to an annual capacity factor greater than 10 percent (0.10) for fuels other than coal.

(b) On and after the date on which the initial performance test is completed or required to be completed under §60.8, whichever date comes first, no owner or operator of an affected facility that commenced

construction, reconstruction, or modification on or before February 28, 2005, that combusts wood or combusts mixtures of wood with other fuels (except coal) and has a heat input capacity of 8.7 MW (30 MMBtu/hr) or greater, shall cause to be discharged into the atmosphere from that affected facility any gases that contain PM in excess of the following emissions limits:

(1) 43 ng/J (0.10 lb/MMBtu) heat input if the affected facility has an annual capacity factor for wood greater than 30 percent (0.30); or

(2) 130 ng/J (0.30 lb/MMBtu) heat input if the affected facility has an annual capacity factor for wood of 30 percent (0.30) or less and is subject to a federally enforceable requirement limiting operation of the affected facility to an annual capacity factor for wood of 30 percent (0.30) or less.

(c) On and after the date on which the initial performance test is completed or required to be completed under §60.8, whichever date comes first, no owner or operator of an affected facility that combusts coal, wood, or oil and has a heat input capacity of 8.7 MW (30 MMBtu/hr) or greater shall cause to be discharged into the atmosphere from that affected facility any gases that exhibit greater than 20 percent opacity (6-minute average), except for one 6-minute period per hour of not more than 27 percent opacity.

(d) The PM and opacity standards under this section apply at all times, except during periods of startup, shutdown, or malfunction.

(e)(1) On and after the date on which the initial performance test is completed or is required to be completed under §60.8, whichever date comes first, no owner or operator of an affected facility that commences construction, reconstruction, or modification after February 28, 2005, and that combusts coal, oil, wood, a mixture of these fuels, or a mixture of these fuels with any other fuels and has a heat input capacity of 8.7 MW (30 MMBtu/hr) or greater shall cause to be discharged into the atmosphere from that affected facility any gases that contain PM in excess of 13 ng/J (0.030 lb/MMBtu) heat input, except as provided in paragraphs (e)(2), (e)(3), and (e)(4) of this section.

(2) As an alternative to meeting the requirements of paragraph (e)(1) of this section, the owner or operator of an affected facility for which modification commenced after February 28, 2005, may elect to meet the requirements of this paragraph. On and after the date on which the initial performance test is completed or required to be completed under §60.8, whichever date comes first, no owner or operator of an affected facility that commences modification after February 28, 2005 shall cause to be discharged into the atmosphere from that affected facility any gases that contain PM in excess of both:

(i) 22 ng/J (0.051 lb/MMBtu) heat input derived from the combustion of coal, oil, wood, a mixture of these fuels, or a mixture of these fuels with any other fuels; and

(ii) 0.2 percent of the combustion concentration (99.8 percent reduction) when combusting coal, oil, wood, a mixture of these fuels, or a mixture of these fuels with any other fuels.

(3) On and after the date on which the initial performance test is completed or is required to be completed under §60.8, whichever date comes first, no owner or operator of an affected facility that commences modification after February 28, 2005, and that combusts over 30 percent wood (by heat input) on an annual basis and has a heat input capacity of 8.7 MW (30 MMBtu/hr) or greater shall cause to be discharged into the atmosphere from that affected facility any gases that contain PM in excess of 43 ng/J (0.10 lb/MMBtu) heat input.

(4) On and after the date on which the initial performance test is completed or is required to be completed under §60.8, whichever date comes first, an owner or operator of an affected facility that commences construction, reconstruction, or modification after February 28, 2005, and that combusts only oil that contains no more than 0.50 weight percent sulfur or a mixture of 0.50 weight percent sulfur oil with other fuels not subject to a PM standard under §60.43c and not using a post-combustion technology (except a wet scrubber) to reduce PM or SO₂ emissions is not subject to the PM limit in this section.

§ 60.44c Compliance and performance test methods and procedures for sulfur dioxide.

(a) Except as provided in paragraphs (g) and (h) of this section and §60.8(b), performance tests required under §60.8 shall be conducted following the procedures specified in paragraphs (b), (c), (d), (e), and (f) of this section, as applicable. Section 60.8(f) does not apply to this section. The 30-day notice required in §60.8(d) applies only to the initial performance test unless otherwise specified by the Administrator.

(b) The initial performance test required under §60.8 shall be conducted over 30 consecutive operating days of the steam generating unit. Compliance with the percent reduction requirements and SO₂emission limits under §60.42c shall be determined using a 30-day average. The first operating day included in the initial performance test shall be scheduled within 30 days after achieving the maximum production rate at which the affect facility will be operated, but not later than 180 days after the initial startup of the facility. The steam generating unit load during the 30-day period does not have to be the maximum design heat input capacity, but must be representative of future operating conditions.

(c) After the initial performance test required under paragraph (b) of this section and §60.8, compliance with the percent reduction requirements and SO₂emission limits under §60.42c is based on the average percent reduction and the average SO₂emission rates for 30 consecutive steam generating unit operating days. A separate performance test is completed at the end of each steam generating unit operating day, and a new 30-day average percent reduction and SO₂emission rate are calculated to show compliance with the standard.

(d) If only coal, only oil, or a mixture of coal and oil is combusted in an affected facility, the procedures in Method 19 of appendix A of this part are used to determine the hourly SO₂emission rate (E_{ho}) and the 30-day average SO₂emission rate (E_{ao}). The hourly averages used to compute the 30-day averages are obtained from the CEMS. Method 19 of appendix A of this part shall be used to calculate E_{ao}when using daily fuel sampling or Method 6B of appendix A of this part.

(e) If coal, oil, or coal and oil are combusted with other fuels:

(1) An adjusted E_{ho}(E_{ho0}) is used in Equation 19–19 of Method 19 of appendix A of this part to compute the adjusted E_{ao}(E_{ao0}). The E_{ho0} is computed using the following formula:

$$E_{ho0} = \frac{E_{ho} - E_w(1 - X_k)}{X_k}$$

Where:

E_{ho0} = Adjusted E_{ho}, ng/J (lb/MMBtu);

E_{ho}= Hourly SO₂emission rate, ng/J (lb/MMBtu);

E_w= SO₂concentration in fuels other than coal and oil combusted in the affected facility, as determined by fuel sampling and analysis procedures in Method 9 of appendix A of this part, ng/J (lb/MMBtu). The value E_wfor each fuel lot is used for each hourly average during the time that the lot is being combusted. The owner or operator does not have to measure E_wif the owner or operator elects to assume E_w= 0.

X_k= Fraction of the total heat input from fuel combustion derived from coal and oil, as determined by applicable procedures in Method 19 of appendix A of this part.

(2) The owner or operator of an affected facility that qualifies under the provisions of §60.42c(c) or (d) (where percent reduction is not required) does not have to measure the parameters E_wor X_kif the owner or operator of the affected facility elects to measure emission rates of the coal or oil using the fuel sampling and analysis procedures under Method 19 of appendix A of this part.

(f) Affected facilities subject to the percent reduction requirements under §60.42c(a) or (b) shall determine compliance with the SO₂emission limits under §60.42c pursuant to paragraphs (d) or (e) of this section, and shall determine compliance with the percent reduction requirements using the following procedures:

(1) If only coal is combusted, the percent of potential SO₂ emission rate is computed using the following formula:

$$\%P_s = 100 \left(1 - \frac{\%R_g}{100} \right) \left(1 - \frac{\%R_f}{100} \right)$$

Where:

%P_s = Potential SO₂ emission rate, in percent;

%R_g = SO₂ removal efficiency of the control device as determined by Method 19 of appendix A of this part, in percent; and

%R_f = SO₂ removal efficiency of fuel pretreatment as determined by Method 19 of appendix A of this part, in percent.

(2) If coal, oil, or coal and oil are combusted with other fuels, the same procedures required in paragraph (f)(1) of this section are used, except as provided for in the following:

(i) To compute the %P_s, an adjusted %R_g (%R_go) is computed from E_{ao}o from paragraph (e)(1) of this section and an adjusted average SO₂ inlet rate (E_{ai}o) using the following formula:

$$\%R_{g^o} = 100 \left(1 - \frac{E_w^o}{E_{ai}^o} \right)$$

Where:

%R_go = Adjusted %R_g, in percent;

E_{ao}o = Adjusted E_{ao}, ng/J (lb/MMBtu); and

E_{ai}o = Adjusted average SO₂ inlet rate, ng/J (lb/MMBtu).

(ii) To compute E_{ai}o, an adjusted hourly SO₂ inlet rate (E_{hi}o) is used. The E_{hi}o is computed using the following formula:

$$E_{hi^o} = \frac{E_{hi} - E_w(1 - X_k)}{X_k}$$

Where:

E_{hi}o = Adjusted E_{hi}, ng/J (lb/MMBtu);

E_{hi} = Hourly SO₂ inlet rate, ng/J (lb/MMBtu);

E_w = SO₂ concentration in fuels other than coal and oil combusted in the affected facility, as determined by fuel sampling and analysis procedures in Method 19 of appendix A of this part, ng/J (lb/MMBtu). The value E_w for each fuel lot is used for each hourly average during the time that the lot is being combusted. The owner or operator does not have to measure E_w if the owner or operator elects to assume E_w = 0; and

X_k = Fraction of the total heat input from fuel combustion derived from coal and oil, as determined by applicable procedures in Method 19 of appendix A of this part.

(g) For oil-fired affected facilities where the owner or operator seeks to demonstrate compliance with the fuel oil sulfur limits under §60.42c based on shipment fuel sampling, the initial performance test shall consist of sampling and analyzing the oil in the initial tank of oil to be fired in the steam generating unit to demonstrate that the oil contains 0.5 weight percent sulfur or less. Thereafter, the owner or operator of the affected facility shall sample the oil in the fuel tank after each new shipment of oil is received, as described under §60.46c(d)(2).

(h) For affected facilities subject to §60.42c(h)(1), (2), or (3) where the owner or operator seeks to demonstrate compliance with the SO₂ standards based on fuel supplier certification, the performance test shall consist of the certification, the certification from the fuel supplier, as described under §60.48c(f), as applicable.

(i) The owner or operator of an affected facility seeking to demonstrate compliance with the SO₂ standards under §60.42c(c)(2) shall demonstrate the maximum design heat input capacity of the steam generating unit by operating the steam generating unit at this capacity for 24 hours. This demonstration shall be made during the initial performance test, and a subsequent demonstration may be requested at any other time. If the demonstrated 24-hour average firing rate for the affected facility is less than the maximum design heat input capacity stated by the manufacturer of the affected facility, the demonstrated 24-hour average firing rate shall be used to determine the annual capacity factor for the affected facility; otherwise, the maximum design heat input capacity provided by the manufacturer shall be used.

(j) The owner or operator of an affected facility shall use all valid SO₂ emissions data in calculating %P_s and E_{h0} under paragraphs (d), (e), or (f) of this section, as applicable, whether or not the minimum emissions data requirements under §60.46c(f) are achieved. All valid emissions data, including valid data collected during periods of startup, shutdown, and malfunction, shall be used in calculating %P_s or E_{h0} pursuant to paragraphs (d), (e), or (f) of this section, as applicable.

§ 60.45c Compliance and performance test methods and procedures for particulate matter.

(a) The owner or operator of an affected facility subject to the PM and/or opacity standards under §60.43c shall conduct an initial performance test as required under §60.8, and shall conduct subsequent performance tests as requested by the Administrator, to determine compliance with the standards using the following procedures and reference methods, except as specified in paragraph (c) of this section.

(1) Method 1 of appendix A of this part shall be used to select the sampling site and the number of traverse sampling points.

(2) Method 3 of appendix A of this part shall be used for gas analysis when applying Method 5, 5B, or 17 of appendix A of this part.

(3) Method 5, 5B, or 17 of appendix A of this part shall be used to measure the concentration of PM as follows:

(i) Method 5 of appendix A of this part may be used only at affected facilities without wet scrubber systems.

(ii) Method 17 of appendix A of this part may be used at affected facilities with or without wet scrubber systems provided the stack gas temperature does not exceed a temperature of 160 °C (320 °F). The procedures of Sections 8.1 and 11.1 of Method 5B of appendix A of this part may be used in Method 17 of appendix A of this part only if Method 17 of appendix A of this part is used in conjunction with a wet scrubber system. Method 17 of appendix A of this part shall not be used in conjunction with a wet scrubber system if the effluent is saturated or laden with water droplets.

(iii) Method 5B of appendix A of this part may be used in conjunction with a wet scrubber system.

(4) The sampling time for each run shall be at least 120 minutes and the minimum sampling volume shall be 1.7 dry standard cubic meters (dscm) [60 dry standard cubic feet (dscf)] except that smaller sampling times or volumes may be approved by the Administrator when necessitated by process variables or other factors.

(5) For Method 5 or 5B of appendix A of this part, the temperature of the sample gas in the probe and filter holder shall be monitored and maintained at 160 ± 14 °C (320 ± 25 °F).

(6) For determination of PM emissions, an oxygen (O₂) or carbon dioxide (CO₂) measurement shall be obtained simultaneously with each run of Method 5, 5B, or 17 of appendix A of this part by traversing the duct at the same sampling location.

(7) For each run using Method 5, 5B, or 17 of appendix A of this part, the emission rates expressed in ng/J (lb/MMBtu) heat input shall be determined using:

(i) The O₂ or CO₂ measurements and PM measurements obtained under this section, (ii) The dry basis F factor, and

(iii) The dry basis emission rate calculation procedure contained in Method 19 of appendix A of this part.

(8) Method 9 of appendix A of this part (6-minute average of 24 observations) shall be used for determining the opacity of stack emissions.

(b) The owner or operator of an affected facility seeking to demonstrate compliance with the PM standards under §60.43c(b)(2) shall demonstrate the maximum design heat input capacity of the steam generating unit by operating the steam generating unit at this capacity for 24 hours. This demonstration shall be made during the initial performance test, and a subsequent demonstration may be requested at any other time. If the demonstrated 24-hour average firing rate for the affected facility is less than the maximum design heat input capacity stated by the manufacturer of the affected facility, the demonstrated 24-hour average firing rate shall be used to determine the annual capacity factor for the affected facility; otherwise, the maximum design heat input capacity provided by the manufacturer shall be used.

(c) In place of PM testing with EPA Reference Method 5, 5B, or 17 of appendix A of this part, an owner or operator may elect to install, calibrate, maintain, and operate a CEMS for monitoring PM emissions discharged to the atmosphere and record the output of the system. The owner or operator of an affected facility who elects to continuously monitor PM emissions instead of conducting performance testing using EPA Method 5, 5B, or 17 of appendix A of this part shall install, calibrate, maintain, and operate a CEMS and shall comply with the requirements specified in paragraphs (c)(1) through (c)(13) of this section.

(1) Notify the Administrator 1 month before starting use of the system.

(2) Notify the Administrator 1 month before stopping use of the system.

(3) The monitor shall be installed, evaluated, and operated in accordance with §60.13 of subpart A of this part.

(4) The initial performance evaluation shall be completed no later than 180 days after the date of initial startup of the affected facility, as specified under §60.8 of subpart A of this part or within 180 days of notification to the Administrator of use of CEMS if the owner or operator was previously determining compliance by Method 5, 5B, or 17 of appendix A of this part performance tests, whichever is later.

(5) The owner or operator of an affected facility shall conduct an initial performance test for PM emissions as required under §60.8 of subpart A of this part. Compliance with the PM emission limit shall be determined by using the CEMS specified in paragraph (d) of this section to measure PM and calculating a 24-hour block arithmetic average emission concentration using EPA Reference Method 19 of appendix A of this part, section 4.1.

(6) Compliance with the PM emission limit shall be determined based on the 24-hour daily (block) average of the hourly arithmetic average emission concentrations using CEMS outlet data.

(7) At a minimum, valid CEMS hourly averages shall be obtained as specified in paragraph (d)(7)(i) of this section for 75 percent of the total operating hours per 30-day rolling average.

(i) At least two data points per hour shall be used to calculate each 1-hour arithmetic average.

(ii) [Reserved]

(8) The 1-hour arithmetic averages required under paragraph (d)(7) of this section shall be expressed in ng/J or lb/MMBtu heat input and shall be used to calculate the boiler operating day daily arithmetic average emission concentrations. The 1-hour arithmetic averages shall be calculated using the data points required under §60.13(e)(2) of subpart A of this part.

(9) All valid CEMS data shall be used in calculating average emission concentrations even if the minimum CEMS data requirements of paragraph (d)(7) of this section are not met.

(10) The CEMS shall be operated according to Performance Specification 11 in appendix B of this part.

(11) During the correlation testing runs of the CEMS required by Performance Specification 11 in appendix B of this part, PM and O₂(or CO₂) data shall be collected concurrently (or within a 30- to 60-minute period) by both the continuous emission monitors and the test methods specified in paragraph (d)(7)(i) of this section.

(i) For PM, EPA Reference Method 5, 5B, or 17 of appendix A of this part shall be used.

(ii) For O₂(or CO₂), EPA reference Method 3, 3A, or 3B of appendix A of this part, as applicable shall be used.

(12) Quarterly accuracy determinations and daily calibration drift tests shall be performed in accordance with procedure 2 in appendix F of this part. Relative Response Audits must be performed annually and Response Correlation Audits must be performed every 3 years.

(13) When PM emissions data are not obtained because of CEMS breakdowns, repairs, calibration checks, and zero and span adjustments, emissions data shall be obtained by using other monitoring systems as approved by the Administrator or EPA Reference Method 19 of appendix A of this part to provide, as necessary, valid emissions data for a minimum of 75 percent of total operating hours on a 30-day rolling average.

(d) The owner or operator of an affected facility seeking to demonstrate compliance under §60.43c(e)(4) shall follow the applicable procedures under §60.48c(f). For residual oil-fired affected facilities, fuel supplier certifications are only allowed for facilities with heat input capacities between 2.9 and 8.7 MW (10 to 30 MMBtu/hr).

§ 60.46c Emission monitoring for sulfur dioxide.

(a) Except as provided in paragraphs (d) and (e) of this section, the owner or operator of an affected facility subject to the SO₂emission limits under §60.42c shall install, calibrate, maintain, and operate a CEMS for measuring SO₂concentrations and either O₂or CO₂concentrations at the outlet of the SO₂control device (or the outlet of the steam generating unit if no SO₂control device is used), and shall record the output of the system. The owner or operator of an affected facility subject to the percent reduction requirements under §60.42c shall measure SO₂concentrations and either O₂or CO₂concentrations at both the inlet and outlet of the SO₂control device.

(b) The 1-hour average SO₂emission rates measured by a CEMS shall be expressed in ng/J or lb/MMBtu heat input and shall be used to calculate the average emission rates under §60.42c. Each 1-hour average

SO₂emission rate must be based on at least 30 minutes of operation, and shall be calculated using the data points required under §60.13(h)(2). Hourly SO₂emission rates are not calculated if the affected facility is operated less than 30 minutes in a 1-hour period and are not counted toward determination of a steam generating unit operating day.

(c) The procedures under §60.13 shall be followed for installation, evaluation, and operation of the CEMS.

(1) All CEMS shall be operated in accordance with the applicable procedures under Performance Specifications 1, 2, and 3 of appendix B of this part.

