INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
We make Indiana a cleaner, healthier place to live.

Mitchell E. Daniels, Jr.
Governor

Thomas W. Easterly
Commissioner

100 North Senate Avenue
Indianapolis, Indiana 46204
(317) 232-8603
(800) 451-6027
www.IN.gov/idem

TO: Interested Parties / Applicant

DATE: January 25, 2006

RE: Abengoa Bioenergy of Indiana / 129-23484-00050

FROM: Nisha Sizemore
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, Room 1049, 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.dot 03/23/06

Mitchell E. Daniels, Jr.
Governor

Thomas W. Easterly
Commissioner

100 North Senate Avenue
Indianapolis, Indiana 46204-2251
(317) 232-8603
(800) 451-6027
www.IN.gov/idem

NEW CONSTRUCTION FEDERALLY ENFORCEABLE STATE OPERATING PERMIT OFFICE OF AIR QUALITY

Abengoa Bioenergy of Indiana
West Franklin Rd and Darnell School Rd
West Franklin, Indiana 47620

(herein known as the Permittee) is hereby authorized to construct and 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. This permit also addresses certain new source review requirements for existing equipment and is intended to fulfill the new source review procedures pursuant to 326 IAC 2-2 and 326 IAC 2-8-11.1, applicable to those conditions.

Operation Permit No.: 129-23484-00050	
Original signed by: Nisha Sizemore, Chief Permits Branch Office of Air Quality	Issuance Date: January 25, 2007 Expiration Date: January 25, 2012

TABLE OF CONTENTS

A SOURCE SUMMARY 8
- A.1 General Information [326 IAC 2-8-3(b)]
- A.2 Emission Units and Pollution Control Equipment Summary [326 IAC 2-8-3(c)(3)]
- A.3 Insignificant Activities [326 IAC 2-7-1(21)][326 IAC 2-8-3(c)(3)(I)]
- A.4 FESOP Applicability [326 IAC 2-8-2]

B GENERAL CONDITIONS 12
- B.1 Definitions [326 IAC 2-8-1]
- B.2 Revocation of Permits [326 IAC 2-1.1-9(5)]
- B.3 Affidavit of Construction [326 IAC 2-5.1-3(h)] [326 IAC 2-5.1-4
- B.4 Permit Term [326 IAC 2-8-4(2)][326 IAC 2-1.1-9.5][IC 13-15-3-6(a)]
- B.5 Term of Conditions [326 IAC 2-1.1-9.5]
- B.6 Enforceability [326 IAC 2-8-6]
- B.7 Severability [326 IAC 2-8-4(4)]
- B.8 Property Rights or Exclusive Privilege [326 IAC 2-8-4(5)(D)]
- B.9 Duty to Provide Information [326 IAC 2-8-4(5)(E)]
- B.10 Certification [326 IAC 2-8-3(d)][326 IAC 2-8-4(3)(C)(i)][326 IAC 2-8-5(1)]
- B.11 Annual Compliance Certification [326 IAC 2-8-5(a)(1)]
- B.12 Compliance Order Issuance [326 IAC 2-8-5(b)]
- B.13 Preventive Maintenance Plan [326 IAC 1-6-3][326 IAC 2-8-4(9)][326 IAC 2-8-5(a)(1)]
- B.14 Emergency Provisions [326 IAC 2-8-12]
- B.15 Prior Permits Superseded [326 IAC 2-1.1-9.5]
- B.16 Termination of Right to Operate [326 IAC 2-8-9][326 IAC 2-8-3(h)]
- B.17 Deviations from Permit Requirements and Conditions [326 IAC 2-8-4(3)(C)(ii)]
- B.18 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]
- B.19 Permit Renewal [326 IAC 2-8-3(h)]
- B.20 Permit Amendment or Revision [326 IAC 2-8-10][326 IAC 2-8-11.1]
- B.21 Operational Flexibility [326 IAC 2-8-15][326 IAC 2-8-11.1]
- B.22 Source Modification Requirement [326 IAC 2-8-11.1]
- B.23 Inspection and Entry [326 IAC 2-8-5(a)(2)][IC 13-14-2-2][IC 13-17-3-2][IC13-30-3-1]
- B.24 Transfer of Ownership or Operational Control [326 IAC 2-8-10]
- B.25 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]
- B.26 Credible Evidence [326 IAC 2-8-4(3)][326 IAC 2-8-5][62 FR 8314] [326 IAC 1-1-6]

C SOURCE OPERATION CONDITIONS 22

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]
- C.2 Overall Source Limit [326 IAC 2-8]
- C.3 Opacity [326 IAC 5-1]
- C.4 Open Burning [326 IAC 4-1] [IC 13-17-9]
- C.5 Incineration [326 IAC 4-2] [326 IAC 9-1-2]
- C.6 Fugitive Dust Emissions [326 IAC 6.8-10-3]
- C.7 Stack Height [326 IAC 1-7]

Testing Requirements [326 IAC 2-8-4(3)]
- C.8 Asbestos Abatement Projects [326 IAC 14-10] [326 IAC 18] [40 CFR 61, Subpart M]
- C.9 Performance Testing [326 IAC 3-6]

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

TABLE OF CONTENTS (Continued)

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)]
C.12 Monitoring Methods [326 IAC 3][40 CFR 60][40 CFR 63]
C.13 Instrument Specifications [326 IAC 2-1.1-11] [326 IAC 2-8-4(3)][326 IAC 2-8-5(1)]

Corrective Actions and Response Steps [326 IAC 2-8-4][326 IAC 2-8-5(a)(1)]
C.14 Risk Management Plan
C.15 Response to Excursions or Exceedances [326 IAC 2-7-5] [326 IAC 2-7-6]
C.16 Actions Related to Noncompliance Demonstrated by a Stack Test [326 IAC 2-7-5] [326 IAC 2-7-6]

Record Keeping and Reporting Requirements [326 IAC 2-8-4(3)]
C.17 General Record Keeping Requirements**[326 IAC 2-8-4(3)] [326 IAC 2-8-5]**
C.18 General Reporting Requirements [326 IAC 2-8-4(3)(C)] [326 IAC 2-1.1-11]

Stratospheric Ozone Protection
C.19 Compliance with 40 CFR 82 and 326 IAC 22-1

D.1 FACILITY OPERATION CONDITIONS – Grain and DDGS Handling Processes..... 29

Construction Conditions

General Construction Conditions
D.1.1 Permit No Defense

Effective Date of the Permit
D.1.2 Effective Date of the Permit [IC13-15-5-3]
D.1.3 Modification to Construction Conditions [326 IAC 2]

Operation Conditions

Emission Limitations and Standards [326 IAC 2-8-4(1)]
D.1.4 PM and PM10 Emissions [326 IAC 2-2] [326 IAC 2-8-4]
D.1.5 Particulate Emission Limitations [326 IAC 6-3-2]
D.1.6 Preventive Maintenance Plan [326 IAC 2-8-4(9)]

Compliance Determination Requirements
D.1.7 Particulate Control
D.1.8 Testing Requirements [326 IAC 2-8-5(a)(1), (4)] [326 IAC 2-1.1-11]