(2) Quarterly accuracy determinations and daily calibration drift tests shall be performed in accordance with Procedure 1 of appendix F of this part.

(3) For affected facilities subject to the percent reduction requirements under §60.42c, the span value of the SO₂CEMS at the inlet to the SO₂control device shall be 125 percent of the maximum estimated hourly potential SO₂emission rate of the fuel combusted, and the span value of the SO₂CEMS at the outlet from the SO₂control device shall be 50 percent of the maximum estimated hourly potential SO₂emission rate of the fuel combusted.

(4) For affected facilities that are not subject to the percent reduction requirements of §60.42c, the span value of the SO₂CEMS at the outlet from the SO₂control device (or outlet of the steam generating unit if no SO₂control device is used) shall be 125 percent of the maximum estimated hourly potential SO₂emission rate of the fuel combusted.

(d) As an alternative to operating a CEMS at the inlet to the SO₂control device (or outlet of the steam generating unit if no SO₂control device is used) as required under paragraph (a) of this section, an owner or operator may elect to determine the average SO₂emission rate by sampling the fuel prior to combustion. As an alternative to operating a CEMS at the outlet from the SO₂control device (or outlet of the steam generating unit if no SO₂control device is used) as required under paragraph (a) of this section, an owner or operator may elect to determine the average SO₂emission rate by using Method 6B of appendix A of this part. Fuel sampling shall be conducted pursuant to either paragraph (d)(1) or (d)(2) of this section. Method 6B of appendix A of this part shall be conducted pursuant to paragraph (d)(3) of this section.

(1) For affected facilities combusting coal or oil, coal or oil samples shall be collected daily in an as-fired condition at the inlet to the steam generating unit and analyzed for sulfur content and heat content according to the Method 19 of appendix A of this part. Method 19 of appendix A of this part provides procedures for converting these measurements into the format to be used in calculating the average SO₂input rate.

(2) As an alternative fuel sampling procedure for affected facilities combusting oil, oil samples may be collected from the fuel tank for each steam generating unit immediately after the fuel tank is filled and before any oil is combusted. The owner or operator of the affected facility shall analyze the oil sample to determine the sulfur content of the oil. If a partially empty fuel tank is refilled, a new sample and analysis of the fuel in the tank would be required upon filling. Results of the fuel analysis taken after each new shipment of oil is received shall be used as the daily value when calculating the 30-day rolling average until the next shipment is received. If the fuel analysis shows that the sulfur content in the fuel tank is greater than 0.5 weight percent sulfur, the owner or operator shall ensure that the sulfur content of subsequent oil shipments is low enough to cause the 30-day rolling average sulfur content to be 0.5 weight percent sulfur or less.

(3) Method 6B of appendix A of this part may be used in lieu of CEMS to measure SO₂at the inlet or outlet of the SO₂control system. An initial stratification test is required to verify the adequacy of the Method 6B of appendix A of this part sampling location. The stratification test shall consist of three paired runs of a suitable SO₂and CO₂measurement train operated at the candidate location and a second similar train operated according to the procedures in §3.2 and the applicable procedures in section 7 of Performance Specification 2 of appendix B of this part. Method 6B of appendix A of this part, Method 6A of appendix A of this part, or a combination of Methods 6 and 3 of appendix A of this part or Methods 6C and 3A of appendix A of this part are suitable measurement techniques. If Method 6B of appendix A of this part is used for the second train, sampling time and timer operation may be adjusted for the stratification test as long as an adequate sample volume is collected; however, both sampling trains are to be operated similarly. For the

location to be adequate for Method 6B of appendix A of this part 24-hour tests, the mean of the absolute difference between the three paired runs must be less than 10 percent (0.10).

(e) The monitoring requirements of paragraphs (a) and (d) of this section shall not apply to affected facilities subject to §60.42c(h) (1), (2), or (3) where the owner or operator of the affected facility seeks to demonstrate compliance with the SO₂ standards based on fuel supplier certification, as described under §60.48c(f), as applicable.

(f) The owner or operator of an affected facility operating a CEMS pursuant to paragraph (a) of this section, or conducting as-fired fuel sampling pursuant to paragraph (d)(1) of this section, shall obtain emission data for at least 75 percent of the operating hours in at least 22 out of 30 successive steam generating unit operating days. If this minimum data requirement is not met with a single monitoring system, the owner or operator of the affected facility shall supplement the emission data with data collected with other monitoring systems as approved by the Administrator.

§ 60.47c Emission monitoring for particulate matter.

(a) Except as provided in paragraphs (c), (d), (e), and (f) of this section, the owner or operator of an affected facility combusting coal, oil, or wood that is subject to the opacity standards under §60.43c shall install, calibrate, maintain, and operate a COMS for measuring the opacity of the emissions discharged to the atmosphere and record the output of the system.

(b) All COMS for measuring opacity shall be operated in accordance with the applicable procedures under Performance Specification 1 of appendix B of this part. The span value of the opacity COMS shall be between 60 and 80 percent.

(c) Affected facilities that burn only distillate oil that contains no more than 0.5 weight percent sulfur and/or liquid or gaseous fuels with potential sulfur dioxide emission rates of 26 ng/J (0.06 lb/MMBtu) heat input or less and that do not use a post-combustion technology to reduce SO₂ or PM emissions are not required to operate a CEMS for measuring opacity if they follow the applicable procedures under §60.48c(f).

(d) Owners or operators complying with the PM emission limit by using a PM CEMS monitor instead of monitoring opacity must calibrate, maintain, and operate a CEMS, and record the output of the system, for PM emissions discharged to the atmosphere as specified in §60.45c(d). The CEMS specified in paragraph §60.45c(d) shall be operated and data recorded during all periods of operation of the affected facility except for CEMS breakdowns and repairs. Data is recorded during calibration checks, and zero and span adjustments.

(e) An affected facility that does not use post-combustion technology (except a wet scrubber) for reducing PM, SO₂, or carbon monoxide (CO) emissions, burns only gaseous fuels or fuel oils that contain less than or equal to 0.5 weight percent sulfur, and is operated such that emissions of CO to the atmosphere from the affected facility are maintained at levels less than or equal to 0.15 lb/MMBtu on a boiler operating day average basis is not required to operate a COMS for measuring opacity. Owners and operators of affected facilities electing to comply with this paragraph must demonstrate compliance according to the procedures specified in paragraphs (e)(1) through (4) of this section.

(1) You must monitor CO emissions using a CEMS according to the procedures specified in paragraphs (e)(1)(i) through (iv) of this section.

(i) The CO CEMS must be installed, certified, maintained, and operated according to the provisions in §60.58b(i)(3) of subpart Eb of this part.

(ii) Each 1-hour CO emissions average is calculated using the data points generated by the CO CEMS expressed in parts per million by volume corrected to 3 percent oxygen (dry basis).

(iii) At a minimum, valid 1-hour CO emissions averages must be obtained for at least 90 percent of the operating hours on a 30-day rolling average basis. At least two data points per hour must be used to calculate each 1-hour average.

(iv) Quarterly accuracy determinations and daily calibration drift tests for the CO CEMS must be performed in accordance with procedure 1 in appendix F of this part.

(2) You must calculate the 1-hour average CO emissions levels for each steam generating unit operating day by multiplying the average hourly CO output concentration measured by the CO CEMS times the corresponding average hourly flue gas flow rate and divided by the corresponding average hourly heat input to the affected source. The 24-hour average CO emission level is determined by calculating the arithmetic average of the hourly CO emission levels computed for each steam generating unit operating day.

(3) You must evaluate the preceding 24-hour average CO emission level each steam generating unit operating day excluding periods of affected source startup, shutdown, or malfunction. If the 24-hour average CO emission level is greater than 0.15 lb/MMBtu, you must initiate investigation of the relevant equipment and control systems within 24 hours of the first discovery of the high emission incident and, take the appropriate corrective action as soon as practicable to adjust control settings or repair equipment to reduce the 24-hour average CO emission level to 0.15 lb/MMBtu or less.

(4) You must record the CO measurements and calculations performed according to paragraph (e) of this section and any corrective actions taken. The record of corrective action taken must include the date and time during which the 24-hour average CO emission level was greater than 0.15 lb/MMBtu, and the date, time, and description of the corrective action.

(f) An affected facility that burns only gaseous fuels or fuel oils that contain less than or equal to 0.5 weight percent sulfur and operates according to a written site-specific monitoring plan approved by the appropriate delegated permitting authority is not required to operate a COMS for measuring opacity. This monitoring plan must include procedures and criteria for establishing and monitoring specific parameters for the affected facility indicative of compliance with the opacity standard.

§ 60.48c Reporting and recordkeeping requirements.

(a) The owner or operator of each affected facility shall submit notification of the date of construction or reconstruction and actual startup, as provided by §60.7 of this part. This notification shall include:

(1) The design heat input capacity of the affected facility and identification of fuels to be combusted in the affected facility.

(2) If applicable, a copy of any federally enforceable requirement that limits the annual capacity factor for any fuel or mixture of fuels under §60.42c, or §60.43c.

(3) The annual capacity factor at which the owner or operator anticipates operating the affected facility based on all fuels fired and based on each individual fuel fired.

(4) Notification if an emerging technology will be used for controlling SO₂ emissions. The Administrator will examine the description of the control device and will determine whether the technology qualifies as an emerging technology. In making this determination, the Administrator may require the owner or operator of the affected facility to submit additional information concerning the control device. The affected facility is subject to the provisions of §60.42c(a) or (b)(1), unless and until this determination is made by the Administrator.

(b) The owner or operator of each affected facility subject to the SO₂ emission limits of §60.42c, or the PM or opacity limits of §60.43c, shall submit to the Administrator the performance test data from the initial and any subsequent performance tests and, if applicable, the performance evaluation of the CEMS and/or COMS using the applicable performance specifications in appendix B of this part.

(c) The owner or operator of each coal-fired, oil-fired, or wood-fired affected facility subject to the opacity limits under §60.43c(c) shall submit excess emission reports for any excess emissions from the affected facility that occur during the reporting period.

(d) The owner or operator of each affected facility subject to the SO₂emission limits, fuel oil sulfur limits, or percent reduction requirements under §60.42c shall submit reports to the Administrator.

(e) The owner or operator of each affected facility subject to the SO₂emission limits, fuel oil sulfur limits, or percent reduction requirements under §60.42c shall keep records and submit reports as required under paragraph (d) of this section, including the following information, as applicable.

(1) Calendar dates covered in the reporting period.

(2) Each 30-day average SO₂emission rate (ng/J or lb/MMBtu), or 30-day average sulfur content (weight percent), calculated during the reporting period, ending with the last 30-day period; reasons for any noncompliance with the emission standards; and a description of corrective actions taken.

(3) Each 30-day average percent of potential SO₂emission rate calculated during the reporting period, ending with the last 30-day period; reasons for any noncompliance with the emission standards; and a description of the corrective actions taken.

(4) Identification of any steam generating unit operating days for which SO₂or diluent (O₂or CO₂) data have not been obtained by an approved method for at least 75 percent of the operating hours; justification for not obtaining sufficient data; and a description of corrective actions taken.

(5) Identification of any times when emissions data have been excluded from the calculation of average emission rates; justification for excluding data; and a description of corrective actions taken if data have been excluded for periods other than those during which coal or oil were not combusted in the steam generating unit.

(6) Identification of the F factor used in calculations, method of determination, and type of fuel combusted.

(7) Identification of whether averages have been obtained based on CEMS rather than manual sampling methods.

(8) If a CEMS is used, identification of any times when the pollutant concentration exceeded the full span of the CEMS.

(9) If a CEMS is used, description of any modifications to the CEMS that could affect the ability of the CEMS to comply with Performance Specifications 2 or 3 of appendix B of this part.

(10) If a CEMS is used, results of daily CEMS drift tests and quarterly accuracy assessments as required under appendix F, Procedure 1 of this part.

(11) If fuel supplier certification is used to demonstrate compliance, records of fuel supplier certification is used to demonstrate compliance, records of fuel supplier certification as described under paragraph (f)(1), (2), (3), or (4) of this section, as applicable. In addition to records of fuel supplier certifications, the report shall include a certified statement signed by the owner or operator of the affected facility that the records of fuel supplier certifications submitted represent all of the fuel combusted during the reporting period.

(f) Fuel supplier certification shall include the following information:

(1) For distillate oil:

(i) The name of the oil supplier;

(ii) A statement from the oil supplier that the oil complies with the specifications under the definition of distillate oil in §60.41c; and

(iii) The sulfur content of the oil.

(2) For residual oil:

(i) The name of the oil supplier;

(ii) The location of the oil when the sample was drawn for analysis to determine the sulfur content of the oil, specifically including whether the oil was sampled as delivered to the affected facility, or whether the sample was drawn from oil in storage at the oil supplier's or oil refiner's facility, or other location;

(iii) The sulfur content of the oil from which the shipment came (or of the shipment itself); and

(iv) The method used to determine the sulfur content of the oil.

(3) For coal:

(i) The name of the coal supplier;

(ii) The location of the coal when the sample was collected for analysis to determine the properties of the coal, specifically including whether the coal was sampled as delivered to the affected facility or whether the sample was collected from coal in storage at the mine, at a coal preparation plant, at a coal supplier's facility, or at another location. The certification shall include the name of the coal mine (and coal seam), coal storage facility, or coal preparation plant (where the sample was collected);

(iii) The results of the analysis of the coal from which the shipment came (or of the shipment itself) including the sulfur content, moisture content, ash content, and heat content; and

(iv) The methods used to determine the properties of the coal.

(4) For other fuels:

(i) The name of the supplier of the fuel;

(ii) The potential sulfur emissions rate of the fuel in ng/J heat input; and

(iii) The method used to determine the potential sulfur emissions rate of the fuel.

(g)(1) Except as provided under paragraphs (g)(2) and (g)(3) of this section, the owner or operator of each affected facility shall record and maintain records of the amount of each fuel combusted during each operating day.

(2) As an alternative to meeting the requirements of paragraph (g)(1) of this section, the owner or operator of an affected facility that combusts only natural gas, wood, fuels using fuel certification in §60.48c(f) to demonstrate compliance with the SO₂ standard, fuels not subject to an emissions standard (excluding opacity), or a mixture of these fuels may elect to record and maintain records of the amount of each fuel combusted during each calendar month.

(3) As an alternative to meeting the requirements of paragraph (g)(1) of this section, the owner or operator of an affected facility or multiple affected facilities located on a contiguous property unit where the only fuels combusted in any steam generating unit (including steam generating units not subject to this subpart) at that property are natural gas, wood, distillate oil meeting the most current requirements in §60.42C to use fuel certification to demonstrate compliance with the SO₂ standard, and/or fuels, excluding coal and residual oil,

not subject to an emissions standard (excluding opacity) may elect to record and maintain records of the total amount of each steam generating unit fuel delivered to that property during each calendar month.

(h) The owner or operator of each affected facility subject to a federally enforceable requirement limiting the annual capacity factor for any fuel or mixture of fuels under §60.42c or §60.43c shall calculate the annual capacity factor individually for each fuel combusted. The annual capacity factor is determined on a 12-month rolling average basis with a new annual capacity factor calculated at the end of the calendar month.

(i) All records required under this section shall be maintained by the owner or operator of the affected facility for a period of two years following the date of such record.

(j) The reporting period for the reports required under this subpart is each six-month period. All reports shall be submitted to the Administrator and shall be postmarked by the 30th day following the end of the reporting period.

Indiana Department of Environmental Management
Office of Air Quality

Attachment B for a
Federally Enforceable State Operating Permit (FESOP) Renewal

Source Background and Description

Source Name:	Eli Lilly and Company – Greenfield Laboratories
Source Location:	2001 West Main Street, Greenfield, Indiana 46140
County:	Hancock
SIC Code:	2834, 2879
Permit Renewal No.:	F059-23436-00001
Permit Reviewer:	Stephanie Wilkerson

Title 40: Protection of Environment

PART 60—STANDARDS OF PERFORMANCE FOR NEW STATIONARY SOURCES

Subpart III—Standards of Performance for Stationary Compression Ignition Internal Combustion Engines

Source: 71 FR 39172, July 11, 2006, unless otherwise noted.

What This Subpart Covers

§ 60.4200 Am I subject to this subpart?

(a) The provisions of this subpart are applicable to manufacturers, owners, and operators of stationary compression ignition (CI) internal combustion engines (ICE) as specified in paragraphs (a)(1) through (3) of this section. For the purposes of this subpart, the date that construction commences is the date the engine is ordered by the owner or operator.

(1) Manufacturers of stationary CI ICE with a displacement of less than 30 liters per cylinder where the model year is:

(i) 2007 or later, for engines that are not fire pump engines,

(ii) The model year listed in table 3 to this subpart or later model year, for fire pump engines.

(2) Owners and operators of stationary CI ICE that commence construction after July 11, 2005 where the stationary CI ICE are:

(i) Manufactured after April 1, 2006 and are not fire pump engines, or

(ii) Manufactured as a certified National Fire Protection Association (NFPA) fire pump engine after July 1, 2006.

(3) Owners and operators of stationary CI ICE that modify or reconstruct their stationary CI ICE after July 11, 2005.

(b) The provisions of this subpart are not applicable to stationary CI ICE being tested at a stationary CI ICE test cell/stand.

(c) If you are an owner or operator of an area source subject to this subpart, you are exempt from the obligation to obtain a permit under 40 CFR part 70 or 40 CFR part 71, provided you are not required to obtain a permit under 40 CFR 70.3(a) or 40 CFR 71.3(a) for a reason other than your status as an area source under this subpart. Notwithstanding the previous sentence, you must continue to comply with the provisions of this subpart applicable to area sources.

(d) Stationary CI ICE may be eligible for exemption from the requirements of this subpart as described in 40 CFR part 1068, subpart C (or the exemptions described in 40 CFR part 89, subpart J and 40 CFR part 94, subpart J, for engines that would need to be certified to standards in those parts), except that owners and operators, as well as manufacturers, may be eligible to request an exemption for national security.

Emission Standards for Manufacturers

§ 60.4201 What emission standards must I meet for non-emergency engines if I am a stationary CI internal combustion engine manufacturer?

(a) Stationary CI internal combustion engine manufacturers must certify their 2007 model year and later non-emergency stationary CI ICE with a maximum engine power less than or equal to 2,237 kilowatt (KW) (3,000 horsepower (HP)) and a displacement of less than 10 liters per cylinder to the certification emission standards for new nonroad CI engines in 40 CFR 89.112, 40 CFR 89.113, 40 CFR 1039.101, 40 CFR 1039.102, 40 CFR 1039.104, 40 CFR 1039.105, 40 CFR 1039.107, and 40 CFR 1039.115, as applicable, for all pollutants, for the same model year and maximum engine power.

(b) Stationary CI internal combustion engine manufacturers must certify their 2007 through 2010 model year non-emergency stationary CI ICE with a maximum engine power greater than 2,237 KW (3,000 HP) and a displacement of less than 10 liters per cylinder to the emission standards in table 1 to this subpart, for all pollutants, for the same maximum engine power.

(c) Stationary CI internal combustion engine manufacturers must certify their 2011 model year and later non-emergency stationary CI ICE with a maximum engine power greater than 2,237 KW (3,000 HP) and a displacement of less than 10 liters per cylinder to the certification emission standards for new nonroad CI engines in 40 CFR 1039.101, 40 CFR 1039.102, 40 CFR 1039.104, 40 CFR 1039.105, 40 CFR 1039.107, and 40 CFR 1039.115, as applicable, for all pollutants, for the same maximum engine power.

(d) Stationary CI internal combustion engine manufacturers must certify their 2007 model year and later non-emergency stationary CI ICE with a displacement of greater than or equal to 10 liters per cylinder and less than 30 liters per cylinder to the certification emission standards for new marine CI engines in 40 CFR 94.8, as applicable, for all pollutants, for the same displacement and maximum engine power.

§ 60.4202 What emission standards must I meet for emergency engines if I am a stationary CI internal combustion engine manufacturer?

(a) Stationary CI internal combustion engine manufacturers must certify their 2007 model year and later emergency stationary CI ICE with a maximum engine power less than or equal to 2,237 KW (3,000 HP) and a displacement of less than 10 liters per cylinder that are not fire pump engines to the emission standards specified in paragraphs (a)(1) through (2) of this section.

(1) For engines with a maximum engine power less than 37 KW (50 HP):

(i) The certification emission standards for new nonroad CI engines for the same model year and maximum engine power in 40 CFR 89.112 and 40 CFR 89.113 for all pollutants for model year 2007 engines, and

(ii) The certification emission standards for new nonroad CI engines in 40 CFR 1039.104, 40 CFR 1039.105, 40 CFR 1039.107, 40 CFR 1039.115, and table 2 to this subpart, for 2008 model year and later engines.

(2) For engines with a maximum engine power greater than or equal to 37 KW (50 HP), the certification emission standards for new nonroad CI engines for the same model year and maximum engine power in 40 CFR 89.112 and 40 CFR 89.113 for all pollutants beginning in model year 2007.

(b) Stationary CI internal combustion engine manufacturers must certify their 2007 model year and later emergency stationary CI ICE with a maximum engine power greater than 2,237 KW (3,000 HP) and a displacement of less than 10 liters per cylinder that are not fire pump engines to the emission standards specified in paragraphs (b)(1) through (2) of this section.

(1) For 2007 through 2010 model years, the emission standards in table 1 to this subpart, for all pollutants, for the same maximum engine power.

(2) For 2011 model year and later, the certification emission standards for new nonroad CI engines for engines of the same model year and maximum engine power in 40 CFR 89.112 and 40 CFR 89.113 for all pollutants.

(c) Stationary CI internal combustion engine manufacturers must certify their 2007 model year and later emergency stationary CI ICE with a displacement of greater than or equal to 10 liters per cylinder and less than 30 liters per cylinder that are not fire pump engines to the certification emission standards for new marine CI engines in 40 CFR 94.8, as applicable, for all pollutants, for the same displacement and maximum engine power.

(d) Beginning with the model years in table 3 to this subpart, stationary CI internal combustion engine manufacturers must certify their fire pump stationary CI ICE to the emission standards in table 4 to this subpart, for all pollutants, for the same model year and NFPA nameplate power.

§ 60.4203 How long must my engines meet the emission standards if I am a stationary CI internal combustion engine manufacturer?

Engines manufactured by stationary CI internal combustion engine manufacturers must meet the emission standards as required in §§60.4201 and 60.4202 during the useful life of the engines.

Emission Standards for Owners and Operators

§ 60.4204 What emission standards must I meet for non-emergency engines if I am an owner or operator of a stationary CI internal combustion engine?

(a) Owners and operators of pre-2007 model year non-emergency stationary CI ICE with a displacement of less than 10 liters per cylinder must comply with the emission standards in table 1 to this subpart. Owners and operators of pre-2007 model year non-emergency stationary CI ICE with a displacement of greater than or equal to 10 liters per cylinder and less than 30 liters per cylinder must comply with the emission standards in 40 CFR 94.8(a)(1).

(b) Owners and operators of 2007 model year and later non-emergency stationary CI ICE with a displacement of less than 30 liters per cylinder must comply with the emission standards for new CI engines in §60.4201 for their 2007 model year and later stationary CI ICE, as applicable.

(c) Owners and operators of non-emergency stationary CI ICE with a displacement of greater than or equal to 30 liters per cylinder must meet the requirements in paragraphs (c)(1) and (2) of this section.

(1) Reduce nitrogen oxides (NO_x) emissions by 90 percent or more, or limit the emissions of NO_x in the stationary CI internal combustion engine exhaust to 1.6 grams per KW-hour (g/KW-hr) (1.2 grams per HP-hour (g/HP-hr)).

(2) Reduce particulate matter (PM) emissions by 60 percent or more, or limit the emissions of PM in the stationary CI internal combustion engine exhaust to 0.15 g/KW-hr (0.11 g/HP-hr).

§ 60.4205 What emission standards must I meet for emergency engines if I am an owner or operator of a stationary CI internal combustion engine?

(a) Owners and operators of pre-2007 model year emergency stationary CI ICE with a displacement of less than 10 liters per cylinder that are not fire pump engines must comply with the emission standards in table 1 to this subpart. Owners and operators of pre-2007 model year non-emergency stationary CI ICE with a displacement of greater than or equal to 10 liters per cylinder and less than 30 liters per cylinder that are not fire pump engines must comply with the emission standards in 40 CFR 94.8(a)(1).

(b) Owners and operators of 2007 model year and later emergency stationary CI ICE with a displacement of less than 30 liters per cylinder that are not fire pump engines must comply with the emission standards for new nonroad CI engines in §60.4202, for all pollutants, for the same model year and maximum engine power for their 2007 model year and later emergency stationary CI ICE.

(c) Owners and operators of fire pump engines with a displacement of less than 30 liters per cylinder must comply with the emission standards in table 4 to this subpart, for all pollutants.

(d) Owners and operators of emergency stationary CI ICE with a displacement of greater than or equal to 30 liters per cylinder must meet the requirements in paragraphs (d)(1) and (2) of this section.

(1) Reduce NO_x emissions by 90 percent or more, or limit the emissions of NO_x in the stationary CI internal combustion engine exhaust to 1.6 grams per KW-hour (1.2 grams per HP-hour).

(2) Reduce PM emissions by 60 percent or more, or limit the emissions of PM in the stationary CI internal combustion engine exhaust to 0.15 g/KW-hr (0.11 g/HP-hr).

§ 60.4206 How long must I meet the emission standards if I am an owner or operator of a stationary CI internal combustion engine?

Owners and operators of stationary CI ICE must operate and maintain stationary CI ICE that achieve the emission standards as required in §§60.4204 and 60.4205 according to the manufacturer's written instructions or procedures developed by the owner or operator that are approved by the engine manufacturer, over the entire life of the engine.

Fuel Requirements for Owners and Operators

§ 60.4207 What fuel requirements must I meet if I am an owner or operator of a stationary CI internal combustion engine subject to this subpart?

(a) Beginning October 1, 2007, owners and operators of stationary CI ICE subject to this subpart that use diesel fuel must use diesel fuel that meets the requirements of 40 CFR 80.510(a).

(b) Beginning October 1, 2010, owners and operators of stationary CI ICE subject to this subpart with a displacement of less than 30 liters per cylinder that use diesel fuel must use diesel fuel that meets the requirements of 40 CFR 80.510(b) for nonroad diesel fuel.

(c) Owners and operators of pre-2011 model year stationary CI ICE subject to this subpart may petition the Administrator for approval to use remaining non-compliant fuel that does not meet the fuel requirements of paragraphs (a) and (b) of this section beyond the dates required for the purpose of using up existing fuel

inventories. If approved, the petition will be valid for a period of up to 6 months. If additional time is needed, the owner or operator is required to submit a new petition to the Administrator.

(d) Owners and operators of pre-2011 model year stationary CI ICE subject to this subpart that are located in areas of Alaska not accessible by the Federal Aid Highway System may petition the Administrator for approval to use any fuels mixed with used lubricating oil that do not meet the fuel requirements of paragraphs (a) and (b) of this section. Owners and operators must demonstrate in their petition to the Administrator that there is no other place to use the lubricating oil. If approved, the petition will be valid for a period of up to 6 months. If additional time is needed, the owner or operator is required to submit a new petition to the Administrator.

(e) Stationary CI ICE that have a national security exemption under §60.4200(d) are also exempt from the fuel requirements in this section.

Other Requirements for Owners and Operators

§ 60.4208 What is the deadline for importing or installing stationary CI ICE produced in the previous model year?

(a) After December 31, 2008, owners and operators may not install stationary CI ICE (excluding fire pump engines) that do not meet the applicable requirements for 2007 model year engines.

(b) After December 31, 2009, owners and operators may not install stationary CI ICE with a maximum engine power of less than 19 KW (25 HP) (excluding fire pump engines) that do not meet the applicable requirements for 2008 model year engines.

(c) After December 31, 2014, owners and operators may not install non-emergency stationary CI ICE with a maximum engine power of greater than or equal to 19 KW (25 HP) and less than 56 KW (75 HP) that do not meet the applicable requirements for 2013 model year non-emergency engines.

(d) After December 31, 2013, owners and operators may not install non-emergency stationary CI ICE with a maximum engine power of greater than or equal to 56 KW (75 HP) and less than 130 KW (175 HP) that do not meet the applicable requirements for 2012 model year non-emergency engines.

(e) After December 31, 2012, owners and operators may not install non-emergency stationary CI ICE with a maximum engine power of greater than or equal to 130 KW (175 HP), including those above 560 KW (750 HP), that do not meet the applicable requirements for 2011 model year non-emergency engines.

(f) After December 31, 2016, owners and operators may not install non-emergency stationary CI ICE with a maximum engine power of greater than or equal to 560 KW (750 HP) that do not meet the applicable requirements for 2015 model year non-emergency engines.

(g) In addition to the requirements specified in §§60.4201, 60.4202, 60.4204, and 60.4205, it is prohibited to import stationary CI ICE with a displacement of less than 30 liters per cylinder that do not meet the applicable requirements specified in paragraphs (a) through (f) of this section after the dates specified in paragraphs (a) through (f) of this section.

(h) The requirements of this section do not apply to owners or operators of stationary CI ICE that have been modified, reconstructed, and do not apply to engines that were removed from one existing location and reinstalled at a new location.

§ 60.4209 What are the monitoring requirements if I am an owner or operator of a stationary CI internal combustion engine?

If you are an owner or operator, you must meet the monitoring requirements of this section. In addition, you must also meet the monitoring requirements specified in §60.4211.

(a) If you are an owner or operator of an emergency stationary CI internal combustion engine, you must install a non-resettable hour meter prior to startup of the engine.

(b) If you are an owner or operator of a stationary CI internal combustion engine equipped with a diesel particulate filter to comply with the emission standards in §60.4204, the diesel particulate filter must be installed with a backpressure monitor that notifies the owner or operator when the high backpressure limit of the engine is approached.

Compliance Requirements

§ 60.4210 What are my compliance requirements if I am a stationary CI internal combustion engine manufacturer?

(a) Stationary CI internal combustion engine manufacturers must certify their stationary CI ICE with a displacement of less than 10 liters per cylinder to the emission standards specified in §60.4201(a) through (c) and §60.4202(a), (b) and (d) using the certification procedures required in 40 CFR part 89, subpart B, or 40 CFR part 1039, subpart C, as applicable, and must test their engines as specified in those parts. For the purposes of this subpart, engines certified to the standards in table 1 to this subpart shall be subject to the same requirements as engines certified to the standards in 40 CFR part 89. For the purposes of this subpart, engines certified to the standards in table 4 to this subpart shall be subject to the same requirements as engines certified to the standards in 40 CFR part 89, except that engines with NFPA nameplate power of less than 37 KW (50 HP) certified to model year 2011 or later standards shall be subject to the same requirements as engines certified to the standards in 40 CFR part 1039.

(b) Stationary CI internal combustion engine manufacturers must certify their stationary CI ICE with a displacement of greater than or equal to 10 liters per cylinder and less than 30 liters per cylinder to the emission standards specified in §60.4201(d) and §60.4202(c) using the certification procedures required in 40 CFR part 94 subpart C, and must test their engines as specified in 40 CFR part 94.

(c) Stationary CI internal combustion engine manufacturers must meet the requirements of 40 CFR 1039.120, 40 CFR 1039.125, 40 CFR 1039.130, 40 CFR 1039.135, and 40 CFR part 1068 for engines that are certified to the emission standards in 40 CFR part 1039. Stationary CI internal combustion engine manufacturers must meet the corresponding provisions of 40 CFR part 89 or 40 CFR part 94 for engines that would be covered by that part if they were nonroad (including marine) engines. Labels on such engines must refer to stationary engines, rather than or in addition to nonroad or marine engines, as appropriate. Stationary CI internal combustion engine manufacturers must label their engines according to paragraphs (c)(1) through (3) of this section.

(1) Stationary CI internal combustion engines manufactured from January 1, 2006 to March 31, 2006 (January 1, 2006 to June 30, 2006 for fire pump engines), other than those that are part of certified engine families under the nonroad CI engine regulations, must be labeled according to 40 CFR 1039.20.

(2) Stationary CI internal combustion engines manufactured from April 1, 2006 to December 31, 2006 (or, for fire pump engines, July 1, 2006 to December 31 of the year preceding the year listed in table 3 to this subpart) must be labeled according to paragraphs (c)(2)(i) through (iii) of this section:

(i) Stationary CI internal combustion engines that are part of certified engine families under the nonroad regulations must meet the labeling requirements for nonroad CI engines, but do not have to meet the labeling requirements in 40 CFR 1039.20.

(ii) Stationary CI internal combustion engines that meet Tier 1 requirements (or requirements for fire pumps) under this subpart, but do not meet the requirements applicable to nonroad CI engines must be labeled according to 40 CFR 1039.20. The engine manufacturer may add language to the label clarifying that the engine meets Tier 1 requirements (or requirements for fire pumps) of this subpart.

(iii) Stationary CI internal combustion engines manufactured after April 1, 2006 that do not meet Tier 1 requirements of this subpart, or fire pumps engines manufactured after July 1, 2006 that do not meet the requirements for fire pumps under this subpart, may not be used in the U.S. If any such engines are manufactured in the U.S. after April 1, 2006 (July 1, 2006 for fire pump engines), they must be exported or must be brought into compliance with the appropriate standards prior to initial operation. The export provisions of 40 CFR 1068.230 would apply to engines for export and the manufacturers must label such engines according to 40 CFR 1068.230.

(3) Stationary CI internal combustion engines manufactured after January 1, 2007 (for fire pump engines, after January 1 of the year listed in table 3 to this subpart, as applicable) must be labeled according to paragraphs (c)(3)(i) through (iii) of this section.

(i) Stationary CI internal combustion engines that meet the requirements of this subpart and the corresponding requirements for nonroad (including marine) engines of the same model year and HP must be labeled according to the provisions in part 89, 94 or 1039, as appropriate.

(ii) Stationary CI internal combustion engines that meet the requirements of this subpart, but are not certified to the standards applicable to nonroad (including marine) engines of the same model year and HP must be labeled according to the provisions in part 89, 94 or 1039, as appropriate, but the words “stationary” must be included instead of “nonroad” or “marine” on the label. In addition, such engines must be labeled according to 40 CFR 1039.20.

(iii) Stationary CI internal combustion engines that do not meet the requirements of this subpart must be labeled according to 40 CFR 1068.230 and must be exported under the provisions of 40 CFR 1068.230.

(d) An engine manufacturer certifying an engine family or families to standards under this subpart that are identical to standards applicable under parts 89, 94, or 1039 for that model year may certify any such family that contains both nonroad (including marine) and stationary engines as a single engine family and/or may include any such family containing stationary engines in the averaging, banking and trading provisions applicable for such engines under those parts.

(e) Manufacturers of engine families discussed in paragraph (d) of this section may meet the labeling requirements referred to in paragraph (c) of this section for stationary CI ICE by either adding a separate label containing the information required in paragraph (c) of this section or by adding the words “and stationary” after the word “nonroad” or “marine,” as appropriate, to the label.

(f) Starting with the model years shown in table 5 to this subpart, stationary CI internal combustion engine manufacturers must add a permanent label stating that the engine is for stationary emergency use only to each new emergency stationary CI internal combustion engine greater than or equal to 19 KW (25 HP) that meets all the emission standards for emergency engines in §60.4202 but does not meet all the emission standards for non-emergency engines in §60.4201. The label must be added according to the labeling requirements specified in 40 CFR 1039.135(b). Engine manufacturers must specify in the owner's manual that operation of emergency engines is limited to emergency operations and required maintenance and testing.

(g) Manufacturers of fire pump engines may use the test cycle in table 6 to this subpart for testing fire pump engines and may test at the NFPA certified nameplate HP, provided that the engine is labeled as “Fire Pump Applications Only”.

(h) Engine manufacturers, including importers, may introduce into commerce uncertified engines or engines certified to earlier standards that were manufactured before the new or changed standards took effect until inventories are depleted, as long as such engines are part of normal inventory. For example, if the engine manufacturers' normal industry practice is to keep on hand a one-month supply of engines based on its projected sales, and a new tier of standards starts to apply for the 2009 model year, the engine manufacturer may manufacture engines based on the normal inventory requirements late in the 2008 model year, and sell those engines for installation. The engine manufacturer may not circumvent the provisions of §§60.4201 or 60.4202 by stockpiling engines that are built before new or changed standards take effect. Stockpiling of such engines beyond normal industry practice is a violation of this subpart.

(i) The replacement engine provisions of 40 CFR 89.1003(b)(7), 40 CFR 94.1103(b)(3), 40 CFR 94.1103(b)(4) and 40 CFR 1068.240 are applicable to stationary CI engines replacing existing equipment that is less than 15 years old.

§ 60.4211 What are my compliance requirements if I am an owner or operator of a stationary CI internal combustion engine?

(a) If you are an owner or operator and must comply with the emission standards specified in this subpart, you must operate and maintain the stationary CI internal combustion engine and control device according to the manufacturer's written instructions or procedures developed by the owner or operator that are approved by the engine manufacturer. In addition, owners and operators may only change those settings that are

permitted by the manufacturer. You must also meet the requirements of 40 CFR parts 89, 94 and/or 1068, as they apply to you.

(b) If you are an owner or operator of a pre-2007 model year stationary CI internal combustion engine and must comply with the emission standards specified in §§60.4204(a) or 60.4205(a), or if you are an owner or operator of a CI fire pump engine that is manufactured prior to the model years in table 3 to this subpart and must comply with the emission standards specified in §60.4205(c), you must demonstrate compliance according to one of the methods specified in paragraphs (b)(1) through (5) of this section.

(1) Purchasing an engine certified according to 40 CFR part 89 or 40 CFR part 94, as applicable, for the same model year and maximum engine power. The engine must be installed and configured according to the manufacturer's specifications.

(2) Keeping records of performance test results for each pollutant for a test conducted on a similar engine. The test must have been conducted using the same methods specified in this subpart and these methods must have been followed correctly.

(3) Keeping records of engine manufacturer data indicating compliance with the standards.

(4) Keeping records of control device vendor data indicating compliance with the standards.

(5) Conducting an initial performance test to demonstrate compliance with the emission standards according to the requirements specified in §60.4212, as applicable.