Compliance Monitoring Requirements [326 IAC 2-8-4] [326 IAC 2-8-5(a)(1)]
D.1.9 Visible Emissions Notations
D.1.10 Parametric Monitoring
D.1.11 Broken or Failed Bag Detection

Record Keeping and Reporting Requirement [326 IAC 2-8-4(3)] [326 IAC 2-8-16]
D.1.12 Record Keeping Requirements
D.1.13 Reporting Requirements

D.2 FACILITY OPERATION CONDITIONS – Fermentation and Distillation Process..... 34

Construction Conditions

General Construction Conditions
D.2.1 Permit No Defense

TABLE OF CONTENTS (Continued)

Effective Date of the Permit
D.2.2 Effective Date of the Permit [IC13-15-5-3]
D.2.3 Modification to Construction Conditions [326 IAC 2]

Operation Conditions

Emission Limitations and Standards [326 IAC 2-8-4(1)]
D.2.4 FESOP Limits [326 IAC 2-2] [326 IAC 2-8-4] [326 IAC 2-4.1]
D.2.5 VOC Emissions [326 IAC 8-1-6]
D.2.6 Equipment Leaks of VOC [326 IAC 12][40 CFR 60, Subpart VV]
D.2.7 Preventive Maintenance Plan [326 IAC 2-8-4(9)]

Compliance Determination Requirements
D.2.8 VOC and HAP Control
D.2.9 Testing Requirements [326 IAC 2-8-5(a)(1), (4)] [326 IAC 2-1.1-11] [326 IAC 2-2]

Compliance Monitoring Requirements [326 IAC 2-8-4] [326 IAC 2-8-5(a)(1)]
D.2.10 Visible Emissions Notations

Record Keeping and Reporting Requirement [326 IAC 2-8-4(3)] [326 IAC 2-8-16]
D.2.11 Scrubber Pressure Drop and Flow Rate
D.2.12 Scrubber Detection
D.2.13 Record Keeping Requirements

D.3 FACILITY OPERATION CONDITIONS - Boilers 39

Construction Conditions

General Construction Conditions
D.3.1 Permit No Defense

Effective Date of the Permit
D.3.2 Effective Date of the Permit [IC13-15-5-3]
D.3.3 Modification to Construction Conditions [326 IAC 2]

Operation Conditions

Emission Limitations and Standards [326 IAC 2-8-4(1)]
D.3.4 FESOP Limits [326 IAC 2-2] [326 IAC 2-8-4]
D.3.5 Particulate Emissions [326 IAC 6-2-4]
D.3.6 New Source Performance Standards for Industrial - Commercial - Institutional Steam Generating Units [326 IAC 12][40 CFR 60, Subpart Db]
D.3.7 Preventive Maintenance Plan [326 IAC 2-8-4(9)]

Compliance Determination Requirements
D.3.8 Continuous Emissions Monitoring [326 IAC 3-5][40 CFR 60, Subpart Db] [326 IAC 2-2]][326 IAC 2-8-4]
D.3.9 NOx Monitoring System Downtime [326 IAC 2-2] [326 IAC 2-8-4] [40 CFR 60, Subpart Db]
D.3.10 Testing Requirements [326 IAC 2-8-5(a)(1), (4)] [326 IAC 2-1.1-11]

Record Keeping and Reporting Requirements [326 IAC 2-8-4(3)] [326 IAC 2-8-16]
D.3.11 Record Keeping Requirements
D.3.12 Reporting Requirements

TABLE OF CONTENTS (Continued)

D.4 FACILITY OPERATION CONDITIONS – Dryer and Cooling System 42

Construction Conditions

General Construction Conditions
D.4.1 Permit No Defense

Effective Date of the Permit
D.4.2 Effective Date of the Permit [IC13-15-5-3]
D.4.3 Modification to Construction Conditions [326 IAC 2]

Operation Conditions

Emission Limitations and Standards [326 IAC 2-8-4(1)]
D.4.4 FESOP Limits [326 IAC 2-2] [326 IAC 2-8-4] [326 IAC 2-4.1]
D.4.5 VOC Emissions [326 IAC 8-1-6]
D.4.6 Particulate Emission Limitations [326 IAC 6-3-2]
D.4.7 Preventive Maintenance Plan [326 IAC 2-8-4(9)]

Compliance Determination Requirements
D.4.8 Particulate Control
D.4.9 Testing Requirements [326 IAC 2-8-5(a)(1), (4)] [326 IAC 2-1.1-11]

Compliance Monitoring Requirements [326 IAC 2-8-4] [326 IAC 2-8-5(a)(1)]
D.4.10 Visible Emissions Notations
D.4.11 Thermal Oxidization Temperature
D.4.12 Parametric Monitoring

Record Keeping and Reporting Requirement [326 IAC 2-8-4(3)] [326 IAC 2-8-16]
D.4.13 Record Keeping Requirements

D.5 FACILITY OPERATION CONDITIONS – Ethanol Loading Racks..... 46

Construction Conditions

General Construction Conditions
D.5.1 Permit No Defense

Effective Date of the Permit
D.5.2 Effective Date of the Permit [IC13-15-5-3]
D.5.3 Modification to Construction Conditions [326 IAC 2]

Operation Conditions

Emission Limitations and Standards [326 IAC 2-8-4(1)]
D.5.4 FESOP Limits [326 IAC 2-2] [326 IAC 2-8-4]
D.5.5 VOC Emissions [326 IAC 8-1-6]
D.5.6 Equipment Leaks of VOC [326 IAC 12][40 CFR 60, Subpart VV]
D.5.7 Preventive Maintenance Plan [326 IAC 2-8-4(9)]

Compliance Determination Requirements
D.5.8 VOC Control
D.5.9 Testing Requirements [326 IAC 2-8-5(a)(1), (4)] [326 IAC 2-1.1-11] [326 IAC 2-2]

TABLE OF CONTENTS (Continued)

Compliance Monitoring Requirements [326 IAC 2-8-4] [326 IAC 2-8-5(a)(1)]
D.5.10 Flare Pilot Flame

Record Keeping and Reporting Requirement [326 IAC 2-8-4(3)] [326 IAC 2-8-16]
D.5.11 Record Keeping Requirements
D.5.12 Reporting Requirements

D.6 FACILITY OPERATION CONDITIONS – Diesel Generator 49

Emission Limitations and Standards [326 IAC 2-8-4(1)]
D.6.1 FESOP Limits [326 IAC 2-2] [326 IAC 2-8-4] [326 IAC 2-4.1]
D.6.2 Internal Combustion Engine [326 IAC 12] [40 CFR 60, Subpart IIII]

Compliance Determination Requirements
D.6.3 Testing Requirements [326 IAC 2-8-5(a)(1), (4)] [326 IAC 2-1.1-11] [326 IAC 2-2]

Compliance Monitoring Requirements [326 IAC 2-8-4] [326 IAC 2-8-5(a)(1)]
D.6.4 Flare Pilot Flame

Record Keeping and Reporting Requirement [326 IAC 2-8-4(3)] [326 IAC 2-8-16]
D.6.5 Record Keeping Requirements
D.6.6 Reporting Requirements

D.7 FACILITY OPERATION CONDITIONS - Storage Tanks 51

Emission Limitations and Standards [326 IAC 2-8-4(1)]
D.7.1 Volatile Organic Compounds (VOC) [326 IAC 8-4-3]
D.7.2 General Provisions Relating to NSPS [326 IAC 12-1][40 CFR Part 60, Subpart A]
D.7.3 Storage Tanks [326 IAC 12][40 CFR 60, Subpart Kb]
D.7.4 Preventive Maintenance Plan [326 IAC 2-8-4(9)]

Record Keeping and Reporting Requirement [326 IAC 2-8-4(3)] [326 IAC 2-8-16]
D.7.5 Record Keeping Requirements

E.1 FACILITY OPERATION CONDITIONS 52

New Source Performance Standards (NSPS) Requirements [326 IAC 2-7-5(1)]

E.1.1 General Provisions Relating to New Source Performance Standards [326 IAC 12-1] [40 CFR Part 60, Subpart A]
E.1.2 Standards of Performance for Equipment Leaks of VOC in the Synthetic Organic Chemicals Manufacturing Industry [40 CFR Part 60, Subpart VV] [326 IAC 12]

E.2 FACILITY OPERATION CONDITIONS 71

New Source Performance Standards (NSPS) Requirements [326 IAC 2-7-5(1)]
E.2.1 General Provisions Relating to New Source Performance Standards [326 IAC 12-1] [40 CFR Part 60, Subpart A]
E.2.2 Standard of Performance for Industrial-Commercial-Institutional Steam Generating Units Requirements [40 CFR Part 60, Subpart Db] [326 IAC 12]

E.3 FACILITY OPERATION CONDITIONS 80

New Source Performance Standards (NSPS) Requirements [326 IAC 2-7-5(1)]
E.3.1 General Provisions Relating to New Source Performance Standards [326 IAC 12-1] [40 CFR Part 60, Subpart A]

TABLE OF CONTENTS (Continued)

E.3.2 Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) [40 CFR Part 60, Subpart Kb] [326 IAC 12]

E.4 FACILITY OPERATION CONDITIONS 87

New Source Performance Standards (NSPS) Requirements [326 IAC 2-7-5(1)]

E.4.1 General Provisions Relating to New Source Performance Standards [326 IAC 12-1] [40 CFR Part 60, Subpart A]

E.4.2 Standards of Performance for Stationary Compression Ignition Internal Combustion Engines [40 CFR Part 60, Subpart IIII] [326 IAC 12]

Certification Form 93
Emergency Occurrence Form 94
Quarterly Report Form 96-102
Quarterly Deviation and Compliance Monitoring Report Form 103

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.4 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 ethanol production plant.

Authorized Individual:	President
Source Address:	West Franklin Rd and Darnell School Rd West Franklin, Indiana 47620
Mailing Address:	1400 Elbridge Payne, Suite 212 Chesterfield, Missouri 63017
General Source Phone Number:	(636) 728-0508
SIC Code:	2869
County Location:	Posey
Source Location Status:	Attainment for all criteria pollutants
Source Status:	Federally Enforceable State Operating Permit Program Minor Source, under PSD Minor Source, Section 112 of the Clean Air Act 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) grain receiving area, identified as EP1101, approved for construction in 2007, controlled by a baghouse, identified as CE1101, exhausting through stack S-1101, and consisting of the following:

(1) Two (2) truck receiving pits with a capacity of 560 tons per hour each;

(2) One (1) grain transfer drag conveyor with a capacity of 1120 tons per hour; and

(3) Two (2) grain storage silos each with a capacity of 9,520 tons.

(b) Three (3) hammermills, identified as EP2001, EP2002, and EP2003, approved for construction in 2007, each with a maximum throughput rate of 42 tons per hour of grain, controlled by baghouses CE2001, CE2002, and CE2003 and exhausting through stacks S-2001, S-2002, and S-2003 respectively.

(c) One (1) DDGS loadout operation, identified as EP1102, approved for construction in 2007 with a maximum throughput rate of 200 tons/hr, controlled by baghouse CE1102, exhausting to stack S-1102.

(d) One (1) fermentation process, approved for construction in 2007, with a maximum throughput rate of 12,000 gallons of anhydrous ethanol per hour, consisting of the following major equipment:

(1) One (1) prefermenter tank, identified as T-1400, using a wet scrubber (CE1400) and sodium bisulfite injection for VOC control, exhausting through stack S-1400.

(2) Six (6) main fermenters and one (1) beer well, identified as T-1401 through T-1407, using a wet scrubber (CE1401), and sodium bisulfite injection for VOC control, exhausting through stack S-1401.

(e) One (1) distillation process, approved for construction in 2007, with a maximum throughput rate of 12,000 gallons of anhydrous ethanol per hour, using a wet scrubber, (CE1504) and sodium bisulfite injection for VOC control, exhausting through stack S-1504, and consisting of the following major equipment:

(1) One (1) beer column identified as C-1510.

(2) One (1) stripping column identified as C-1520.

(3) One (1) rectifying column identified as C-1530.

(4) One (1) four-tower molecular sieve unit, with associated heat exchangers and pumps.

(f) Two (2) natural gas fired boilers, identified as BL5001 and BL5002, approved for construction in 2007, each with a maximum heat input rate of 182 MMBtu/hr, with emissions exhausting to stacks S-5001 and S-5002, respectively.

(g) Two (2) natural gas fired Swiss Combi "Eco-Dry" Dryer Systems, identified as D1801 and D1802, approved for construction in 2007, with a maximum heat input rate of 76.7MMBtu/hr and a design throughput rate of 20 tons per hour of DDGS each, with emissions exhausting through stacks S-1801 and S-1802.

Note: The basis of the Swiss Combi Dryer System is an indirect heat drying process using a closed steam loop with thermal oxidation. The DDGS cooler is also integrated into the Eco-Dry system.

(h) One (1) ethanol and E85 loading rack for trucks and railcars, identified as EP-2210, approved for construction in 2007, with a maximum throughput rate of 600 gallons per minute for trucks and 1,200 gallons per minute for railcars, controlled by a flare, identified as CE-2210, which is fueled by natural gas and has a maximum heat input capacity of 1.26 MMBtu/hr, and exhausts through stack S-2210.

(i) One (1) ethanol and E85 loading rack for barges, identified as EP-2211, approved for construction in 2007, with a maximum throughput rate of 2,000 gallons per minute, controlled by a flare, identified as CE-2211, which is fueled by natural gas and has a maximum heat input capacity of 3.78 MMBtu/hr, and exhausts through stack S-2211.

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:

(a) One (1) diesel fired stationary fire pump, identified as EP-1075, approved for construction in 2007, with a maximum power output rate of 420 horsepower, and exhausting to stack S-1075. [326 IAC 2-8-4]

(b) Noncontact cooling tower system with natural draft not regulated under a NESHAP.

(c) Replacement or repair of bags in baghouses and filters in other air filtration equipment.

(d) Paved roads and parking lots with public access. [326 IAC 6-4]

(e) Blowdown for any of the following: sight glass, boiler, compressors, pumps, and cooling tower.

(f) Grinding and machining operations controlled with fabric filters, scrubbers, mist collectors, wet collectors and electrostatic precipitators with a design grain loading of less than or equal to 0.03 grains per actual cubic foot and a gas flow rate less than or equal to

4000 actual cubic feet per minute, including the following: deburring, buffing, polishing, abrasive blasting, pneumatic conveying, and woodworking operations.