(c) If you are an owner or operator of a 2007 model year and later stationary CI internal combustion engine and must comply with the emission standards specified in §60.4204(b) or §60.4205(b), or if you are an owner or operator of a CI fire pump engine that is manufactured during or after the model year that applies to your fire pump engine power rating in table 3 to this subpart and must comply with the emission standards specified in §60.4205(c), you must comply by purchasing an engine certified to the emission standards in §60.4204(b), or §60.4205(b) or (c), as applicable, for the same model year and maximum (or in the case of fire pumps, NFPA nameplate) engine power. The engine must be installed and configured according to the manufacturer's specifications.

(d) If you are an owner or operator and must comply with the emission standards specified in §60.4204(c) or §60.4205(d), you must demonstrate compliance according to the requirements specified in paragraphs (d)(1) through (3) of this section.

(1) Conducting an initial performance test to demonstrate initial compliance with the emission standards as specified in §60.4213.

(2) Establishing operating parameters to be monitored continuously to ensure the stationary internal combustion engine continues to meet the emission standards. The owner or operator must petition the Administrator for approval of operating parameters to be monitored continuously. The petition must include the information described in paragraphs (d)(2)(i) through (v) of this section.

(i) Identification of the specific parameters you propose to monitor continuously;

(ii) A discussion of the relationship between these parameters and NO_x and PM emissions, identifying how the emissions of these pollutants change with changes in these parameters, and how limitations on these parameters will serve to limit NO_x and PM emissions;

(iii) A discussion of how you will establish the upper and/or lower values for these parameters which will establish the limits on these parameters in the operating limitations;

(iv) A discussion identifying the methods and the instruments you will use to monitor these parameters, as well as the relative accuracy and precision of these methods and instruments; and

(v) A discussion identifying the frequency and methods for recalibrating the instruments you will use for monitoring these parameters.

(3) For non-emergency engines with a displacement of greater than or equal to 30 liters per cylinder, conducting annual performance tests to demonstrate continuous compliance with the emission standards as specified in §60.4213.

(e) Emergency stationary ICE may be operated for the purpose of maintenance checks and readiness testing, provided that the tests are recommended by Federal, State, or local government, the manufacturer, the vendor, or the insurance company associated with the engine. Maintenance checks and readiness testing of such units is limited to 100 hours per year. There is no time limit on the use of emergency stationary ICE in emergency situations. Anyone may petition the Administrator for approval of additional hours to be used for maintenance checks and readiness testing, but a petition is not required if the owner or operator maintains records indicating that Federal, State, or local standards require maintenance and testing of emergency ICE beyond 100 hours per year. For owners and operators of emergency engines meeting standards under §60.4205 but not §60.4204, any operation other than emergency operation, and maintenance and testing as permitted in this section, is prohibited.

Testing Requirements for Owners and Operators

§ 60.4212 What test methods and other procedures must I use if I am an owner or operator of a stationary CI internal combustion engine with a displacement of less than 30 liters per cylinder?

Owners and operators of stationary CI ICE with a displacement of less than 30 liters per cylinder who conduct performance tests pursuant to this subpart must do so according to paragraphs (a) through (d) of this section.

(a) The performance test must be conducted according to the in-use testing procedures in 40 CFR part 1039, subpart F.

(b) Exhaust emissions from stationary CI ICE that are complying with the emission standards for new CI engines in 40 CFR part 1039 must not exceed the not-to-exceed (NTE) standards for the same model year and maximum engine power as required in 40 CFR 1039.101(e) and 40 CFR 1039.102(g)(1), except as specified in 40 CFR 1039.104(d). This requirement starts when NTE requirements take effect for nonroad diesel engines under 40 CFR part 1039.

(c) Exhaust emissions from stationary CI ICE that are complying with the emission standards for new CI engines in 40 CFR 89.112 or 40 CFR 94.8, as applicable, must not exceed the NTE numerical requirements, rounded to the same number of decimal places as the applicable standard in 40 CFR 89.112 or 40 CFR 94.8, as applicable, determined from the following equation:

$$\text{NTE requirement for each pollutant} = (1.25) \times (\text{STD}) \quad (\text{Eq. 1})$$

Where:

STD = The standard specified for that pollutant in 40 CFR 89.112 or 40 CFR 94.8, as applicable.

Alternatively, stationary CI ICE that are complying with the emission standards for new CI engines in 40 CFR 89.112 or 40 CFR 94.8 may follow the testing procedures specified in §60.4213 of this subpart, as appropriate.

(d) Exhaust emissions from stationary CI ICE that are complying with the emission standards for pre-2007 model year engines in §60.4204(a), §60.4205(a), or §60.4205(c) must not exceed the NTE numerical requirements, rounded to the same number of decimal places as the applicable standard in §60.4204(a), §60.4205(a), or §60.4205(c), determined from the equation in paragraph (c) of this section.

Where:

STD = The standard specified for that pollutant in §60.4204(a), §60.4205(a), or §60.4205(c).

Alternatively, stationary CI ICE that are complying with the emission standards for pre-2007 model year engines in §60.4204(a), §60.4205(a), or §60.4205(c) may follow the testing procedures specified in §60.4213, as appropriate.

§ 60.4213 What test methods and other procedures must I use if I am an owner or operator of a stationary CI internal combustion engine with a displacement of greater than or equal to 30 liters per cylinder?

Owners and operators of stationary CI ICE with a displacement of greater than or equal to 30 liters per cylinder must conduct performance tests according to paragraphs (a) through (d) of this section.

(a) Each performance test must be conducted according to the requirements in §60.8 and under the specific conditions that this subpart specifies in table 7. The test must be conducted within 10 percent of 100 percent peak (or the highest achievable) load.

(b) You may not conduct performance tests during periods of startup, shutdown, or malfunction, as specified in §60.8(c).

(c) You must conduct three separate test runs for each performance test required in this section, as specified in §60.8(f). Each test run must last at least 1 hour.

(d) To determine compliance with the percent reduction requirement, you must follow the requirements as specified in paragraphs (d)(1) through (3) of this section.

(1) You must use Equation 2 of this section to determine compliance with the percent reduction requirement:

$$\frac{C_i - C_o}{C_i} \times 100 = R \quad (\text{Eq. 2})$$

Where:

C_i = concentration of NO_x or PM at the control device inlet,

C_o = concentration of NO_x or PM at the control device outlet, and

R = percent reduction of NO_x or PM emissions.

(2) You must normalize the NO_x or PM concentrations at the inlet and outlet of the control device to a dry basis and to 15 percent oxygen (O₂) using Equation 3 of this section, or an equivalent percent carbon dioxide (CO₂) using the procedures described in paragraph (d)(3) of this section.

$$C_{adj} = C_i \frac{5.9}{20.9 - \% O_2} \quad (\text{Eq. 3})$$

Where:

C_{adj} = Calculated NO_x or PM concentration adjusted to 15 percent O₂.

C_d = Measured concentration of NO_x or PM, uncorrected.

5.9 = 20.9 percent O_2 - 15 percent O_2 , the defined O_2 correction value, percent.

$\% \text{O}_2$ = Measured O_2 concentration, dry basis, percent.

(3) If pollutant concentrations are to be corrected to 15 percent O_2 and CO_2 concentration is measured in lieu of O_2 concentration measurement, a CO_2 correction factor is needed. Calculate the CO_2 correction factor as described in paragraphs (d)(3)(i) through (iii) of this section.

(i) Calculate the fuel-specific F_o value for the fuel burned during the test using values obtained from Method 19, Section 5.2, and the following equation:

$$F_o = \frac{0.209}{F_c} \quad (\text{Eq. 4})$$

Where:

F_o = Fuel factor based on the ratio of O_2 volume to the ultimate CO_2 volume produced by the fuel at zero percent excess air.

0.209 = Fraction of air that is O_2 , percent/100.

F_d = Ratio of the volume of dry effluent gas to the gross calorific value of the fuel from Method 19, dsm^3 / J ($\text{dscf} / 10^6 \text{ Btu}$).

F_c = Ratio of the volume of CO_2 produced to the gross calorific value of the fuel from Method 19, dsm^3 / J ($\text{dscf} / 10^6 \text{ Btu}$).

(ii) Calculate the CO_2 correction factor for correcting measurement data to 15 percent O_2 , as follows:

$$X_{\text{CO}_2} = \frac{5.9}{F_o} \quad (\text{Eq. 5})$$

Where:

X_{CO_2} = CO_2 correction factor, percent.

5.9 = 20.9 percent O_2 - 15 percent O_2 , the defined O_2 correction value, percent.

(iii) Calculate the NO_x and PM gas concentrations adjusted to 15 percent O_2 using CO_2 as follows:

$$C_{\text{adj}} = C_d \frac{X_{\text{CO}_2}}{\% \text{CO}_2} \quad (\text{Eq. 6})$$

Where:

C_{adj} = Calculated NO_x or PM concentration adjusted to 15 percent O_2 .

C_d = Measured concentration of NO_x or PM, uncorrected.

$\% \text{CO}_2$ = Measured CO_2 concentration, dry basis, percent.

(e) To determine compliance with the NO_x mass per unit output emission limitation, convert the concentration of NO_x in the engine exhaust using Equation 7 of this section:

$$ER = \frac{C_d \times 1.912 \times 10^{-3} \times Q \times T}{KW\text{-hour}} \quad (\text{Eq. 7})$$

Where:

ER = Emission rate in grams per KW-hour.

C_d = Measured NO_x concentration in ppm.

1.912x10⁻³ = Conversion constant for ppm NO_x to grams per standard cubic meter at 25 degrees Celsius.

Q = Stack gas volumetric flow rate, in standard cubic meter per hour.

T = Time of test run, in hours.

KW-hour = Brake work of the engine, in KW-hour.

(f) To determine compliance with the PM mass per unit output emission limitation, convert the concentration of PM in the engine exhaust using Equation 8 of this section:

$$ER = \frac{C_{adj} \times Q \times T}{KW\text{-hour}} \quad (\text{Eq. 8})$$

Where:

ER = Emission rate in grams per KW-hour.

C_{adj} = Calculated PM concentration in grams per standard cubic meter.

Q = Stack gas volumetric flow rate, in standard cubic meter per hour.

T = Time of test run, in hours.

KW-hour = Energy output of the engine, in KW.

Notification, Reports, and Records for Owners and Operators

§ 60.4214 What are my notification, reporting, and recordkeeping requirements if I am an owner or operator of a stationary CI internal combustion engine?

(a) Owners and operators of non-emergency stationary CI ICE that are greater than 2,237 KW (3,000 HP), or have a displacement of greater than or equal to 10 liters per cylinder, or are pre-2007 model year engines that are greater than 130 KW (175 HP) and not certified, must meet the requirements of paragraphs (a)(1) and (2) of this section.

(1) Submit an initial notification as required in §60.7(a)(1). The notification must include the information in paragraphs (a)(1)(i) through (v) of this section.

(i) Name and address of the owner or operator;

- (ii) The address of the affected source;
 - (iii) Engine information including make, model, engine family, serial number, model year, maximum engine power, and engine displacement;
 - (iv) Emission control equipment; and
 - (v) Fuel used.
- (2) Keep records of the information in paragraphs (a)(2)(i) through (iv) of this section.
- (i) All notifications submitted to comply with this subpart and all documentation supporting any notification.
 - (ii) Maintenance conducted on the engine.
 - (iii) If the stationary CI internal combustion is a certified engine, documentation from the manufacturer that the engine is certified to meet the emission standards.
 - (iv) If the stationary CI internal combustion is not a certified engine, documentation that the engine meets the emission standards.
- (b) If the stationary CI internal combustion engine is an emergency stationary internal combustion engine, the owner or operator is not required to submit an initial notification. Starting with the model years in table 5 to this subpart, if the emergency engine does not meet the standards applicable to non-emergency engines in the applicable model year, the owner or operator must keep records of the operation of the engine in emergency and non-emergency service that are recorded through the non-resettable hour meter. The owner must record the time of operation of the engine and the reason the engine was in operation during that time.
- (c) If the stationary CI internal combustion engine is equipped with a diesel particulate filter, the owner or operator must keep records of any corrective action taken after the backpressure monitor has notified the owner or operator that the high backpressure limit of the engine is approached.

Special Requirements

§ 60.4215 What requirements must I meet for engines used in Guam, American Samoa, or the Commonwealth of the Northern Mariana Islands?

- (a) Stationary CI ICE that are used in Guam, American Samoa, or the Commonwealth of the Northern Mariana Islands are required to meet the applicable emission standards in §60.4205. Non-emergency stationary CI ICE with a displacement of greater than or equal to 30 liters per cylinder, must meet the applicable emission standards in §60.4204(c).
- (b) Stationary CI ICE that are used in Guam, American Samoa, or the Commonwealth of the Northern Mariana Islands are not required to meet the fuel requirements in §60.4207.

§ 60.4216 What requirements must I meet for engines used in Alaska?

- (a) Prior to December 1, 2010, owners and operators of stationary CI engines located in areas of Alaska not accessible by the Federal Aid Highway System should refer to 40 CFR part 69 to determine the diesel fuel requirements applicable to such engines.
- (b) The Governor of Alaska may submit for EPA approval, by no later than January 11, 2008, an alternative plan for implementing the requirements of 40 CFR part 60, subpart IIII, for public-sector electrical utilities located in rural areas of Alaska not accessible by the Federal Aid Highway System. This alternative plan must be based on the requirements of section 111 of the Clean Air Act including any increased risks to human health and the environment and must also be based on the unique circumstances related to remote

power generation, climatic conditions, and serious economic impacts resulting from implementation of 40 CFR part 60, subpart IIII. If EPA approves by rulemaking process an alternative plan, the provisions as approved by EPA under that plan shall apply to the diesel engines used in new stationary internal combustion engines subject to this paragraph.

§ 60.4217 What emission standards must I meet if I am an owner or operator of a stationary internal combustion engine using special fuels?

(a) Owners and operators of stationary CI ICE that do not use diesel fuel, or who have been given authority by the Administrator under §60.4207(d) of this subpart to use fuels that do not meet the fuel requirements of paragraphs (a) and (b) of §60.4207, may petition the Administrator for approval of alternative emission standards, if they can demonstrate that they use a fuel that is not the fuel on which the manufacturer of the engine certified the engine and that the engine cannot meet the applicable standards required in §60.4202 or §60.4203 using such fuels.

(b) [Reserved]

General Provisions

§ 60.4218 What parts of the General Provisions apply to me?

Table 8 to this subpart shows which parts of the General Provisions in §§60.1 through 60.19 apply to you.

Definitions

§ 60.4219 What definitions apply to this subpart?

As used in this subpart, all terms not defined herein shall have the meaning given them in the CAA and in subpart A of this part.

Combustion turbine means all equipment, including but not limited to the turbine, the fuel, air, lubrication and exhaust gas systems, control systems (except emissions control equipment), and any ancillary components and sub-components comprising any simple cycle combustion turbine, any regenerative/recuperative cycle combustion turbine, the combustion turbine portion of any cogeneration cycle combustion system, or the combustion turbine portion of any combined cycle steam/electric generating system.

Compression ignition means relating to a type of stationary internal combustion engine that is not a spark ignition engine.

Diesel fuel means any liquid obtained from the distillation of petroleum with a boiling point of approximately 150 to 360 degrees Celsius. One commonly used form is number 2 distillate oil.

Diesel particulate filter means an emission control technology that reduces PM emissions by trapping the particles in a flow filter substrate and periodically removes the collected particles by either physical action or by oxidizing (burning off) the particles in a process called regeneration.

Emergency stationary internal combustion engine means any stationary internal combustion engine whose operation is limited to emergency situations and required testing and maintenance. Examples include stationary ICE used to produce power for critical networks or equipment (including power supplied to portions of a facility) when electric power from the local utility (or the normal power source, if the facility runs on its own power production) is interrupted, or stationary ICE used to pump water in the case of fire or flood, etc. Stationary CI ICE used to supply power to an electric grid or that supply power as part of a financial arrangement with another entity are not considered to be emergency engines.

Engine manufacturer means the manufacturer of the engine. See the definition of “manufacturer” in this section.

Fire pump engine means an emergency stationary internal combustion engine certified to NFPA requirements that is used to provide power to pump water for fire suppression or protection.

Manufacturer has the meaning given in section 216(1) of the Act. In general, this term includes any person who manufactures a stationary engine for sale in the United States or otherwise introduces a new stationary engine into commerce in the United States. This includes importers who import stationary engines for sale or resale.

Maximum engine power means maximum engine power as defined in 40 CFR 1039.801.

Model year means either:

- (1) The calendar year in which the engine was originally produced, or
- (2) The annual new model production period of the engine manufacturer if it is different than the calendar year. This must include January 1 of the calendar year for which the model year is named. It may not begin before January 2 of the previous calendar year and it must end by December 31 of the named calendar year. For an engine that is converted to a stationary engine after being placed into service as a nonroad or other non-stationary engine, model year means the calendar year or new model production period in which the engine was originally produced.

Other internal combustion engine means any internal combustion engine, except combustion turbines, which is not a reciprocating internal combustion engine or rotary internal combustion engine.

Reciprocating internal combustion engine means any internal combustion engine which uses reciprocating motion to convert heat energy into mechanical work.

Rotary internal combustion engine means any internal combustion engine which uses rotary motion to convert heat energy into mechanical work.

Spark ignition means relating to a gasoline, natural gas, or liquefied petroleum gas fueled engine or any other type of engine with a spark plug (or other sparking device) and with operating characteristics significantly similar to the theoretical Otto combustion cycle. Spark ignition engines usually use a throttle to regulate intake air flow to control power during normal operation. Dual-fuel engines in which a liquid fuel (typically diesel fuel) is used for CI and gaseous fuel (typically natural gas) is used as the primary fuel at an annual average ratio of less than 2 parts diesel fuel to 100 parts total fuel on an energy equivalent basis are spark ignition engines.

Stationary internal combustion engine means any internal combustion engine, except combustion turbines, that converts heat energy into mechanical work and is not mobile. Stationary ICE differ from mobile ICE in that a stationary internal combustion engine is not a nonroad engine as defined at 40 CFR 1068.30 (excluding paragraph (2)(ii) of that definition), and is not used to propel a motor vehicle or a vehicle used solely for competition. Stationary ICE include reciprocating ICE, rotary ICE, and other ICE, except combustion turbines.

Subpart means 40 CFR part 60, subpart IIII.

Useful life means the period during which the engine is designed to properly function in terms of reliability and fuel consumption, without being remanufactured, specified as a number of hours of operation or calendar years, whichever comes first. The values for useful life for stationary CI ICE with a displacement of less than 10 liters per cylinder are given in 40 CFR 1039.101(g). The values for useful life for stationary CI ICE with a displacement of greater than or equal to 10 liters per cylinder and less than 30 liters per cylinder are given in 40 CFR 94.9(a).

Table 1 to Subpart IIII of Part 60—Emission Standards for Stationary Pre-2007 Model Year Engines With a Displacement of <10 Liters per Cylinder and 2007–2010 Model Year Engines >2,237 KW (3,000 HP) and With a Displacement of <10 Liters per Cylinder

[As stated in §§60.4201(b), 60.4202(b), 60.4204(a), and 60.4205(a), you must comply with the following emission standards]

Maximum engine power	Emission standards for stationary pre-2007 model year engines with a displacement of <10 liters per cylinder and 2007–2010 model year engines >2,237 KW (3,000 HP) and with a displacement of <10 liters per cylinder in g/KW-hr (g/HP-hr)				
	NMHC + NO _x	HC	NO _x	CO	PM
KW<8 (HP<11)	10.5 (7.8)			8.0 (6.0)	1.0 (0.75)
8≤KW<19 (11≤HP<25)	9.5 (7.1)			6.6 (4.9)	0.80 (0.60)
19≤KW<37 (25≤HP<50)	9.5 (7.1)			5.5 (4.1)	0.80 (0.60)
37≤KW<56 (50≤HP<75)			9.2 (6.9)		
56≤KW<75 (75≤HP<100)			9.2 (6.9)		
75≤KW<130 (100≤HP<175)			9.2 (6.9)		
130≤KW<225 (175≤HP<300)		1.3 (1.0)	9.2 (6.9)	11.4 (8.5)	0.54 (0.40)
225≤KW<450 (300≤HP<600)		1.3 (1.0)	9.2 (6.9)	11.4 (8.5)	0.54 (0.40)
450≤KW≤560 (600≤HP≤750)		1.3 (1.0)	9.2 (6.9)	11.4 (8.5)	0.54 (0.40)
KW>560 (HP>750)		1.3 (1.0)	9.2 (6.9)	11.4 (8.5)	0.54 (0.40)

Table 2 to Subpart IIII of Part 60—Emission Standards for 2008 Model Year and Later Emergency Stationary CI ICE <37 KW (50 HP) With a Displacement of <10 Liters per Cylinder

[As stated in §60.4202(a)(1), you must comply with the following emission standards]

Engine power	Emission standards for 2008 model year and later emergency stationary CI ICE <37 KW (50 HP) with a displacement of <10 liters per cylinder in g/KW-hr (g/HP-hr)			
	Model year(s)	NO _x + NMHC	CO	PM
KW<8 (HP<11)	2008+	7.5 (5.6)	8.0 (6.0)	0.40 (0.30)
8≤KW<19 (11≤HP<25)	2008+	7.5 (5.6)	6.6 (4.9)	0.40 (0.30)
19≤KW<37 (25≤HP<50)	2008+	7.5 (5.6)	5.5 (4.1)	0.30 (0.22)

Table 3 to Subpart IIII of Part 60—Certification Requirements for Stationary Fire Pump Engines

[As stated in §60.4202(d), you must certify new stationary fire pump engines beginning with the following model years:]

Engine power	Starting model year engine manufacturers must certify new stationary fire pump engines according to §60.4202(d)
KW<75 (HP<100)	2011
75≤KW<130 (100≤HP<175)	2010
130≤KW≤560 (175≤HP≤750)	2009
KW>560 (HP>750)	2008

Table 4 to Subpart IIII of Part 60—Emission Standards for Stationary Fire Pump Engines

[As stated in §§60.4202(d) and 60.4205(c), you must comply with the following emission standards for stationary fire pump engines]

Maximum engine power	Model year(s)	NMHC + NO _x	CO	PM
KW<8 (HP<11)	2010 and earlier	10.5 (7.8)	8.0 (6.0)	1.0 (0.75)
	2011+	7.5 (5.6)		0.40 (0.30)
8≤KW<19 (11≤HP<25)	2010 and earlier	9.5 (7.1)	6.6 (4.9)	0.80 (0.60)
	2011+	7.5 (5.6)		0.40 (0.30)
19≤KW<37 (25≤HP<50)	2010 and earlier	9.5 (7.1)	5.5 (4.1)	0.80 (0.60)
	2011+	7.5 (5.6)		0.30 (0.22)
37≤KW<56 (50≤HP<75)	2010 and earlier	10.5 (7.8)	5.0 (3.7)	0.80 (0.60)
	2011+ ¹	4.7 (3.5)		0.40 (0.30)
56≤KW<75 (75≤HP<100)	2010 and earlier	10.5 (7.8)	5.0 (3.7)	0.80 (0.60)
	2011+ ¹	4.7 (3.5)		0.40 (0.30)
75≤KW<130 (100≤HP<175)	2009 and earlier	10.5 (7.8)	5.0 (3.7)	0.80 (0.60)
	2010+ ²	4.0 (3.0)		0.30 (0.22)
130≤KW<225 (175≤HP<300)	2008 and earlier	10.5 (7.8)	3.5 (2.6)	0.54 (0.40)
	2009+ ³	4.0 (3.0)		0.20 (0.15)
225≤KW<450 (300≤HP<600)	2008 and earlier	10.5 (7.8)	3.5 (2.6)	0.54 (0.40)
	2009+ ³	4.0 (3.0)		0.20 (0.15)
450≤KW≤560 (600≤HP≤750)	2008 and earlier	10.5 (7.8)	3.5 (2.6)	0.54 (0.40)
	2009+	4.0 (3.0)		0.20 (0.15)
KW>560 (HP>750)	2007 and earlier	10.5 (7.8)	3.5 (2.6)	0.54 (0.40)
	2008+	6.4 (4.8)		0.20 (0.15)

¹For model years 2011–2013, manufacturers, owners and operators of fire pump stationary CI ICE in this engine power category with a rated speed of greater than 2,650 revolutions per minute (rpm) may comply with the emission limitations for 2010 model year engines.

²For model years 2010–2012, manufacturers, owners and operators of fire pump stationary CI ICE in this engine power category with a rated speed of greater than 2,650 rpm may comply with the emission limitations for 2009 model year engines.

³In model years 2009–2011, manufacturers of fire pump stationary CI ICE in this engine power category with a rated speed of greater than 2,650 rpm may comply with the emission limitations for 2008 model year engines.

Table 5 to Subpart IIII of Part 60—Labeling and Recordkeeping Requirements for New Stationary Emergency Engines

[You must comply with the labeling requirements in §60.4210(f) and the recordkeeping requirements in §60.4214(b) for new emergency stationary CI ICE beginning in the following model years:]

Engine power	Starting model year
19≤KW<56 (25≤HP<75)	2013
56≤KW<130 (75≤HP<175)	2012
KW≥130 (HP≥175)	2011

Table 6 to Subpart IIII of Part 60—Optional 3-Mode Test Cycle for Stationary Fire Pump Engines

[As stated in §60.4210(g), manufacturers of fire pump engines may use the following test cycle for testing fire pump engines:]

Mode No.	Engine speed¹	Torque (percent)²	Weighting factors
1	Rated	100	0.30
2	Rated	75	0.50
3	Rated	50	0.20

¹Engine speed: ±2 percent of point.

²Torque: NFPA certified nameplate HP for 100 percent point. All points should be ±2 percent of engine percent load value.

Table 7 to Subpart IIII of Part 60—Requirements for Performance Tests for Stationary CI ICE With a Displacement of ≥30 Liters per Cylinder

[As stated in §60.4213, you must comply with the following requirements for performance tests for stationary CI ICE with a displacement of ≥30 liters per cylinder:]

For each	Complying with the requirement to	You must	Using	According to the following requirements
1. Stationary CI internal combustion engine with a displacement of ≥30 liters per cylinder	a. Reduce NO _x emissions by 90 percent or more	i. Select the sampling port location and the number of traverse points;	(1) Method 1 or 1A of 40 CFR part 60, appendix A	(a) Sampling sites must be located at the inlet and outlet of the control device.
		ii. Measure O ₂ at the inlet and outlet of the control device;	(2) Method 3, 3A, or 3B of 40 CFR part 60, appendix A	(b) Measurements to determine O ₂ concentration must be made at the same time as the measurements for NO _x concentration.
		iii. If necessary, measure moisture content at the inlet and outlet of the control device; and,	(3) Method 4 of 40 CFR part 60, appendix A, Method 320 of 40 CFR part 63, appendix A, or ASTM D 6348–03 (incorporated by reference, see §60.17)	(c) Measurements to determine moisture content must be made at the same time as the measurements for NO _x concentration.
		iv. Measure NO _x at the inlet and outlet of the control device	(4) Method 7E of 40 CFR part 60, appendix A, Method 320 of 40 CFR part 63, appendix A, or ASTM D 6348–03 (incorporated by reference, see §60.17)	(d) NO _x concentration must be at 15 percent O ₂ , dry basis. Results of this test consist of the average of the three 1-hour or longer runs.
	b. Limit the concentration of NO _x in the stationary CI internal combustion engine exhaust.	i. Select the sampling port location and the number of traverse points;	(1) Method 1 or 1A of 40 CFR part 60, Appendix A	(a) If using a control device, the sampling site must be located at the outlet of the control device.
		ii. Determine the O ₂ concentration of the stationary internal combustion engine	(2) Method 3, 3A, or 3B of 40 CFR part 60, appendix A	(b) Measurements to determine O ₂ concentration must be made at the same time as

		exhaust at the sampling port location; and,		the measurement for NO _x concentration.
		iii. If necessary, measure moisture content of the stationary internal combustion engine exhaust at the sampling port location; and,	(3) Method 4 of 40 CFR part 60, appendix A, Method 320 of 40 CFR part 63, appendix A, or ASTM D 6348–03 (incorporated by reference, see §60.17)	(c) Measurements to determine moisture content must be made at the same time as the measurement for NO _x concentration.
		iv. Measure NO _x at the exhaust of the stationary internal combustion engine	(4) Method 7E of 40 CFR part 60, appendix A, Method 320 of 40 CFR part 63, appendix A, or ASTM D 6348–03 (incorporated by reference, see §60.17)	(d) NO _x concentration must be at 15 percent O ₂ , dry basis. Results of this test consist of the average of the three 1-hour or longer runs.
	c. Reduce PM emissions by 60 percent or more	i. Select the sampling port location and the number of traverse points;	(1) Method 1 or 1A of 40 CFR part 60, appendix A	(a) Sampling sites must be located at the inlet and outlet of the control device.
		ii. Measure O ₂ at the inlet and outlet of the control device;	(2) Method 3, 3A, or 3B of 40 CFR part 60, appendix A	(b) Measurements to determine O ₂ concentration must be made at the same time as the measurements for PM concentration.
		iii. If necessary, measure moisture content at the inlet and outlet of the control device; and	(3) Method 4 of 40 CFR part 60, appendix A	(c) Measurements to determine and moisture content must be made at the same time as the measurements for PM concentration.
		iv. Measure PM at the inlet and outlet of the control device	(4) Method 5 of 40 CFR part 60, appendix A	(d) PM concentration must be at 15 percent O ₂ , dry basis. Results of this test consist of the average of the three 1-hour or longer runs.
	d. Limit the concentration of PM in the stationary CI internal combustion engine exhaust	i. Select the sampling port location and the number of traverse points;	(1) Method 1 or 1A of 40 CFR part 60, Appendix A	(a) If using a control device, the sampling site must be located at the outlet of the control device.

		ii. Determine the O ₂ concentration of the stationary internal combustion engine exhaust at the sampling port location; and	(2) Method 3, 3A, or 3B of 40 CFR part 60, appendix A	(b) Measurements to determine O ₂ concentration must be made at the same time as the measurements for PM concentration.
		iii. If necessary, measure moisture content of the stationary internal combustion engine exhaust at the sampling port location; and	(3) Method 4 of 40 CFR part 60, appendix A	(c) Measurements to determine moisture content must be made at the same time as the measurements for PM concentration.
		iv. Measure PM at the exhaust of the stationary internal combustion engine	(4) Method 5 of 40 CFR part 60, appendix A	(d) PM concentration must be at 15 percent O ₂ , dry basis. Results of this test consist of the average of the three 1-hour or longer runs.

Table 8 to Subpart IIII of Part 60—Applicability of General Provisions to Subpart IIII

[As stated in §60.4218, you must comply with the following applicable General Provisions:]

General Provisions citation	Subject of citation	Applies to subpart	Explanation
§60.1	General applicability of the General Provisions	Yes	
§60.2	Definitions	Yes	Additional terms defined in §60.4219.
§60.3	Units and abbreviations	Yes	
§60.4	Address	Yes	
§60.5	Determination of construction or modification	Yes	
§60.6	Review of plans	Yes	
§60.7	Notification and Recordkeeping	Yes	Except that §60.7 only applies as specified in §60.4214(a).
§60.8	Performance tests	Yes	Except that §60.8 only applies to stationary CI ICE with a displacement of (≥30 liters per cylinder and engines that are not certified.
§60.9	Availability of information	Yes	
§60.10	State Authority	Yes	

§60.11	Compliance with standards and maintenance requirements	No	Requirements are specified in subpart III.
§60.12	Circumvention	Yes	
§60.13	Monitoring requirements	Yes	Except that §60.13 only applies to stationary CI ICE with a displacement of (\geq 30 liters per cylinder.
§60.14	Modification	Yes	
§60.15	Reconstruction	Yes	
§60.16	Priority list	Yes	
§60.17	Incorporations by reference	Yes	
§60.18	General control device requirements	No	
§60.19	General notification and reporting requirements	Yes	

**Indiana Department of Environmental Management
Office of Air Quality**

Addendum to the
Technical Support Document for a
Federally Enforceable State Operating Permit Renewal

Source Name: Eli Lilly and Company – Greenfield Laboratories
Source Location: 2001 West Main Street, Greenfield, Indiana 46140
County: Hancock
SIC Code: 2834, 2879
Permit Renewal No.: F059-23436-00001
Permit Reviewer: Stephanie Wilkerson

On May 22, 2008, the Office of Air Quality (OAQ) had a notice published in the Daily Reporter in Greenfield, Indiana, stating that Eli Lilly and Company - Greenfield Laboratories had applied for a Federally Enforceable State Operating Permit (FESOP) renewal for a stationary pharmaceutical research source. The notice also stated that OAQ proposed to issue a permit renewal for this operation and provided information on how the public could review the proposed permit renewal and other documentation. Finally, the notice informed interested parties that there was a period of thirty (30) days to provide comments on whether or not this permit renewal should be issued as proposed.

Comments from Mr. Mark S. Studt, of Eli Lilly and Company - Greenfield Laboratories, were received regarding the issuance of this permit renewal. The summary of the comments and corresponding responses is as follows (**bold** language has been added and ~~struck~~ language has been deleted):

Permit Section C

Comment 1:

The particulate matter limit in Condition C.2(b) should be 100 tons instead of 250. The limit must be 100 tons in order for the source to remain eligible for a FESOP instead of a Title V permit.

Response 1:

It was incorrectly stated in this instance that the PM limit is 250 tons per year. Because the source is one (1) of twenty-eight (28) source categories pursuant to 326 IAC 2-2 (PSD), the limit to remain a minor PSD source is 100 tons per year of PM. The following change shall be made:

...

C.2 Overall Source Limit [326 IAC 2-8]

The purpose of this permit is to limit this source's potential to emit to less than major source levels for the purpose of Section 502(a) of the Clean Air Act.

...

- (b) The potential to emit particulate matter (PM) from the entire source shall be limited to less than ~~two hundred fifty (250)~~ **one hundred (100)** tons per twelve

(12) consecutive month period. This limitation shall make the requirements of 326 IAC 2-2 (Prevention of Significant Deterioration (PSD) not applicable.

...

Comment 2:

Condition C.14(e)(1) is redundant with D.1.8(b). Eli Lilly and Company - Greenfield Laboratories is requesting deleting Condition C.14(e)(1) so that a failure to keep monitoring data will result in a single deviation instead of multiple deviations for the same issue.

Response 2:

The Conditions found in the B and C Sections of the permit are standard conditions that give general direction and guidance, and may be expounded upon in the D Sections of the permit, when necessary.

Condition C.14(e)(1) merely states that monitoring data shall be maintained. The D Section requirements for Compliance Monitoring provide the specific requirements of what monitoring data is required.

This condition stands as written.

Comment 3:

Similar to Comment 2, we request deleting Condition C.5 because all incinerator requirements are covered in Section D.2. Again this is a situation where failure to comply with a requirement would result in redundant deviations under two separate conditions of the permit.

Response 3:

Condition C.5 states that no incinerator shall be operated or waste incinerated except as in the given provisions and Section D.2 of the permit. No additional guidelines or requirements are given. This condition stands as written.

Permit Section D.3

Comment 4:

In the current permit, Section D.4 exists for the fire pumps. This has been omitted in the draft renewal version. Please reinsert in the renewal permit as the fire pumps have recordkeeping requirements associated with them.

Response 4:

Emergency fire pumps are not required to be limited to 500 hours per year. By definition, this equipment is operating less than 500 hours per year, thus, no record keeping is required to show compliance with that limit. Therefore, this section was no longer applicable and was removed from the permit. As there are no other applicable requirements to those fire pumps, the section will not be added as requested.

Comment 5:

Eli Lilly and Company - Greenfield Laboratories is requesting the addition to Section D.3 (emergency generator) stating that it is an insignificant activity under 326 IAC 2-7-1(21).

Response 5:

The section will be changed as follows:

SECTION D.3

FACILITY OPERATION CONDITIONS

**Facility Description [326 IAC 2-8-4(1)] of Insignificant Activity [326 IAC 2-7-1(21)]:
Emergency Generator**

- (k) One (1) No. 2 fuel oil-fired emergency generator, approved for construction in 2007, rated at 1490 horsepower (hp), with a heat input capacity of 10.42 million British thermal units per hour, identified as 254-EG. Under 40 CFR 60, Subpart IIII, this unit is considered to be an emergency stationary internal combustion engine.

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

Indiana Department of Environmental Management
Office of Air Quality

Technical Support Document (TSD) for a
Federally Enforceable State Operating Permit (FESOP) Renewal

Source Background and Description

Source Name:	Eli Lilly and Company – Greenfield Laboratories
Source Location:	2001 West Main Street, Greenfield, Indiana 46140
County:	Hancock
SIC Code:	2834, 2879
Permit Renewal No.:	F059-23436-00001
Permit Reviewer:	Stephanie Wilkerson

The Office of Air Quality (OAQ) has reviewed the operating permit renewal application from Eli Lilly and Company – Greenfield Laboratories relating to the operation of a stationary pharmaceutical research source.

History

On July 27, 2006, Eli Lilly and Company – Greenfield Laboratories submitted an application to the OAQ requesting to renew its second operating permit renewal. Eli Lilly and Company – Greenfield Laboratories was issued its first FESOP renewal, F059-12151-00001, on May 2, 2002.

Permitted Emission Units and Pollution Control Equipment

- (a) One (1) natural gas-fired boiler using No. 2 fuel oil as backup, identified as 254-1, installed in 1963, exhausting through Stack 254-1, heat input capacity: 51.0 million British thermal units per hour.
- (b) One (1) natural gas-fired boiler using No. 2 fuel oil as backup, identified as 254-2, installed in 1967, exhausting through Stack 254-2, heat input capacity: 63.0 million British thermal units per hour.
- (c) One (1) natural gas-fired boiler using No. 2 fuel oil as backup, identified as 254-3, installed in 1973, exhausting through Stack 254-3, heat input capacity: 67.0 million British thermal units per hour.
- (d) One (1) natural gas-fired boiler using No. 2 fuel oil as backup, identified as 254-4, installed in 1977, exhausting through Stack 254-4, heat input capacity: 78.0 million British thermal units per hour.
- (e) One (1) natural gas-fired boiler using No. 2 fuel oil as backup, identified as 254-R, originally installed in 2006, exhausting through Stack 254-R, heat input capacity between 10 and 100 million British thermal units per hour. A rental unit is installed each winter heating season if needed. This is an affected facility under NSPS Subpart Dc.
- (f) One (1) natural gas-fired, multi chamber Consumat incinerator, identified as 241-1, installed in 1981, exhausting through Stack 241-1, capacity: 350 pounds of waste per hour, heat input capacity: 2.8 million British thermal units per hour.