(g) A laboratory as defined in 326 IAC 2-7-1(21)(D).

(h) Other emission units, not regulated by a NESHAP, with PM10, NOx, and SO_2 emissions less than five (5) pounds per hour or twenty-five (25) pounds per day, CO emissions less than twenty-five (25) pounds per day, VOC emissions less than three (3) pounds per hour or fifteen (15) pounds per day, lead emissions less than six-tenths (0.6) tons per year or three and twenty-nine hundredths (3.29) pounds per day, and emitting greater than one (1) pound per day but less than five (5) pounds per day or one (1) ton per year of a single HAP, or emitting greater than one (1) pound per day but less than twelve and five tenths (12.5) pounds per day or two and five tenths (2.5) ton per year of any combination of HAPs:

(1) One (1) denaturant storage tank, identified as T2104, with a maximum capacity of 55,000 gallons equipped with an internal floating roof for VOC emissions control. [326 IAC 8-4-3] [40 CFR 60, Subpart Kb]

(2) Three (3) tanks for storage of denatured fuel ethanol and/or E-85, identified as T2102, T2103, and T2105 each with a maximum capacity of 1,000,000 gallons, and each equipped with an internal floating roof for VOC emissions control. [40 CFR 60, Subpart Kb]

(3) One (1) fixed-roof anhydrous ethanol off-spec storage tank, identified as T2101, with a maximum capacity of 39,500 gallons.

(4) Two (2) fixed-roof anhydrous ethanol storage tanks (shift tanks), identified as T2110 and T2111, each with a maximum capacity of 39,500 gallons.

(5) One (1) three unit biomethanator anaerobic wastewater treatment system followed by a single unit aerobic polishing treatment system, identified as EP-7001, approved for construction in 2007, offgasses from this unit are routed to a combustion unit within the plant or to a flare when the combustion units are offline, identified as CE-7001, which is fueled by natural gas and has a maximum heat input capacity of 3.48 MMBtu/hr, and exhausts through stack S-7001.

(6) Cook area process equipment, including: one (1) slurry tank (T-1301), one (1) mash cooker (V-1302), two (2) conversion tanks (T-1304 and T-1305), one (1) hot water tank (T-1303), one (1) saccharification flash vessel (V-1306), three (3) mash coolers (E-1311 through E-1313), and three (3) mash trim coolers (E-1515 through E-1517).

(7) Equipment for handling spent grain from the fermentation process, including: one (1) triple effect light evaporation system, one (1) final concentrator, one (1) whole stillage tank (T-1701), one (1) thin stillage tank (T-1600), one (1) intermediate stillage tank (T-1702), one (1) syrup tank (T-1650), and Four (4) stillage decanters (SP-1701 through SP-1704).

(8) One (1) corrosion inhibitor storage tank.

(9) One (1) sulfuric acid tank (T-1911).

(10) One (1) Clean-in place (CIP) system.

(11) Compressed air and dry air systems.

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) 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 Revocation of Permits [326 IAC 2-1.1-9(5)]

Pursuant to 326 IAC 2-1.1-9(5)(Revocation of Permits), the Commissioner may revoke this permit if construction is not commenced within eighteen (18) months after receipt of this approval or if construction is suspended for a continuous period of one (1) year or more.

B.3 Affidavit of Construction [326 IAC 2-5.1-3(h)] [326 IAC 2-5.1-4][326 IAC 2-8]

This document shall also become the approval to operate pursuant to 326 IAC 2-5.1-4 and [326 IAC 2-8] when prior to the start of operation, the following requirements are met:

(a) The attached Affidavit of Construction shall be submitted to the Office of Air Quality (OAQ), verifying that the emission units were constructed as proposed in the application or the permit. The emission units covered in this permit may begin operating on the date the Affidavit of Construction is postmarked or hand delivered to IDEM if constructed as proposed.

(b) If actual construction of the emission units differs from the construction proposed in the application, the source may not begin operation until the permit has been revised pursuant to 326 IAC 2 and an Operation Permit Validation Letter is issued.

(c) The Permittee shall attach the Operation Permit Validation Letter received from the Office of Air Quality (OAQ) to this permit.

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

(a) This permit, 129-23484-00050, is issued for a fixed term of five (5) 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.5 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 pursuant to Title I of the Clean Air Act; or

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

B.6 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.7 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.8 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.9 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.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 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.12 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. The initial certification shall cover the time period from the date of final permit issuance through December 31 of the same year. All subsequent 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
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 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).

B.13 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 prepare and maintain Preventive Maintenance Plans (PMPs) immediately upon startup of plant operations, 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.

If, due to circumstances beyond the Permittee's control, the PMPs cannot be prepared and maintained within the above time frame, the Permittee may extend the date an additional ninety (90) days provided the Permittee notifies:

Indiana Department of Environmental Management
Compliance Branch, Office of Air Quality
100 North Senate Avenue
Indianapolis, Indiana 46204-2251

The PMP extension notification does not require the certification by an "authorized individual" as defined by 326 IAC 2-1.1-1(1).

(b) A copy of the PMPs shall be submitted to IDEM, OAQ upon request and within a reasonable time, and shall be subject to review and approval by IDEM, OAQ. IDEM, OAQ may require the Permittee to revise its PMPs whenever lack of proper maintenance causes or is the primary contributor to an exceedance of any limitation on emissions or potential to emit. The PMPs do not require the certification by an "authorized individual" as defined by 326 IAC 2-1.1-1(1).

(c) To the extent the Permittee is required by 40 CFR Part 60/63 to have an Operation Maintenance, and Monitoring (OMM) Plan for a unit, such Plan is deemed to satisfy the PMP requirements of 326 IAC 1-6-3 for that unit.

B.14 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 and Southwest Regional Office, 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

Southwest Regional Office
Toll Free (888) 672-8323 (toll free within Indiana)
Local (812) 380-2305
Fax (812) 380-2304

(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
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.15 Prior Permits Superseded [326 IAC 2-1.1-9.5]

(a) All terms and conditions of permits established prior to F129-23484-00050 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.16 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.17 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
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.18 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.19 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
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.20 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.

(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
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.21 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 limitations provided in 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
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 Federally Enforceable State Operating Permit
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.22 Source Modification Requirement [326 IAC 2-8-11.1]

A modification, construction, or reconstruction is governed by the requirements of 326 IAC 2326 IAC 2-8-11.1.

B.23 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.24 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
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.25 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 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 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.26 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 100 pounds per hour and the methods in 326 IAC 6-3-2(b) through (d) do not apply shall not exceed 0.551 pounds per hour.

C.2 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 make the requirements of 326 IAC 2-2 (Prevention of Significant Deterioration (PSD) 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.

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 260 linear feet on pipes or 160 square feet on other facility components, or at least thirty-five (35) cubic feet on all facility components, then the notification requirements of 326 IAC 14-10-3 are mandatory. All demolition projects require notification whether or not asbestos is present.