Insignificant Activities

- (a) Three (3) natural gas-fired boilers, identified as 229-1, 229-2 and 293-1, which were installed in 1997, 1997 and 1998, respectively, heat input capacities: 1.8, 1.8, and 2.1 million British thermal units per hour, respectively. [326 IAC 6-2]
- (b) Three (3) No. 2 fuel oil-fired emergency generators, identified as 226, 241-out, and 418, heat input capacities: 2.3, 2.8, and 2.6 million British thermal units per hour, respectively.
- (c) Seven (7) natural gas-fired emergency generators, identified as 206, 223, 229, 241-penthouse, 276, 288, 296, heat input capacities: 0.422, 0.047, 0.563, 0.375, 0.047, 0.141, and 0.657 million British thermal units per hour, respectively.
- (d) Two (2) propane-fired emergency generators, identified as 212 and 290, heat input capacities: 0.478 and 4.3 million British thermal units per hour, respectively.
- (e) Two (2) No. 2 fuel oil fired emergency fire pump engines, identified as FP-B204 and FP-B208, heat input capacities: of 0.82 million British thermal units per hour, each.
- (f) One (1) diesel reciprocating internal engine emergency generator, rated at 166 horsepower (hp), identified as EG210.
- (g) One (1) natural gas-fired reciprocating internal engine emergency generator, rated at 415 horsepower (hp), identified as EG239.
- (h) One (1) No. 2 fuel oil-fired emergency generator, identified as EMG-TOX, installed in 1986, heat input capacity: 19.3 million British thermal units per hour.
- (i) One (1) diesel emergency generator rated at 1,200 horsepower (hp), identified as EG220.
- (j) One (1) diesel emergency generator rated at 2,836 horsepower (hp), identified as LC45.
- (k) One (1) No. 2 fuel oil-fired emergency generator, approved for construction in 2007, rated at 1490 horsepower (hp), with a heat input capacity of 10.42 million British thermal units per hour, identified as 254-EG. Under 40 CFR 60, Subpart IIII, this unit is considered to be an emergency stationary internal combustion engine. This unit replaces 254a and 254b, which are no longer listed.
- (l) A gasoline fuel transfer and dispensing operation handling less than or equal to 1,300 gallons per day, such as filling of tanks, locomotives, automobiles, having a storage capacity less than or equal to 10,500 gallons.
- (m) A petroleum fuel, other than gasoline, dispensing facility having a storage capacity less than or equal to 10,500 gallons, and dispensing less than or equal to 230,000 gallons per month.
- (n) One (1) fuel oil storage tank, identified as 254-F, installed prior to 1973, capacity: 250,000 gallons.
- (o) Activities associated with the transportation and treatment of sanitary sewage (on-site sewage treatment facility).
- (p) Asbestos abatement projects regulated by 326 IAC 14-10.
- (q) On-site fire and emergency response training approved by IDEM.
- (r) Laboratories as defined in 326 IAC 2-7-1.

- (s) Farm operations.

Existing Approvals

Since the issuance of the FESOP 059-12151-00001 on May 2, 2002, the source has constructed or has been operating under the following approvals as well:

- (a) Administrative Amendment No. 059-17791-00001 issued on July 11, 2003;
- (b) Administrative Amendment No. 059-18173-00001 issued on February 20, 2004;
- (c) Administrative Amendment No. 059-19235-00001 issued on June 30, 2004;
- (d) Administrative Amendment No. 059-20922-00001 issued on April 4, 2005;
- (e) Significant Permit Revision No. 059-21913-00001 issued on January 26, 2006;
- (f) Administrative Amendment No. 059-23602-00001 issued on November 29, 2006; and
- (g) Minor Permit Revision No. 059-24823-00001 issued on August 1, 2007.

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.

Stack Summary

Stack ID	Operation	Height (feet)	Diameter (feet)	Flow Rate (acfm)	Temperature (°F)
254-1	254-1	36	3.0	7,500	295
254-2	254-2	36	3.75	9,600	295
254-3	254-3	36	3.75	9,600	295
254-4	254-4	55	4.0	15,500	520
254-R	254-R	20	4.0	27,350	510
241-1	241-1	35	3.0	6,000	1800
254-EG	Generator	24	1.0	7,775	975

Emission Calculations

See Appendix A of this document for detailed emission calculations.

County Attainment Status

The source is located in Hancock County

Pollutant	Designation
SO ₂	Better than national standards.
CO	Unclassifiable or attainment effective November 15, 1990.
O ₃	Attainment effective October 19, 2007, for the 8-hour ozone standard. [†]
PM ₁₀	Unclassifiable effective November 15, 1990.
NO ₂	Cannot be classified or better than national standards.
Pb	Not designated.
[†] Unclassifiable or attainment effective October 18, 2000, for the 1-hour ozone standard which was revoked effective June 15, 2005. Unclassifiable or attainment effective April 5, 2005, for PM _{2.5} .	

- (a) Hancock County has been classified as attainment for PM_{2.5}. 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_{2.5} emissions, it has directed states to regulate PM₁₀ emissions as a surrogate for PM_{2.5} emissions. See the State Rule Applicability – Entire Source section.
- (b) Volatile organic compounds (VOC) and Nitrogen Oxides (NOx) 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 NOx emissions are considered when evaluating the rule applicability relating to ozone. Hancock County has been designated as attainment or unclassifiable for ozone. Therefore, VOC emissions and NOx emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2. See the State Rule Applicability – Entire Source section.
- (c) Hancock County has been classified as attainment or unclassifiable in Indiana for all remaining 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 – Entire 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 in one of the twenty-eight (28) listed source categories under 326 IAC 2-2, fugitive emissions are counted toward the determination of PSD applicability.

Unrestricted Potential Emissions

This table reflects the unrestricted potential emissions of the source if the existing FESOP emission limits were not in place.

Pollutant	tons/year
PM	25.9
PM ₁₀	24.7
SO ₂	536
VOC	10.6
CO	137
NO _x	244

HAPs	tons/year
Acetaldehyde	0.118
Acrolein	0.051
Formaldehyde	0.69
HCl	25.7
Hexane	2.76
Propylene	0.827
Total	30.6

- (a) The unrestricted potential to emit (as defined in 326 IAC 2-7-1(29)) of SO₂, CO and NO_x is greater than one hundred (100) tons per year. The source is subject to the provisions of 326 IAC 2-7. However, the source will continue to limit SO₂, CO and NO_x emissions to less than Title V levels; therefore the source will be issued a FESOP.
- (b) The potential to emit (as defined in 326 IAC 2-7-1(29)) of all other criteria pollutants are less than one hundred (<100) tons per year.
- (c) The unrestricted potential to emit (as defined in 326 IAC 2-7-1(29)) of any single HAP is greater than ten (10) tons per year and the potential to emit (as defined in 326 IAC 2-7-1(29)) of a combination of HAPs is greater than twenty-five (25) tons per year. However, the source will continue to limit single HAP emissions and total HAP emissions below Title V levels. Therefore, the source will be issued a FESOP.
- (d) Fugitive Emissions
Since this type of operation is one of the twenty-eight (28) listed source categories under 326 IAC 2-7, fugitive emissions are counted toward the determination of Part 70 applicability.

Actual Emissions

No previous emission reports have been received from the source pursuant to the requirements of 326 IAC 2-6 (Emission Reporting). However, the source has the appropriate data onsite for compliance review.

Potential to Emit After Issuance

The source has opted to remain a FESOP source. The table below summarizes the potential to emit, reflecting all limits of the emission units. Any control equipment required solely by this permit to operate is considered enforceable only after issuance of this FESOP and only to the extent that the effect of the control equipment is made practically enforceable in the permit.

Process/Emission Unit	Limited Potential to Emit (tons/year)						
	PM	PM ₁₀	SO ₂	VOC	CO	NO _x	HAPs
254-1	3.19	3.19	83.0	1.23	31.0	36.9	0.422
254-2	3.94	3.94		1.52			0.521
254-3	4.19	4.19		1.61			0.554
254-4	4.88	4.88		1.88			0.645
254-R	5.15	5.15		1.98			0.680
Insignificant Natural Gas Combustion Boilers	0.071	0.283		0.205			0.070
No. 2 Internal Combustion Engines	1.28	1.03	3.58	1.34	7.08	28.5	1.69
Natural Gas Internal Combustion Engines	0.0001	0.009	0.001	0.105	0.283	3.64	0.070
Propane Internal Combustion Engines	0.050	0.050	-	-	-	-	-
Incinerator	3.58	2.33	1.66	0.229	2.26	2.73	<10 (HCl)
Storage Tanks	-	-	-	1.00	-	-	-
Total	26.3	25.1	88.3	11.1	43.8	75.5	<10 individual <17.3 total
Major Source Threshold	100	100	100	100	100	100	10 individual 25 total

- (a) This existing stationary source is not major for PSD because the emissions of each criteria pollutant are less than one hundred (<100) tons per year, and it is one of the twenty-eight (28) listed source categories.
- (b) This existing stationary source is not subject to Emission Offset requirements because Hancock County is not designated as a nonattainment area for any criteria pollutant.
- (c) Fugitive Emissions
 Since this type of operation is in one of the twenty-eight (28) listed source categories under 326 IAC 2-2, fugitive emissions are counted toward the determination of PSD applicability.

Federal Rule Applicability

- (a) This source does not require a Part 70, Title V Operating Permit. Therefore, the requirements of 40 CFR Part 64, Compliance Assurance Monitoring, are not included in the permit.
- (b) The one (1) natural gas-fired, multi chamber Consumat incinerator, identified as 241-1, is subject to the New Source Performance Standard for Hospital/Medical/Infectious Waste Incinerators, 40 CFR 60.30e, Subpart Ce, because this incinerator is considered a hospital/medical/infectious waste incinerator as defined in 40 CFR 60.51c.

Pursuant to 40 CFR 60.32e(c), a unit that is considered a co-fired combustor as defined in defined in 40 CFR 60.51c, is not subject to Subpart Ce if the owner or operator of the co-fired combustor:

- (1) Notifies the Administrator of an exemption claim;
- (2) Provides an estimate of the relative weight of hospital waste, medical/infectious waste, and other fuels and/or wastes to be combusted; and
- (3) Keeps records on a calendar quarter basis of the weight of hospital waste and medical/infectious waste combusted, and the weight of all other fuels and wastes combusted at the co-fired combustor.

In order to be considered a co-fired combustor, the weight of the fuel feed stream to the incinerator shall be comprised of ten percent (10%) or less, in aggregate, of hospital waste and medical/infectious waste as measured on a calendar quarter basis. Compliance with the limit will qualify the incinerator as a “co-fired combustor” as defined by 40 CFR 60.51c. Therefore, the emissions limitations of this subpart are not included in this permit for the incinerator.

- (c) The requirements of the New Source Performance Standard for Small Industrial-Commercial-Institutional Steam Generating Units, 40 CFR 60.40c, Subpart Dc, are not included in this permit for the four (4) boilers, identified as 254-1, 254-2, 254-3 and 254-4 because these boilers, which have maximum design heat input capacities of 100 MMBtu/hr or less but greater than or equal to 10 MMBtu/hr, were constructed prior to the applicability date of June 9, 1989.

The one (1) boiler, identified as 254-R, is subject to the New Source Performance Standard for Small Industrial-Commercial-Institutional Steam Generating Units, 40 CFR 60.40c, Subpart Dc, which is incorporated by reference as 326 IAC 12. This boiler has a maximum design heat input capacity of less than 100 MMBtu/hr but greater than 10 MMBtu/hr and was constructed after June 9, 1989. The boiler is subject to the following portions of 40 CFR 60, Subpart Dc:

- (1) 40 CFR 60.40c
- (2) 40 CFR 60.41c
- (3) 40 CFR 60.42c (d), (g), (h)(1), (i) and (j)
- (4) 40 CFR 60.43c (c) and (d)
- (5) 40 CFR 60.44c (g) and (h)
- (6) 40 CFR 60.45c (a)(8)
- (7) 40 CFR 60.46c (e)
- (8) 40 CFR 60.48c (a), (b), (d), (e)(1), (e)(2), (e)(4), (e)(5), (e)(11), (f)(1), (g), (i) and (j)

The provisions of 40 CFR 60 Subpart A – General Provisions, which are incorporated as 326 IAC 12-1, apply to the facility described in this section except when otherwise specified in 40 CFR 60 Subpart Dc.

- (d) The requirements of the New Source Performance Standard: Standards of Performance for Storage Vessels for Petroleum Liquids for Which Construction, Reconstruction, or Modification Commenced After June 11, 1973, and Prior to May 19, 1978, 40 CFR 60.110, Subpart K, are not included in the permit for this source. The one (1) insignificant storage tank identified as 254-F has a capacity greater than 40,000 gallons, but was constructed prior to the applicability date of 1973. The tank is also not used to store "petroleum liquids" as defined in 40 CFR 60.111(b). Therefore, this subpart is not included for these storage tanks.
- (e) The requirements of the New Source Performance Standard for Storage Vessels for Petroleum Liquids for Which Construction, Reconstruction, or Modification Commenced After May 18, 1978, and Prior to July 23, 1984, 40 CFR 60.110a, Subpart Ka, are not

included in the permit for this source. The one (1) insignificant storage tank identified as 254-F has a capacity greater than 40,000 gallons, but was constructed prior to the applicability date of 1978. The tank is also not used to store "petroleum liquids" as defined in 40 CFR 60.111(b). Therefore, this subpart is not included for these storage tanks.

- (f) The requirements of the New Source Performance Standard for Storage Vessels for Petroleum Liquids for Which Construction, Reconstruction, or Modification Commenced After May 18, 1978, and Prior to July 23, 1984, 40 CFR 60.110b, Subpart Kb, are not included in the permit for this source. The one (1) insignificant storage tank identified as 254-F has a capacity greater than 75 cubic meters (m³), but was constructed prior to the applicability date of 1984. Therefore, this subpart is not included for these storage tanks.
- (g) The requirements of the New Source Performance Standard for Small Municipal Waste Combustion Units for Which Construction is Commenced After August 30, 1999 or for Which Modification or Reconstruction is Commenced After June 6, 2001, 40 CFR 60.1000, Subpart AAAA, are not included in the permit for the one (1) natural gas-fired, multi chamber Consumat incinerator, identified as 241-1, because it was constructed before the applicability date of August 30, 1999, and because the incinerator has a capacity less than thirty-five (35) tons per day.
- (h) The requirements of the New Source Performance Standard for Small Municipal Waste Combustion Units Constructed on or Before August 30, 1999, 40 CFR 60.1500, Subpart BBBB, are not included in the permit for the one (1) natural gas-fired, multi chamber Consumat incinerator, identified as 241-1, because the incinerator has a capacity less than 35 tons per day.
- (i) The requirements of the New Source Performance Standard for Commercial and Industrial Solid Waste Incineration Units for Which Construction Is Commenced After November 30, 1999 or for Which Modification or Reconstruction Is Commenced on or After June 1, 2001, 40 CFR 60.2000, Subpart CCCC, are not included in the permit for the one (1) natural gas-fired, multi chamber Consumat incinerator, identified as 241-1, because it was constructed before the applicability date of November 30, 1999.
- (j) The requirements of the New Source Performance Standard for Commercial and Industrial Solid Waste Incineration Units that Commenced Construction On or Before November 30, 1999, 40 CFR 60.2500, Subpart DDDD, are not included in the permit for one (1) natural gas-fired, multi chamber Consumat incinerator, identified as 241-1. The incinerator is exempt pursuant to 40 CFR 60.2555(c) because of the following limitations and requirements:
 - (1) The weight of the waste-feed stream to the incinerator shall be comprised of thirty percent (30%) or greater, in aggregate, of municipal solid waste or refuse-derived fuel, as defined in 40 CFR 60 Subpart Ea, Subpart Eb, Subpart AAAA and Subpart BBBB, and the incinerator has the capacity to burn less than 35 tons/day municipal solid waste or refuse-derived fuel, as measured on calendar quarter basis
 - (2) The Permittee shall keep records on a calendar quarter basis of the weight of municipal solid waste burned, and the weight of all other fuels and wastes burned in the unit.
- (k) The requirements of the New Source Performance Standard Other Solid Waste Incineration Units for Which Construction is Commenced After December 9, 2004, or for Which Modification or Reconstruction is Commenced on or After June 16, 2006, 40 CFR 60.2880, Subpart EEEE, are not included in the permit for the one (1) natural gas-fired,

multi chamber Consumat incinerator, identified as 241-1, because it was constructed before the applicability date of December 9, 2004.

- (l) The requirements of the New Source Performance Standard for Other Solid Waste Incineration Units That Commenced Construction On or Before December 9, 2004, 40 CFR 60.2980, Subpart FFFF, are not included in the permit for the one (1) natural gas-fired, multi chamber Consumat incinerator, identified as 241-1. This unit is exempt from Subpart FFFF because the facility does not meet the definition of other solid waste incineration (OSWI) under 40 CFR 60.3078. This facility does not accept waste materials for incineration other than those generated onsite.
- (m) The New Source Performance Standard for Stationary Compression Ignition Internal Combustion Engines, 40 CFR 60.4200, Subpart IIII, which is incorporated by reference as 326 IAC 12, is included in this permit for the one (1) emergency generator, identified as 254-EG, because it is considered a stationary internal combustion engine and was constructed after July 11, 2005.

The emergency generator is subject to the following portions of Subpart IIII.

- (1) 40 CFR 60.4200(a)(2)
- (2) 40 CFR 60.4200(a)(3)
- (3) 40 CFR 60.4205(a)
- (4) 40 CFR 60.4206
- (5) 40 CFR 60.4207(a), (b) and (c)
- (6) 40 CFR 60.4208
- (7) 40 CFR 60.4209(a)
- (8) 40 CFR 60.4211(a), (b) and (e)
- (9) 40 CFR 60.4212
- (10) 40 CFR 60.4214(b)
- (11) 40 CFR 60.4218
- (12) 40 CFR 60.4219
- (13) Tables 1 and 8

The provisions of 40 CFR 60, Subpart A – General Provisions, which are incorporated as 326 IAC 12-1, apply to this source, except when otherwise specified in 40 CFR 60, Subpart IIII.

- (n) The requirements of the National Emission Standards for Hazardous Air Pollutants (NESHAP) for Stationary Reciprocating Internal Combustion Engines, 40 CFR 63.6580, Subpart ZZZZ are not included in the permit for the generators at this source, because the engines at this source are considered either "Stationary RICE subject to limited requirements" pursuant to 40 CFR 63.6590(b)(3) or "Stationary RICE subject to Regulations under 40 CFR Part 60" pursuant to 40 CFR 63.6590(c). None of the engines at the site are subject to any requirements of the RICE MACT provisions for area sources.

State Rule Applicability – Entire Source

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

This source is considered a fossil fuel boiler source with a combination of boilers totaling more than two hundred fifty million British thermal units (250 MMBtu); one (1) of the twenty-eight (28) listed source categories pursuant to 326 IAC 2-2-1 (gg) (1)(V), because the total heat input capacity of the boilers at this source is greater than two hundred fifty (250) million British thermal units. Therefore, a major source pursuant to 326 IAC 2-2 is a source with the potential to emit one hundred (100) tons or more per year of a criteria pollutant. Pursuant to 326 IAC 2-8-4, SO₂, CO and NO_x emissions are each limited to less than one hundred (100) tons per year. The potential

emissions of all remaining criteria pollutants are less than one hundred (100) tons per year. Therefore, this source is a minor source pursuant to 326 IAC 2-2 (PSD).

- (a) Pursuant to the PSD Best Available Control Technology (BACT) determination in Construction Permit No. 30-07-93-0074, the nitrogen oxide (NO_x) emissions from boiler 254-4 shall be limited to 0.23 pounds per MMBtu heat input. This is an existing condition that is additional to the limits of 326 IAC 2-8 (FESOP) and will be maintained in the permit.

326 IAC 2-8 (Federally Enforceable State Operating Permit Program (FESOP))

Without the existing FESOP limits in place, the potential emissions of SO₂, NO_x and CO are each greater than one hundred (100) tons per year, and the potential emissions of total combined HAPs are greater than twenty-five (25) tons per year, and the unrestricted potential emissions of individual HAPs (HCl) are greater than ten (10) tons per year.

- (a) The following emissions limitations will limit the emissions of SO₂, NO_x and CO to less than one hundred (100) tons per year.

Emission Unit	Sulfur Content Limit	Usage (12-consecutive month period)	Emission Limit	
254-1	0.35%	3,332,000 gallons of No. 2 fuel oil. 738.0 million cubic feet of natural gas, where each gallon of No. 2 fuel oil is equivalent to 200 cubic feet of natural gas	SO ₂ Natural Gas: 0.6 lbs/MMCF No. 2 Fuel Oil 49.7 lbs/kgal	
254-2			CO Natural Gas: 84.0 lbs/MMCF No. 2 Fuel Oil 5 lbs/kgal	
254-3				NO _x Natural Gas: 100 lbs/MMCF No. 2 Fuel Oil 20.0 lbs/kgal
254-4				
254-R				
229-1	N/A			
229-2	N/A			
293-1	N/A			

- (b) The waste throughput and HCl content of the waste of the one (1) natural gas-fired incinerator, identified as 241-1, shall be limited as follows:
 - (1) The waste throughput shall be limited to 591 tons of waste per twelve (12) consecutive month period, with compliance determined at the end of each month; and

Compliance with the waste throughput limit and use of the EPA emission factor for HCl emissions for incinerators, combined with the unrestricted potential to emit HAPs from all other facilities at the source shall limit the potential to emit any single HAP to less than ten (10) tons per year, and the potential to emit the total combined HAPs to less than twenty-five (25) tons per year, and shall render the requirements of 326 IAC 2-7, Part 70 not applicable to the source.

326 IAC 2-4.1-1 (New source toxics control)

The one (1) boiler, identified as 254-R, and the one (1) emergency generator, identified as 254-EG, constructed after July 27, 1997, do not have the potential to emit ten (10) tons per year of a single

HAP or twenty-five (25) tons per year of a combination of HAPs or greater. All other facilities were constructed prior to July 27, 1997. Therefore, 326 IAC 2-4.1 does not apply.

326 IAC 2-6 (Emission Reporting)

This source is located in Hancock County, is not required to operate under a Part 70 permit, and emits less than 5 tons per year of lead. Therefore, pursuant to 326 IAC 2-6-1(b), the source is only subject to additional information requests as provided in 326 IAC 2-6-5.

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 Alternative Opacity Limitations), opacity shall meet the following, unless otherwise stated in the 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.

State Rule Applicability – Individual Facilities

326 IAC 4-2-2 (Incinerators)

Pursuant to 326 IAC 4-2-2, the one (1) natural gas-fired incinerator, identified as 241-1, shall:

- (a) Consist of primary and secondary chambers or the equivalent.
- (b) Be equipped with a primary burner unless burning only wood products.
- (c) Comply with 326 IAC 5-1 and 326 IAC 2.
- (d) Be maintained, operated, and burn waste in accordance with:
 - (1) The manufacturer's specifications; or
 - (2) An operation and maintenance plan as specified in 326 IAC 4-2-2(c) as follows:
 - (A) The operation and maintenance plan must be designed to meet the particulate matter emission limitation specified in Condition D.2.1(e) and include the following:
 - (i) Procedures for receiving, handling, and charging waste.
 - (ii) Procedures for incinerator startup and shutdown.
 - (iii) Procedures for responding to a malfunction.
 - (iv) Procedures for maintaining proper combustion air supply levels.
 - (v) Procedures for operating the incinerator and associated air pollution control systems.
 - (vi) Procedures for handling ash.
 - (vii) A list of wastes that can be burned in the incinerator.

- (B) Each incinerator operator shall review the plan before initial implementation of the operation and maintenance plan and annually thereafter.
 - (C) The operation and maintenance plan must be readily accessible to incinerator operators.
 - (D) The owner or operator of the incinerator shall notify the department, in writing, thirty (30) days after the operation and maintenance plan is initially developed pursuant to this section; and
- (e) Not emit particulate matter (PM) emissions in excess of 0.3 pound per 1,000 pounds of dry exhaust gas under standard conditions corrected to 50% excess air.

If any of the requirements above are not met, then the Permittee shall stop charging the incinerator until adjustments are made that address the underlying cause of the deviation.

326 IAC 6-2 (Particulate Emissions Limitations for Sources of Indirect Heating)

- (a) Pursuant to 326 IAC 6-2-1(b), the particulate matter emissions from the three (3) boilers, identified as 254-1, 254-2, and 254-3, shall be limited by 326 IAC 6-2-2 because these facilities are located in Hancock County and were existing and in operation prior to September 21, 1983. For these three (3) boilers, Q will include each boiler and those existing before it, thus increasing with each additional boiler added to the site. A table containing each boiler's Q value is at the end of this section.
- (1) The two (2) boilers, identified as 254-1 and 254-2, rated at 51.0 and 63.0 MMBtu/hr respectively, which were existing and in operation on or before June 8, 1972 shall be limited pursuant to 326 IAC 6-2-2(b), using the equation contained in 326 IAC 6-2-2(a).

The equation contained in 326 IAC 6-2-2(a) is as follows:

$$Pt = 0.87 / Q^{0.16}$$

Where:

Pt = Pounds of particulate matter emitted per million Btu (lb/MMBtu) heat input.

Q = Total source maximum operating capacity rating in million Btu per hour (MMBtu/hr) heat input. The maximum operating capacity rating is defined as the maximum capacity at which the facility is operated or the nameplate capacity, whichever is specified in the facility's operation permit application, except when some lower capacity is contained in the facility's operation permit, in which case, the capacity specified in the operation permit shall be used.

$$Pt = 0.87 / 150^{0.16} = 0.39 \text{ lb/MMBtu}$$

- (2) The one (1) boiler, identified as 254-3, which was installed in 1974 and is rated at 67.0 MMBtu/hr, shall be limited pursuant to 326 IAC 6-2-2(c), using the equation contained in 326 IAC 6-2-2(a).

The equation contained in 326 IAC 6-2-2(a) is as follows:

$$Pt = 0.87 / Q^{0.16}$$

Where:

Pt = Pounds of particulate matter emitted per million Btu (lb/MMBtu) heat input.

Q = Total source maximum operating capacity rating in million Btu per hour (MMBtu/hr) heat input. The maximum operating capacity rating is defined as the maximum capacity at which the facility is operated or the nameplate capacity, whichever is specified in the facility's operation permit application, except when some lower capacity is contained in the facility's operation permit, in which case, the capacity specified in the operation permit shall be used.

$$Pt = 0.87 / 299^{0.16} = 0.35 \text{ lb/MMBtu}$$

- (b) Pursuant to 326 IAC 6-2-1(d), the (4) boilers, identified as 229-1, 229-2, 293-1 and 254-R, shall be limited pursuant to 326 IAC 6-2-4 because these facilities were constructed after September 21, 1983. For these four (4) boilers, Q will include each boiler and those existing before it up to the September 21, 1983 applicability date, thus increasing with each additional boiler added to the site. A table containing each boiler's Q value is at the end of this section.

- (1) The one (1) boiler, identified as 229-1, which was installed in 1997 and is rated at 1.8 MMBtu/hr, shall be limited pursuant to 326 IAC 6-2-4, using the equation contained in 326 IAC 6-2-4(a).

The equation contained in 326 IAC 6-2-4(a) is as follows:

$$Pt = 1.09 / Q^{0.26}$$

Where:

Pt = Pounds of particulate matter emitted per million Btu (lb/MMBtu) heat input.

Q = Total source maximum operating capacity rating in million Btu per hour (MMBtu/hr) heat input. The maximum operating capacity rating is defined as the maximum capacity at which the facility is operated or the nameplate capacity, whichever is specified in the facility's permit application, except when some lower capacity is contained in the facility's operation permit; in which case, the capacity specified in the operation permit shall be used.

$$Pt = 1.09 / 379^{0.26} = 0.23 \text{ lb/MMBtu}$$

- (2) The one (1) boiler, identified as 229-2, which was installed in 1997 and is rated at 1.8 MMBtu/hr, shall be limited pursuant to 326 IAC 6-2-4, using the equation contained in 326 IAC 6-2-4(a).

The equation contained in 326 IAC 6-2-4(a) is as follows:

$$Pt = 1.09 / Q^{0.26}$$

Where:

Pt = Pounds of particulate matter emitted per million Btu (lb/MMBtu) heat input.

Q = Total source maximum operating capacity rating in million Btu per hour (MMBtu/hr) heat input. The maximum operating capacity rating

is defined as the maximum capacity at which the facility is operated or the nameplate capacity, whichever is specified in the facility's permit application, except when some lower capacity is contained in the facility's operation permit; in which case, the capacity specified in the operation permit shall be used.

$$Pt = 1.09 / 381^{0.26} = 0.23 \text{ lb/MMBtu}$$

- (3) The one (1) boiler, identified as 293-1, which was installed in 1998 and is rated at 2.1 MMBtu/hr, shall be limited pursuant to 326 IAC 6-2-4, using the equation contained in 326 IAC 6-2-4(a).

The equation contained in 326 IAC 6-2-4(a) is as follows:

$$Pt = 1.09 / Q^{0.26}$$

Where:

Pt = Pounds of particulate matter emitted per million Btu (lb/MMBtu) heat input.

Q = Total source maximum operating capacity rating in million Btu per hour (MMBtu/hr) heat input. The maximum operating capacity rating is defined as the maximum capacity at which the facility is operated or the nameplate capacity, whichever is specified in the facility's permit application, except when some lower capacity is contained in the facility's operation permit; in which case, the capacity specified in the operation permit shall be used.

$$Pt = 1.09 / 383^{0.26} = 0.23 \text{ lb/MMBtu}$$

- (4) The one (1) boiler, identified as 254-R, which was installed in 2006 with a maximum rating of 100 MMBtu/hr, shall be limited pursuant to 326 IAC 6-2-4, using the equation contained in 326 IAC 6-2-4(a).

The equation contained in 326 IAC 6-2-4(a) is as follows:

$$Pt = 1.09 / Q^{0.26}$$

Where:

Pt = Pounds of particulate matter emitted per million Btu (lb/MMBtu) heat input.

Q = Total source maximum operating capacity rating in million Btu per hour (MMBtu/hr) heat input. The maximum operating capacity rating is defined as the maximum capacity at which the facility is operated or the nameplate capacity, whichever is specified in the facility's permit application, except when some lower capacity is contained in the facility's operation permit; in which case, the capacity specified in the operation permit shall be used.

$$Pt = 1.09 / 348^{0.26} = 0.24 \text{ lb/MMBtu}$$

- (c) Pursuant to 326 IAC 6-2-1(g), for the one (1) boiler, identified as 254-4, installed in 1982 with a rating of 78 MMBtu/hr, the particulate shall be limited pursuant to the facilities construction permit. Pursuant to Construction Permit No.: 30-07-93-0074, the particulate emissions from the one (1) boiler 254-4 shall not exceed 0.015 lb/MMBtu.

The PM limitations of the eight (8) boilers are shown as Pt in the table below:

Boiler ID	Boiler Capacity* (MMBtu/hr)	Heat Input Capacity Q (MMBtu/hr)	PM Limitation Pt (lbs/MMBtu)	Worst Case Fuel for PM	AP-42 Emission Factors (lbs/MMBtu)
254-1	51.0	150	0.39	No. 2 fuel oil	0.014
254-2	63.0	150	0.39	No. 2 fuel oil	0.014
254-3	67.0	299	0.35	No. 2 fuel oil	0.014
254-4	78.0	377	0.015	No. 2 fuel oil	0.014
229-1	1.8	379	0.23	Natural Gas	0.0019
229-2	1.8	381	0.23	Natural Gas	0.0019
293-1	2.1	383	0.23	Natural Gas	0.0019
254-R	82.3	348	0.24	No. 2 fuel oil	0.014

*The capacity at the time of construction is greater than the total capacity of the boilers listed in most cases because there were boilers at this source that have since been removed.

As shown in the table above, according to AP-42, the eight (8) boilers can comply with these limits when operating on No. 2 fuel oil.

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

- (a) Pursuant to 326 IAC 6-3-1(b)(2), the one (1) natural gas-fired, multi chamber Consumat incinerator, identified as 241-1, is exempt from the requirements of 326 IAC 6-3 because incineration units are not regulated by this rule.
- (b) Pursuant to 326 6-3-1(b)(1), the indirect heating facilities at this source are exempt from the requirements of 326 IAC 6-3 because indirect heating facilities are not regulated by this rule.

326 IAC 7-1.1 (Sulfur Dioxide Emission Limitations)

- (a) The potential SO₂ emissions from the five (5) boilers identified as 254-1, 254-2, 254-3, 254-4 and 254-R are each greater than twenty-five (25) tons per year when combusting No. 2 fuel oil. Therefore, the requirements of 326 IAC 7-1.1 are applicable to these combustion units. Pursuant to 326 IAC 7-1.1-2, sulfur dioxide emissions shall be limited to five-tenths (0.5) pound per MMBtu when using No. 2 fuel (distillate) oil.
- (b) Pursuant to CP 30-07-93-0074, sulfur dioxide emissions from boiler 254-4 shall be limited to 0.36 pound per million Btu heat input.
- (c) At the request of the source, the five (5) boilers identified as 254-1, 254-2, 254-3, 254-4, and 254-R shall each be required to comply with the more stringent FESOP limit of 0.35% sulfur content. Compliance with this limit will satisfy the requirements of 326 IAC 7-1.1 for these facilities.
- (d) The potential SO₂ emissions from all other facilities at this source are less than twenty-five (25) tons per year and ten (10) pounds per hour. Therefore, the requirements of 326 IAC 7-1.1 are not applicable to remaining facilities.

326 IAC 8-1-6 (New facilities; general reduction requirements)

The potential to emit VOC from any of the facilities at this source is less than twenty-five (25) tons per year. Therefore, the requirements of 326 IAC 8-1-6 are not applicable to any of the facilities at this source.

326 IAC 8-9-1 (Volatile Organic Liquid Storage Vessels)

This source is not located in Clark, Floyd, Lake or Porter Counties. Therefore, the requirements of 326 IAC 8-9 are not applicable.

326 IAC 9-1 (Carbon Monoxide Emission Limits)

(a) The one (1) natural gas-fired, multi chamber Consumat incinerator, identified as 241-1, was constructed and operating after March 21, 1972, and is considered a refuse incinerator. Therefore, pursuant to 326 IAC 9-1-1(a), the Consumat incinerator is subject to the requirements of 326 IAC 9-1-2(a)(3). Pursuant to 326 IAC 9-1-2(a)(3), the source shall not operate a refuse incinerator or refuse burning equipment unless the waste gas stream is burned in one (1) of the following:

(1) Direct-flame afterburner.

(2) Secondary chamber.

(b) All other facilities at this source do not have petroleum refining, ferrous metal smelting or refuse incineration and burning emissions. Therefore, the requirements of 326 IAC 9-1 are not applicable to other facilities at the source.

326 IAC 10-4 (NO_x Budget Trading Program)

The provisions of 326 IAC 10-4 do not apply to the emergency generators at this source because the emergency generators do not meet the definition of electricity generating units as defined in 326 IAC 10-4-2(16) or large affected units as defined in 326 IAC 10-4-2(27).

Compliance Determination and Monitoring Requirements

Permits issued under 326 IAC 2-8 are required to ensure that sources can demonstrate compliance with all applicable state and federal rules on a continuous basis. All state and federal rules contain compliance provisions, however, these provisions do not always fulfill the requirement for a continuous demonstration. When this occurs, IDEM, OAQ, in conjunction with the source, must develop specific conditions to satisfy 326 IAC 2-8-4. As a result, Compliance Determination Requirements are included in the permit. The Compliance Determination Requirements in Section D of the permit are those conditions that are found directly within state and federal rules and the violation of which serves as grounds for enforcement action.

If the Compliance Determination Requirements are not sufficient to demonstrate continuous compliance, they will be supplemented with Compliance Monitoring Requirements, also in Section D of the permit. Unlike Compliance Determination Requirements, failure to meet Compliance Monitoring conditions would serve as a trigger for corrective actions and not grounds for enforcement action. However, a violation in relation to a compliance monitoring condition will arise through a source's failure to take the appropriate corrective actions within a specific time period.

The compliance monitoring requirements applicable to this source are as follows:

Emission Unit	Parameter	Frequency	Range	Compliance Response Plan
254-1, 254-2, 254-3, 254-4 and 254-R stack exhausts	Visible Emission Notations	Daily, whenever burning fuel oil	Normal-Abnormal	Response Steps

These monitoring conditions are necessary in order to ensure compliance with 326 IAC 2-8 (FESOP) and 326 IAC 6-2-3 (Particulate emission limitations for sources of indirect heating).

Recommendation

The staff recommends to the Commissioner that the FESOP 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 July 27, 2006. Additional information was received on November 13, 2007, December 14, 2007, and December 18, 2007.

Conclusion

The operation of this pharmaceutical research source shall be subject to the conditions of the attached FESOP Renewal No. 059-23436-00001.