(b) The Permittee shall ensure that a written notification is sent on a form provided by the Commissioner at least ten (10) working days before asbestos stripping or removal work or before demolition begins, per 326 IAC 14-10-3, and shall update such notice as necessary, including, but not limited to the following:

(1) When the amount of affected asbestos containing material increases or decreases by at least twenty percent (20%); or

(2) If there is a change in the following:

(A) Asbestos removal or demolition start date;

(B) Removal or demolition contractor; or

(C) Waste disposal site.

(c) The Permittee shall ensure that the notice is postmarked or delivered according to the guidelines set forth in 326 IAC 14-10-3(2).

(d) The notice to be submitted shall include the information enumerated in 326 IAC 14-10-3(3).

All required notifications shall be submitted to:

Indiana Department of Environmental Management
Asbestos Section, Office of Air Quality
100 North Senate Avenue
Indianapolis, Indiana 46204-2251

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

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

(f) Demolition and Renovation
The Permittee shall thoroughly inspect the affected facility or part of the facility where the demolition or renovation will occur for the presence of asbestos pursuant to 40 CFR 61.145(a).

(g) Indiana 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) Compliance testing on new emissions units shall be conducted within 60 days after achieving maximum production rate, but no later than180 days after initial start-up, if specified in Section D of this approval. 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
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 immediately upon startup of plant operations. 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 after operation of the ethanol plan begins, 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
Indianapolis, Indiana 46204-2251

in writing, prior to ninety (90) days after startup of plant operations, 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.

C.13 Instrument Specifications [326 IAC 2-1.1-11] [326 IAC 2-8-4(3)][326 IAC 2-8-5(1)]

(a) When required by any condition of this permit, an analog instrument used to measure a parameter related to the operation of an air pollution control device shall have a scale such that the expected maximum reading for the normal range shall be no less than twenty percent (20%) of full scale.

(b) The Permittee may request that the IDEM, OAQ approve the use of an instrument that does not meet the above specifications provided the Permittee can demonstrate that an alternative or other instrument specification will adequately ensure compliance with permit conditions requiring the measurement of the parameters.

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

C.14 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.15 Response to Excursions or Exceedances [326 IAC 2-8-4] [326 IAC 2-8-5]

(a) Upon detecting an excursion or exceedance, the Permittee shall restore operation of the emissions unit (including any control device and associated capture system) to its normal or usual manner of operation as expeditiously as practicable in accordance with good air pollution control practices for minimizing emissions.

(b) The response shall include minimizing the period of any startup, shutdown or malfunction and taking any necessary corrective actions to restore normal operation and prevent the likely recurrence of the cause of an excursion or exceedance (other than those caused by excused startup or shutdown conditions). Corrective actions may include, but are not limited to, the following:

(1) initial inspection and evaluation;

(2) recording that operations returned to normal without operator action (such as through response by a computerized distribution control system); or

(3) any necessary follow-up actions to return operation to within the indicator range, designated condition, or below the applicable emission limitation or standard, as applicable.

(c) A determination of whether the Permittee has used acceptable procedures in response to an excursion or exceedance will be based on information available, which may include, but is not limited to, the following:

(1) monitoring results;

(2) review of operation and maintenance procedures and records; and/or

(3) inspection of the control device, associated capture system, and the process.

(d) Failure to take reasonable response steps shall be considered a deviation from the permit.

(e) The Permittee shall maintain the following records:

(1) monitoring data;

(2) monitor performance data, if applicable; and

(3) corrective actions taken.

C.16 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 and twenty (120) days is not practicable, IDEM, OAQ may extend the retesting deadline.

(c) IDEM, OAQ reserves the authority to take any actions allowed under law in response to noncompliant stack tests.

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

Record Keeping and Reporting Requirements [326 IAC 2-8-4(3)]

C.17 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.18 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
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) The first report shall cover the period commencing on the date of initial startup of facility operations and ending on the last day of the reporting period. 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.

Stratospheric Ozone Protection

C.19 Compliance with 40 CFR 82 and 326 IAC 22-1

Pursuant to 40 CFR 82 (Protection of Stratospheric Ozone), Subpart F, except as provided for motor vehicle air conditioners in Subpart B, the Permittee shall comply with the standards for recycling and emissions reduction:

(a) Persons opening appliances for maintenance, service, repair, or disposal must comply with the required practices pursuant to 40 CFR 82.156.

(b) Equipment used during the maintenance, service, repair, or disposal of appliances must comply with the standards for recycling and recovery equipment pursuant to 40 CFR 82.158.

(c) Persons performing maintenance, service, repair, or disposal of appliances must be certified by an approved technician certification program pursuant to 40 CFR 82.161.

SECTION D.1 FACILITY OPERATION CONDITIONS – Grain and DDGS Handling Processes

Facility Description [326 IAC 2-8-4(10)] :

(a) One (1) grain receiving area, identified as EP1101, approved for construction in 2007, controlled by a baghouse, identified as CE1101, exhausting through stack S-1101, and consisting of the following:

(1) Two (2) truck receiving pits with a capacity of 560 tons per hour each;

(2) One (1) grain transfer drag conveyor with a capacity of 1120 tons per hour; and

(3) Two (2) grain storage silos each with a capacity of 9,520 tons.

(b) Three (3) hammermills, identified as EP2001, EP2002, and EP2003, approved for construction in 2007, each with a maximum throughput rate of 42 tons per hour of grain, controlled by baghouses CE2001, CE2002, and CE2003 and exhausting through stacks S-2001, S-2002, and S-2003 respectively.

(c) One (1) DDGS loadout operation, identified as EP1102, approved for construction in 2007 with a maximum throughput rate of 200 tons/hr, controlled by baghouse CE1102, exhausting to stack S-1102.

Insignificant Activity:

(d) Paved roads and parking lots with public access. [326 IAC 6-4]

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

THIS SECTION OF THE PERMIT IS BEING ISSUED UNDER THE PROVISIONS OF 326 IAC 2-1 AND 326 IAC 2-8-11.1, WITH CONDITIONS LISTED BELOW.

Construction Conditions

General Construction Conditions

D.1.1 Permit No Defense

This permit to construct does not relieve the Permittee of the responsibility to comply with the provisions of the Indiana Environmental Management Law (IC 13-11 through 13-20; 13-22 through 13-25; and 13-30), the Air Pollution Control Law (IC 13-17) and the rules promulgated there under, as well as other applicable local, state, and federal requirements.

Effective Date of the Permit

D.1.2 Effective Date of the Permit [IC13-15-5-3]

Pursuant to IC 13-15-5-3, this section of this permit becomes effective upon its issuance.

D.1.3 Modification to Construction Conditions [326 IAC 2]

All requirements of these construction conditions shall remain in effect unless modified in a manner consistent with procedures established for revisions pursuant to 326 IAC 2.

Operation Conditions

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

D.1.4 PM and PM10 Emissions [326 IAC 2-2] [326 IAC 2-8-4]

(a) The PM and PM10 emissions from the grain receiving, handling, and load-out operations shall not exceed the emission limits listed in the table below:

Unit Description	Baghouse ID	PM/PM10 Emission Limit (lbs/hr)
Grain Receiving (EP1101)	CE1101	1.41
Hammermill A (EP2001)	CE2001	0.28
Hammermill B (EP2002)	CE2002	0.28
Hammermill C (EP2003)	CE2003	0.28
DDGS Loadout (EP1102)	CE1102	0.17

(b) The total grain received by grain receiving (EP1101) shall not exceed 1,000,000 tons per twelve (12) consecutive month period with compliance determined at the end of each month.