Appendix A: Emissions Calculations
Natural Gas and No. 2 Fuel Oil Combustion - Boilers and Incinerator

Company Name: **Eli Lilly and Company – Greenfield Laboratories**
 Address City IN Zip: **2001 West Main Street, Greenfield, Indiana 46140**
 Permit Number: **F 059-23436-00001**
 Reviewer: **Stephanie Wilkerson**
 Date: **December 17, 2007**

Natural Gas Combustion Emission Factors (lbs/mmcf)

PM*	PM10*	SO2	NOx	VOC	CO	Benzene	Dichlorobenzene	Formaldehyde	Hexane	Toluene	Lead	Cadmium	Chromium	Manganes	Nickel
1.90	7.60	0.600	100	5.50	84.0	0.00210	0.00120	0.07500	1.80000	0.00340	0.0005	0.0011	0.0014	0.0004	0.0021

No. 2 Fuel Oil Combustion Emission Factors (lbs/kgal)

S = $\frac{0.350}{(142.0S)}$ Weight % Sulfur

PM*	PM*	SO2	NOx	VOC	CO	Arsenic	Beryllium	Cadmium	Chromium	Lead	Mercury	Manganese	Nickel	Selenium
2.00	2.00	49.7	20.0	0.340	5.00	0.000004	0.000003	0.000003	0.000003	0.000009	0.000003	0.000006	0.000003	0.00002

Facility	Fuel Type	Heat Input Capacity (mmbtu/hr)	Potential Throughput (MMCF/yr) (Nat. Gas)	Pollutants							HAPs								
				PM*	PM10*	SO2	NOx	VOC	CO	Benzene	Dichlorobenzene	Formaldehyde	Hexane	Toluene	Lead	Cadmium	Chromium	Manganese	Nickel
254-1	Nat. Gas *	51.0	447	0.424	1.70	0.134	22.3	1.23	18.8	0.0005	0.0003	0.017	0.402	0.0008	0.0001	0.0002	0.0003	0.0001	0.0005
254-1	Oil	51.0	3191	3.19	3.19	79	31.9	0.542	8.0	0.00	0.00	0.00	0.00	0.00001	0.00000	0.00000	0.00001	0.00000	
254-1	Worst Case	51.0		3.19	3.19	79	31.9	1.23	18.8	0.0005	0.0003	0.017	0.402	0.0008	0.0001	0.0002	0.0003	0.0001	0.0005
254-2	Nat. Gas *	63.0	552	0.524	2.10	0.166	27.6	1.52	23.2	0.001	0.0003	0.021	0.497	0.001	0.0001	0.0003	0.0004	0.0001	0.001
254-2	Oil	63.0	3942	3.94	3.94	98	39.4	0.670	9.9	0.00	0.00	0.00	0.00	0.00002	0.00001	0.00001	0.00001	0.00001	
254-2	Worst Case	63.0		3.94	3.94	98	39.4	1.52	23.2	0.001	0.0003	0.021	0.497	0.001	0.0001	0.0003	0.0004	0.0001	0.001
254-3	Nat. Gas *	67.0	587	0.558	2.23	0.176	29.3	1.61	24.7	0.001	0.0004	0.022	0.528	0.001	0.0001	0.0003	0.0004	0.0001	0.001
254-3	Oil	67.0	4192	4.19	4.19	104	41.9	0.713	10.5	0.00	0.00	0.00	0.00	0.00002	0.00001	0.00001	0.00001	0.00001	
254-3	Worst Case	67.0		4.19	4.19	104	41.9	1.61	24.7	0.001	0.0004	0.022	0.528	0.001	0.0001	0.0003	0.0004	0.0001	0.001
254-4	Nat. Gas *	78.0	683	0.649	2.60	0.205	34.2	1.88	28.7	0.001	0.0004	0.026	0.615	0.001	0.0002	0.0004	0.00048	0.00013	0.001
254-4	Oil	78.0	4881	4.88	4.88	121	48.8	0.830	12.2	0.00	0.00	0.00	0.00	0.00002	0.00001	0.00001	0.00001	0.00001	
254-4	Worst Case	78.0		4.88	4.88	121	48.8	1.88	28.7	0.001	0.0004	0.026	0.615	0.001	0.0002	0.0004	0.0005	0.0001	0.001
254-R	Nat. Gas*	82.3	721	0.685	2.74	0.216	36.0	1.98	30.3	0.001	0.0004	0.027	0.649	0.001	0.0002	0.0004	0.0005	0.0001	0.001
254-R	Oil	82.3	5150	5.15	5.15	128	51.5	0.875	12.9	0.00	0.00	0.00	0.00	0.00002	0.00001	0.00001	0.00002	0.00001	
254-R	Worst Case	82.3		5.15	5.15	128	51.5	1.98	30.3	0.001	0.0004	0.027	0.649	0.001	0.0002	0.0004	0.0005	0.0001	0.001

	PM*	PM10*	SO2	NOx	VOC	CO	Benzene	Dichlorobenzene	Formaldehyde	Hexane	Toluene	Lead	Cadmium	Chromium	Manganese	Nickel
Total	21.4	21.4	530.7	213.6	8.2	125.6	0.003	0.002	0.112	2.69	0.005	0.001	0.002	0.002	0.001	0.003

*PM emission factor is filterable PM only. PM10 emission factor is filterable and condensable PM10 combined.
 **Emission Factors for NOx: Uncontrolled = 100, Low NOx Burner = 50, Low NOx Burners/Flue gas recirculation = 32

Methodology

Natural Gas
 All emission factors are based on normal firing.
 MMBtu = 1,000,000 Btu MMCF = 1,000,000 Cubic Feet of Gas
 Potential Throughput (MMCF) = Heat Input Capacity (MMBtu/hr) x 8,760 hrs/yr x 1 MMCF/1,000 MMBtu
 Emission Factors are from AP 42, Chapter 1.4, Tables 1.4-1, 1.4-2, 1.4-3, SCC #1-02-006-02, 1-01-006-02, 1-03-006-02, and 1-03-006-03 (SUPPLEMENT D 3/98)
 Emission (tons/yr) = Throughput (MMCF/yr) x Emission Factor (lb/MMCF)/2,000 lb/ton
 The five highest organic and metal HAPs emission factors are provided above. Additional HAPs emission factors are available in AP-42, Chapter 1.4.

No. 2 Fuel Oil
 1 gallon of No. 2 Fuel Oil has a heating value of 140,000 Btu
 Potential Throughput (kgals/year) = Heat Input Capacity (MMBtu/hr) x 8,760 hrs/yr x 1kgal per 1000 gallon x 1 gal per 0.140 MM Btu
 Emission Factors are from AP 42, Tables 1.3-1, 1.3-2, and 1.3-3 (SCC 1-03-005-01/02/03) Supplement E 9/98 (see erata file) No data was available in AP-42 for organic HAPs.
 Emission (tons/yr) = Throughput (kgals/ yr) x Emission Factor (lb/kgal)/2,000 lb/ton

**Appendix A: Emissions Calculations
Natural Gas Combustion Only
MM BTU/HR <100**

**Company Name: Eli Lilly and Company – Greenfield Laboratories
Address City IN Zip: 2001 West Main Street, Greenfield, Indiana 46140
Permit Number: F 059-23436-00001
Reviewer: Stephanie Wilkerson
Date: December 17, 2007**

Facility	Heat Input Capacity MMBtu/hr
229-1	1.8
229-2	1.8
293-1	2.1
241-1 (Incin.)	2.8

Total Heat Input Capacity (MMBtu/hr)	8.5
Total Potential Throughput (MMCF/yr)	74

Emission Factor in lb/MMCF	Pollutant					
	PM*	PM10*	SO2	NOx 100 **see below	VOC	CO
Potential Emission in tons/yr	0.071	0.283	0.022	3.723	0.205	3.127

*PM emission factor is filterable PM only. PM10 emission factor is filterable and condensable PM10 combined.

**Emission Factors for NOx: Uncontrolled = 100, Low NOx Burner = 50, Low NOx Burners/Flue gas recirculation = 32

Emission Factor in lb/MMcf	HAPs - Organics				
	Benzene	Dichlorobenzene	Formaldehyde	Hexane	Toluene
Potential Emission in tons/yr	0.000078	0.000045	0.002792	0.067014	0.000127

Emission Factor in lb/MMcf	HAPs - Metals					Total
	Lead	Cadmium	Chromium	Manganese	Nickel	
Potential Emission in tons/yr	0.00002	0.00004	0.00005	0.00001	0.00008	0.070

Methodology

All emission factors are based on normal firing.

MMBtu = 1,000,000 Btu

MMCF = 1,000,000 Cubic Feet of Gas

Potential Throughput (MMCF) = Heat Input Capacity (MMBtu/hr) x 8,760 hrs/yr x 1 MMCF/1,000 MMBtu

Emission Factors are from AP 42, Chapter 1.4, Tables 1.4-1, 1.4-2, 1.4-3, SCC #1-02-006-02, 1-01-006-02, 1-03-006-02, and 1-03-006-03 (SUPPLEMENT D 3/98)

Emission (tons/yr) = Throughput (MMCF/yr) x Emission Factor (lb/MMCF)/2,000 lb/ton

The five highest organic and metal HAPs emission factors are provided above.

Additional HAPs emission factors are available in AP-42, Chapter 1.4.

**Appendix A: Emission Calculations
Internal Combustion Engines - Diesel Fuel
(>250 and <600 HP)
Reciprocating**

Company Name: Eli Lilly and Company – Greenfield Laboratories
Address City IN Zip: 2001 West Main Street, Greenfield, Indiana 46140
Permit Number: F 059-23436-00001
Reviewer: Stephanie Wilkerson
Date: December 17, 2007

Facility	Heat Input Capacity MM Btu/hr
Emergency Generators	
226	2.3
241-OUT	2.8
418	2.6
EG210	1.162
Fire Pumps	
FP-B204	0.820
FP-B208	0.820

Total Heat Input Capacity (MMBtu/hr)	10.5
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Emission Factor in lb/MMBtu	Pollutant					
	PM*	PM10*	SO2	NOx	VOC	CO
0.31	0.31	0.31	0.29	4.41	0.4	0.95
Potential Emission in tons/yr	0.33	0.33	0.30	4.63	0.38	1.00

HAP	Emission Factor Diesel Engines (lb/MMBtu)	Potential to Emit (tons/yr)
Propylene	0.003	0.119
Formaldehyde	0.001	0.054
Acetylaldehyde	0.001	0.035
Total HAPs:	0.006	0.297

Methodology

Emission Factors are from AP42 (Supplement B 10/96), Tables 3.3-1 and 3.3-2

Emission (tons/yr) = [Heat input rate (MMBtu/hr) x Emission Factor (lb/MMBtu)] * 200 hr/yr / (2,000 lb/ton)

*PM emission factors are assumed to be equivalent to PM10 emission factors.

Potential to Emit for the emergency generators is based on 200 hours per year of operation, as approved by IDEM, OAQ in Administrative Amendment 059-12151-00001.

**Appendix A: Emission Calculations
Internal Combustion Engines - Diesel Fuel
(>600 HP)**

**Company Name: Eli Lilly and Company – Greenfield Laboratories
Address City IN Zip: 2001 West Main Street, Greenfield, Indiana 46140
Permit Number: F 059-23436-00001
Reviewer: Kyle Gregory/MES
Date: July 3, 2008**

Facility	Heat Input Capacity MM Btu/hr
Emergency Generators	
LC45	19.9
254-EG	10.42
EMG-TOX	19.3
EG220	8.4

S= 0.5 = WEIGHT % SULFUR

Total Heat Input Capacity (MMBtu/hr)	58.0
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Emission Factor in lb/MMBtu	Pollutant					
	PM*	PM10*	SO2	NOx	VOC	CO
	0.1	0.0573	0.5 <i>(1.01S)</i>	3.2 <i>**see below</i>	0.1	0.85
Potential Emission in tons/yr	0.6	0.3	2.9	18.6	0.5	4.9

**NOx emissions: uncontrolled = 3.2 lb/MMBtu, controlled with ignition timing retard = 1.9 lb/MMBtu

HAP	Emission Factor Diesel Engines (lb/MMBtu)	Potential to Emit (tons/yr)
Benzene	0.001	0.197
Propylene	0.003	0.708
Total HAPs:	0.004	1.054

Methodology

Potential Throughput (hp-hr/yr) = hp * 8760 hr/yr

Emission Factors are from AP 42 (Supplement B 10/96) Tables 3.4-1, 3.4-2, and 3.4-3.

Emission (tons/yr) = [Heat input rate (MMBtu/hr) x Emission Factor (lb/MMBtu)] * 200 hr/yr / (2,000 lb/ton)

*No information

Potential to Emit for the emergency generators is based on 200 hours per year of operation, as approved by IDEM, OAQ in Administrative Amendment 059-12151-00001.

**Appendix A: Emission Calculations
Natural Gas-fired Reciprocating Engines**

**Company Name: Eli Lilly and Company – Greenfield Laboratories
Address City IN Zip: 2001 West Main Street, Greenfield, Indiana 46140
Permit Number: F 059-23436-00001
Reviewer: Stephanie Wilkerson
Date: December 17, 2007**

Facility	Heat Input Capacity MM Btu/hr
Emergency Generators	
206	0.422
223	0.047
229	0.563
241-PENT	0.375
276	0.047
288	0.141
296	0.657

Total Heat Input Capacity (MMBtu/hr)	2.253
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Emission Factor in lb/MMBtu	Pollutant					
	PM 0.0001	PM10 0.010	SO2 0.001	NOx 4.08	VOC 0.118	CO 0.317
Potential Emission in tons/yr	0.0000	0.0022	0.0001	0.9192	0.0266	0.0714

HAP	Emission Factor (lb/MMBtu)	Potential to Emit (tons/yr)
2,2,4-Trimethylpentane	0.008	0.082
Acetaldehyde	0.005	0.051
Ethylene Dibromide	0.053	0.52
Xylene	Total HAPs:	0.71

Methodology

Emission Factors are from AP 42 Tables 3.2-2, Four stroke Lean Burn Engines, revised August 2000
Emission (tons/yr) = [Heat input rate (MMBtu/hr) x Emission Factor (lb/MMBtu)] * 200 hr/yr / (2,000 lb/ton)
Potential to Emit for the emergency generators is based on 200 hours per year of operation, as approved by IDEM, OAQ in Administrative Amendment 059-12151-00001.

**Appendix A: Emissions Calculations
Propane-fired Reciprocating Engines
MM BTU/HR <100**

Company Name: Eli Lilly and Company – Greenfield Laboratories
Address City IN Zip: 2001 West Main Street, Greenfield, Indiana 46140
Permit Number: F 059-23436-00001
Reviewer: Stephanie Wilkerson
Date: December 17, 2007

Facility	Heat Input Capacity MMBtu/hr
Emergency Generators	
290	4.3
212	0.478

Total Heat Input Capacity (MMBtu/hr)	4.8
Total Potential Throughput (kgal/200 hrs)	11

	Pollutant	
	PM	PM10
Emission Factor in lb/Kgal	5.00	5.00
Potential Emission in tons/yr	0.03	0.03

Methodology

1 gallon of propane = 91000 Btu

Emission Factor is SCC 2-03-010-01

Emission (tons/yr) = [Heat input rate (MMBtu/hr) x Emission Factor (lb/MMBtu)] * 200 hr/yr / (2,000 lb/ton)

Potential to Emit for the emergency generators is based on 200 hours per year of operation, as approved by IDEM, OAQ in Administrative Amendment 059-12151-00001.

**Appendix A: Emission Calculations
Medical Waste Incinerator**

Company Name: Eli Lilly and Company – Greenfield Laboratories
Address City IN Zip: 2001 West Main Street, Greenfield, Indiana 46140
Permit Number: F 059-23436-00001
Reviewer: Stephanie Wilkerson
Date: December 17, 2007

Facility: 241-1

Throughput (lbs/hr)	350
Throughput (ton/yr)	1533

	Pollutants						
	PM	PM10	SO2	NOx	VOC	CO	HCl
Emission Factor in lb/ton	4.67	3.04	2.17	3.56	0.299	2.95	33.5
Potential Emissions in ton/yr	3.58	2.33	1.66	2.73	0.229	2.26	25.7

Methodology

Emission factors are from AP 42 (5th Edition 1/95) Chapter 2.3, Medical Waste Incineration, Tables 2.3-1 - 2.3-3.

Throughput (ton/yr) = Throughput (lb/hr) * 8760 hr/yr / 2000 lb/ton

Emission (tons/yr) = Throughput (tons/yr) x Emission Factor (lb/ton) / 2,000 lb/ton

**Appendix A: Emission Calculations
Summary**

**Company Name: Eli Lilly and Company – Greenfield Laboratories
Address City IN Zip: 2001 West Main Street, Greenfield, Indiana 46140
Permit Number: F 059-23436-00001
Reviewer: Stephanie Wilkerson
Date: December 17, 2007**

Uncontrolled Potential to Emit

Facility	Pollutants					
	PM	PM-10	SO ₂	NO _x	VOC	CO
254-1 (worst case)	3.19	3.19	79.3	31.9	1.23	18.8
254-2 (worst case)	3.94	3.94	98.0	39.4	1.52	23.2
254-3 (worst case)	4.19	4.19	104	41.9	1.61	24.7
254-4 (worst case)	4.88	4.88	121	48.8	1.88	28.7
254-R (worst case)	5.15	5.15	128	51.5	1.98	30.3
Insignificant Natural Gas Combustion	0.071	0.283	0.022	3.72	0.205	3.13
No. 2 Internal Combustion Engines	0.91	0.66	3.23	23.2	0.90	5.93
Natural Gas Internal Combustion Engines	0.0000	0.002	0.000	0.92	0.03	0.1
Propane Internal Combustion Engines	0.03	0.03	-	-	-	-
Incinerator	3.58	2.33	1.66	2.73	0.229	2.26
Total	25.9	24.7	536	244	10.6	137

HAPs

Facility	Acetaldehyde	Acrolein	Formaldehyde	HCl	Hexane	Propylene	Total HAPs
254-1 (worst case)	0.00	0.00	0.017	0.00	0.402	0.00	0.422
254-2 (worst case)	0.00	0.00	0.021	0.00	0.497	0.00	0.521
254-3 (worst case)	0.00	0.00	0.022	0.00	0.528	0.00	0.554
254-4 (worst case)	0.00	0.00	0.026	0.00	0.615	0.00	0.645
254-R (worst case)	0.00	0.00	0.027	0.00	0.649	0.00	0.680
Insignificant Natural Gas Combustion	0.00	0.00	0.003	0.00	0.067	0.00	0.070
No. 2 Internal Combustion Engines	0.04	0.00	0.054	0.00	0.00	0.83	1.35
Natural Gas Internal Combustion Engines	0.08	0.05	0.52	0.00	0.00	0.00	0.71
Propane Internal Combustion Engines	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Incinerator	0.00	0.00	0.00	25.7	0.00	0.00	25.7
Total	0.118	0.051	0.69	25.7	2.76	0.827	30.6

Limited Potential to Emit

Facility	Pollutants					
	PM	PM-10	SO ₂	NO _x	VOC	CO
254-1 (worst case)	3.19	3.19	83.0	36.9	1.23	31.0
254-2 (worst case)	3.94	3.94			1.52	
254-3 (worst case)	4.19	4.19			1.61	
254-4 (worst case)	4.88	4.88			1.88	
254-R (worst case)	5.15	5.15			1.98	
Insignificant Natural Gas Combustion	0.071	0.283	0.022	3.72	0.205	3.13
No. 2 Internal Combustion Engines	0.91	0.66	3.23	23.18	0.90	5.93
Natural Gas Internal Combustion Engines	0.0000	0.002	0.000	0.92	0.027	0.071
Propane Internal Combustion Engines	0.026	0.026	-	-	-	-
Incinerator	3.58	2.33	1.66	2.73	0.229	2.26
Total	25.9	24.7	87.9	67.5	10.6	42.4

HAPs

Facility	HCl	Total HAPs
254-1 (worst case)	0.00	0.422
254-2 (worst case)	0.00	0.521
254-3 (worst case)	0.00	0.554
254-4 (worst case)	0.00	0.645
254-R (worst case)	0.00	0.680
Insignificant Natural Gas Combustion	0.00	0.070
No. 2 Internal Combustion Engines	0.00	1.351
Natural Gas Internal Combustion Engines	0.00	0.712
Propane Internal Combustion Engines	0.00	0.000
Incinerator	<10	<10
Total	<10	<17.3