(c) The total DDGS loadout shall not exceed 325,000 tons per twelve (12) consecutive month period with compliance determined at the end of each month.

(d) The Permittee shall use periodic sweeping to control PM and PM10 emissions from the paved roads. The sweeping shall be performed in a manner and at a frequency sufficient to ensure compliance with 326 IAC 2-8.

(e) The Permittee shall use a choked flow system during grain receiving and handling.

Combined with the PM/PM10 emissions from other emission units, the PM/PM10 emissions from the entire source are limited to less than 100 tons/yr. Therefore, the requirements of 326 IAC 2-7 (Part 70 Program) and 326 IAC 2-2 (PSD) are not applicable.

D.1.5 Particulate Emission Limitations [326 IAC 6-3-2]

Pursuant to 326 IAC 6-3-2 (Particulate Emission Limitations for Manufacturing Processes), particulate emissions from each of following operations shall not exceed the pound per hour limits listed in the table below:

Emission Unit	Max. Throughput Rate (tons/hr)	Particulate Emission Limit (lbs/hr)
Grain Receiving (EP1101)	560	70.3
Hammermill A (EP2001)	42	42.9
Hammermill B (EP2002)	42	42.9
Hammermill C (EP2003)	42	42.9
DDGS Loadout (EP1102)	200	58.5

The pounds per hour limitations were calculated using the following equation:

Interpolation of the data for the process weight rate in excess of sixty thousand (60,000) pounds per hour shall be accomplished by use of the equation:

$E = 55.0\ P^{0.11} - 40$ where E = rate of emission in pounds per hour; and
P = process weight rate in tons per hour

Pursuant to 326 IAC 6-3-2(e)(3), when the process weight exceeds 200 tons per hour, the maximum allowable emission may exceed the emission limits shown in the table above, provided

the concentration of particulate matter in the gas discharged to the atmosphere is less than 0.10 pounds per 1,000 pounds of gases.

D.1.6 Preventive Maintenance Plan [326 IAC 2-8-4(9)]

A Preventive Maintenance Plan, in accordance with Section B - Preventive Maintenance Plan, of this permit, is required for these facilities and any control devices.

Compliance Determination Requirements

D.1.7 Particulate Control

(a) In order to comply with Conditions D.1.4(a) and D.1.5, each of the following emission units shall be controlled by the associated baghouse, as listed in the table below, when these units are in operation:

Unit Description	Baghouse ID
Grain Receiving (EP1101)	CE1101
Hammermill A (EP2001)	CE2001
Hammermill B (EP2002)	CE2002
Hammermill C (EP2003)	CE2003
DDGS Loadout (EP1102)	CE1102

(b) In the event that bag failure is observed in a multi-compartment baghouse, if operations will continue for ten (10) days or more after the failure is observed before the failed units will be repaired or replaced, the Permittee shall promptly notify the IDEM, OAQ of the expected date the failed units will be repaired or replaced. The notification shall also include the status of the applicable compliance monitoring parameters with respect to normal, and the results of any response actions taken up to the time of notification.

D.1.8 Testing Requirements [326 IAC 2-8-5(a)(1), (4)] [326 IAC 2-1.1-11]

In order to demonstrate compliance with Conditions D.1.4(a) and D.1.5:

(a) The Permittee shall perform PM and PM10 testing for baghouses CE1101 and CE1102 within 60 days after achieving the maximum capacity, but not later than 180 days after initial startup, utilizing methods as approved by the Commissioner. These tests shall be repeated at least once every five (5) years from the date of this valid compliance demonstration. Testing shall be conducted in accordance with Section C - Performance Testing. PM10 includes filterable and condensible PM10.

(b) The Permittee shall perform PM and PM10 testing for one of the baghouses CE2001, CE2002, and CE2003, within 60 days after achieving the maximum capacity, but not later than 180 days after initial startup, utilizing methods as approved by the Commissioner. These tests shall be repeated on a different baghouse at least once every five (5) years from the date of this valid compliance demonstration. Testing shall be conducted in accordance with Section C - Performance Testing. PM10 includes filterable and condensible PM10.

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

D.1.9 Visible Emissions Notations

(a) Visible emission notations of the baghouse stack exhausts (stacks S-1101, S-2001, S-2002, S-2003, and S-1102) shall be performed once per day during normal daylight operations. A trained employee or a trained contractor 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 or contractor is a person who has worked or trained 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 Excursions or Exceedances. Failure to take response steps in accordance with Section C - Response to Excursions or Exceedances shall be considered a deviation from this permit.

D.1.10 Parametric Monitoring

(a) The Permittee shall record the pressure drop across the baghouses used in conjunction with the grain receiving and handling operations (EP1101), the hammermills (EP2001, EP2002, EP2003) and the DDGS handling and loadout operations (EP1102), at least once per day when these units are in operation. When for any one reading, the pressure drop across the baghouse is outside the normal range of 1.0 to 6.0 inches of water or a range established during the latest stack test, the Permittee shall take reasonable response steps in accordance with Section C - Response to Excursions or Exceedances. A pressure reading that is outside the above mentioned range is not a deviation from this permit. Failure to take response steps in accordance with Section C - Response to Excursions or Exceedances shall be considered a deviation from this permit.

(b) The instrument used for determining the pressure shall comply with Section C - Instrument Specifications, of this permit, shall be subject to approval by IDEM, OAQ and shall be calibrated at least once every six (6) months.

D.1.11 Broken or Failed Bag Detection

(a) For a single compartment baghouse controlling emissions from a process operated continuously, a failed unit and the associated process shall be shut down immediately until the failed unit has been repaired or replaced. Operations may continue only if the event qualifies as an emergency and the Permittee satisfies the requirements of the emergency provisions of this permit (Section B - Emergency Provisions).

(b) For a single compartment baghouse controlling emissions from a batch process, the feed to the process shall be shut down immediately until the failed unit has been repaired or replaced. The emissions unit shall be shut down no later than the completion of the processing of the material in the line. Operations may continue only if the event qualifies as an emergency and the Permittee satisfies the requirements of the emergency provisions of this permit (Section B - Emergency Provisions).

Bag failure can be indicated by a significant drop in the baghouse=s pressure reading with abnormal visible emissions, by an opacity violation, or by other means such as gas temperature, flow rate, air infiltration, leaks, dust traces or triboflows.

Record Keeping and Reporting Requirement [326 IAC 2-8-4(3)] [326 IAC 2-8-16]

D.1.12 Record Keeping Requirements

(a) To document compliance with Condition D.1.4(b), the Permittee shall maintain monthly records of the amount of grain received at this plant.

(b) To document compliance with Condition D.1.4(c), the Permittee shall maintain monthly records of the amount of DDGS loadout.

(c) To document compliance with Condition D.1.4(d), the Permittee shall maintain records of the dates and times that sweeping is performed on the paved roads.

(d) To document compliance with Condition D.1.9, the Permittee shall maintain records of daily visible emission notations of the baghouse stack exhausts.

(e) To document compliance with Condition D.1.10, the Permittee shall maintain daily records of pressure drop for baghouses during normal operation.

(f) All records shall be maintained in accordance with Section C - General Record Keeping Requirements, of this permit.

D.1.13 Reporting Requirements

A quarterly summary of the information to document compliance with Conditions D.1.4(b) and D.1.4(c) 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.2 FACILITY OPERATION CONDITIONS

Facility Description [326 IAC 2-8-4(10)]:

(d) One (1) fermentation process, approved for construction in 2007, with a maximum throughput rate of 12,000 gallons of anhydrous ethanol per hour, consisting of the following major equipment:

(1) One (1) prefermenter tank, identified as T-1400, using a wet scrubber (CE1400) and sodium bisulfite injection for VOC control, exhausting through stack S-1400.

(2) Six (6) main fermenters and one (1) beer well, identified as T-1401 through T-1407, using a wet scrubber (CE1401) and sodium bisulfite injection for VOC control, exhausting through stack S-1401.

(e) One (1) distillation process, approved for construction in 2007, with a maximum throughput rate of 12,000 gallons of anhydrous ethanol per hour, using a wet scrubber (CE1504) and sodium bisulfite injection for VOC control, exhausting through stack S-1504, and consisting of the following major equipment:

(1) One (1) beer column identified as C-1510.

(2) One (1) stripping column identified as C-1520.

(3) One (1) rectifying column identified as C-1530.

(4) One (1) four-tower molecular sieve unit, with associated heat exchangers and pumps.

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

THIS SECTION OF THE PERMIT IS BEING ISSUED UNDER THE PROVISIONS OF 326 IAC 2-1 AND 326 IAC 2-8-11.1, WITH CONDITIONS LISTED BELOW.

Construction Conditions

General Construction Conditions

D.2.1 Permit No Defense

This permit to construct does not relieve the Permittee of the responsibility to comply with the provisions of the Indiana Environmental Management Law (IC 13-11 through 13-20; 13-22 through 13-25; and 13-30), the Air Pollution Control Law (IC 13-17) and the rules promulgated there under, as well as other applicable local, state, and federal requirements.

Effective Date of the Permit

D.2.2 Effective Date of the Permit [IC13-15-5-3]

Pursuant to IC 13-15-5-3, this section of this permit becomes effective upon its issuance.

D.2.3 Modification to Construction Conditions [326 IAC 2]

All requirements of these construction conditions shall remain in effect unless modified in a manner consistent with procedures established for revisions pursuant to 326 IAC 2.

Operation Conditions

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

D.2.4 FESOP Limits [326 IAC 2-2] [326 IAC 2-8-4] [326 IAC 2-4.1]

Pursuant to 326 IAC 2-8-4 (FESOP), and in order to render the requirements of 326 IAC 2-2 (PSD) not applicable, the Permittee shall comply with the following emission limits for the scrubbers (CE1400, CE1401, and CE1504), which are used to control the emissions from the fermentation and distillation processes:

(a) The emissions from the Pre-Fermentation Scrubber (CE1400) shall not exceed the following:

(1) VOC emissions shall not exceed 2.68 lbs/hr.

(2) Acetaldehyde emissions shall not exceed 0.59 lbs/hr.

(3) Total HAP emissions shall not exceed 0.69 lbs/hr.

(b) The emissions from the Fermentation Scrubber (CE1401) shall not exceed the following:

(1) VOC emissions shall not exceed 5.53 lbs/hr.

(2) Acetaldehyde emissions shall not exceed 0.76 lbs/hr.

(3) Total HAP emissions shall not exceed 1.09 lbs/hr.

(c) The emissions from the Distillation Scrubber (CE1504) shall not exceed the following:

(1) VOC emissions shall not exceed 1.3 lbs/hr.

(2) Acetaldehyde emissions shall not exceed 0.64 lbs/hr.

(3) Total HAP emissions shall not exceed 0.69 lbs/hr.

Combined with the VOC emissions from other units, the VOC emissions from the entire source are each limited to less than 100 tons/yr. Combined with the HAP emissions from other units, the HAP emissions from the entire source are limited to less than 10 tons/yr for a single HAP and less than 25 tons/yr for total HAPs. Therefore, the requirements of 326 IAC 2-7 (Part 70 Program), 326 IAC 2-2 (PSD), and 326 IAC 2-4.1 (MACT) are not applicable.

D.2.5 VOC Emissions [326 IAC 8-1-6]

Pursuant to 326 IAC 8-1-6 (BACT), the Permittee shall control the VOC emissions from the fermentation and distillation processes with a Best Available Control Technology (BACT), which has been determined to be the following:

(a) The VOC emissions from the fermentation and distillation processes shall be controlled using wet scrubbers, identified as CE1400, CE1401, and CE1504, with sodium bisulfite injection.

(b) The VOC control efficiency for each of the wet scrubbers, identified as CE1400, CE1401, and CE1504 shall be at least 99%, or the VOC outlet concentration shall not exceed 10 ppmv.

(c) The VOC emissions from the wet scrubber stack S-1400 will not exceed 2.68 lbs/hr.

(d) The VOC emissions from the wet scrubber stack S-1401 will not exceed 5.53 lbs/hr.

(e) The VOC emissions from the wet scrubber stack S-1504 will not exceed 1.30 lbs/hr.

D.2.6 Equipment Leaks of VOC [326 IAC 12][40 CFR 60, Subpart VV]

Pursuant to 40 CFR 60, Subpart VV, the Permittee shall comply with the requirement of Section E.1 for pumps; compressors; pressure relief devices in gas/vapor service; sampling connection systems; open-ended valves or lines; and valves.

D.2.7 Preventive Maintenance Plan [326 IAC 2-8-4(9)]

A Preventive Maintenance Plan, in accordance with Section B - Preventive Maintenance Plan, of this permit, is required for these facilities and any control devices.

Compliance Determination Requirements

D.2.8 VOC and HAP Control

In order to comply with Conditions D.2.4 and D.2.5, the scrubbers (CE1400, CE1401, and CE1504) and associated sodium bisulfite injection systems shall be in operation and control emissions from the fermentation and distillation processes at all times that these units are in operation.

D.2.9 Testing Requirements [326 IAC 2-8-5(a)(1), (4)] [326 IAC 2-1.1-11] [326 IAC 2-2]

In order to demonstrate compliance with Conditions D.2.4 and D.2.5, the Permittee shall perform VOC and acetaldehyde testing (including emission rate, overall destruction efficiency and overall capture efficiency), on the wet scrubber stacks (S-1400, S-1401, and S-1504) within 60 days after achieving maximum capacity, but not later than 180 days after initial startup, utilizing methods as approved by the Commissioner. These tests shall be repeated at least once every five (5) years from the date of this valid compliance demonstration. Testing shall be conducted in accordance with Section C - Performance Testing.

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

D.2.10 Visible Emissions Notations

(a) Visible emission notations of the stack exhaust from the wet scrubber stacks (S-1400, S-1401, and S-1504) shall be performed once per day during normal daylight operations when exhausting to the atmosphere. 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 Excursions or Exceedances. Failure to take response steps in accordance with Section C - Response to Excursions or Exceedances shall be considered a deviation from this permit.

D.2.11 Scrubber Pressure Drop and Flow Rate

The Permittee shall monitor and record the pressure drop and the flow rate of the scrubbers CE1400, and CE1401 when the fermentation process is in operation, and CE1504 when the distillation process is in operation, at least once per day. When for any one reading, the pressure drop across a scrubber is outside the normal range of 1.0 and 6.0 inches of water, or a range

established during the latest stack test, the Permittee shall take reasonable response steps in accordance with Section C - Response to Excursions or Exceedances. When for any one reading, the flow rate of a scrubber is less than the normal minimum of 8.0 gallons per minute, or a minimum established during the latest stack test, the Permittee shall take reasonable response steps in accordance with Section C - Response to Excursions or Exceedances. A pressure reading that is outside the above mentioned range or a flow rate that is below the above mentioned minimum is not a deviation from this permit. Failure to take response steps in accordance with Section C - Response to Excursions or Exceedances shall be considered a deviation from this permit.

The instruments used for determining the pressure drop and flow rate shall comply with Section C - Instrument Specifications, of this permit, shall be subject to approval by IDEM, OAQ, and shall be calibrated at least once every six (6) months.

D.2.12 Scrubber Detection

In the event that a scrubber malfunction has been observed:

Failed units and the associated process will be shut down immediately until the failed units have been repaired or replaced. Operations may continue only if the event qualifies as an emergency and the Permittee satisfies the requirements of the emergency provisions of this permit (Section B - Emergency Provisions). Failure to take response steps in accordance with Section C - Response to Excursions or Exceedances shall be considered a deviation from this permit.

D.2.13 Sodium Bisulfite Injection System

(a) A continuous monitoring system shall be calibrated, maintained, and operated on the fermentation scrubbers (CE1400 and CE1401) and distillation scrubber (CE1504) for measuring the sodium bisulfite injection rate. For the purpose of this condition, continuous means no less than once per minute. The output of this system shall be recorded as a one-hour average. From the date of issuance of this permit unit the approved stack test results are available; the Permittee shall inject sodium bisulfite at the rates shown in the table below:

Scrubber ID	Sodium Bisulfite Injection Rate (milliliters per minute)
CE1400	53.7
CE1401	95.2
CE1504	90.9

(b) The Permittee shall determine the one-hour average injection rate from the most recent valid stack test that demonstrates compliance with limits in Condition D.2.5(c), (d), and (e), as approved by IDEM.

(c) On and after the date the approved stack test results are available, the Permittee shall inject sodium bisulfite at or above the one-hour average injection rate as observed during the compliant stack test.

Record Keeping and Reporting Requirement [326 IAC 2-8-4(3)] [326 IAC 2-8-16]

D.2.14 Record Keeping Requirements

(a) To document compliance with Condition D.2.10, the Permittee shall maintain records of once per day visible emission notations of the stacks S-1400, S-1401, and S-1504.

(b) To document compliance with Condition D.2.11, the Permittee shall maintain daily records of pressure drop and flow rate for the scrubbers identified as CE1400, CE1401, and CE1504 during normal operation.

(c) To document compliance with Condition D.2.5(c), (d), and (e), the Permittee shall maintain records of the sodium bisulfite injection rate of scrubbers CE1400, CE1401 and CE1504.

(c) All records shall be maintained in accordance with Section C - General Record Keeping Requirements, of this permit.

SECTION D.3 FACILITY OPERATION CONDITIONS – Boilers

Facility Description [326 IAC 2-8-4(10)] :

(f) Two (2) natural gas fired boilers, identified as BL5001 and BL5002, approved for construction in 2007, each with a maximum heat input rate of 182 MMBtu/hr, with emissions exhausting to stacks S-5001 and S-5002, respectively.

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

THIS SECTION OF THE PERMIT IS BEING ISSUED UNDER THE PROVISIONS OF 326 IAC 2-1 AND 326 IAC 2-8-11.1, WITH CONDITIONS LISTED BELOW.

Construction Conditions

General Construction Conditions

D.3.1 Permit No Defense

This permit to construct does not relieve the Permittee of the responsibility to comply with the provisions of the Indiana Environmental Management Law (IC 13-11 through 13-20; 13-22 through 13-25; and 13-30), the Air Pollution Control Law (IC 13-17) and the rules promulgated there under, as well as other applicable local, state, and federal requirements.

Effective Date of the Permit

D.3.2 Effective Date of the Permit [IC13-15-5-3]

Pursuant to IC 13-15-5-3, this section of this permit becomes effective upon its issuance.

D.3.3 Modification to Construction Conditions [326 IAC 2]

All requirements of these construction conditions shall remain in effect unless modified in a manner consistent with procedures established for revisions pursuant to 326 IAC 2.

Operation Conditions

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

D.3.4 FESOP Limits [326 IAC 2-2] [326 IAC 2-8-4]

Pursuant to 326 IAC 2-8-4, and in order to render the requirements of 326 IAC 2-2 (PSD) not applicable, the following conditions shall apply:

(a) The boilers shall only burn natural gas.

(b) The input of natural gas to the boilers shall be limited to 3252.4 MMCF per twelve (12) consecutive month period, with compliance determined at the end of each month.

(c) NOx emissions shall not exceed 19.6 pounds per MMCF.

(d) CO emissions shall not exceed 13.7 pounds per MMCF.

(e) PM emissions shall not exceed 1.9 pounds per MMCF.

(f) PM10 emissions shall not exceed 7.6 pounds per MMCF.

Combined with the PM, PM10, NOx and CO emissions from other units, the PM, PM10, NOx and CO emissions from the entire source are limited to less than one hundred (100) tons per year.

Therefore, the requirements of 326 IAC 2-7 (Part 70 Program) and 326 IAC 2-2 (PSD) are not applicable.

D.3.5 Particulate Emissions [326 IAC 6-2-4]

Pursuant to 326 IAC 6-2-4 (Particulate Emission Limitations for Sources of Indirect Heating: Emission Limitations for facilities specified in 326 IAC 6-2-1(d)), the PM emissions from the boilers shall not exceed 0.235 pounds per million Btu heat input (lb/MMBtu). This limitation was calculated using the following equation:

$$Pt = \frac{1.09}{Q^{0.26}}$$ where Q = total source heat input capacity (MMBtu/hr)

For these units, Q = 364 MMBtu/hr.

D.3.6 New Source Performance Standards for Industrial - Commercial - Institutional Steam Generating Units [326 IAC 12][40 CFR 60, Subpart Db]

Pursuant to 40 CFR 60, Subpart Db, the Permittee shall comply with the requirements of Section E.2 for the boilers.

D.3.7 Preventive Maintenance Plan [326 IAC 2-8-4(9)]

A Preventive Maintenance Plan, in accordance with Section B - Preventive Maintenance Plan, of this permit, is required for these facilities and their control devices.

Compliance Determination Requirements

D.3.8 Continuous Emissions Monitoring [326 IAC 3-5] [326 IAC 12] [40 CFR 60, Subpart Db] [326 IAC 2-2] [326 IAC 2-8-4]

Pursuant to 326 IAC 3-5 (Continuous Monitoring of Emissions) and 40 CFR 60.48b (Emission Monitoring for Particulate Matter and Nitrogen Oxides) and in order to demonstrate compliance with Conditions D.3.4 and D.3.6, a continuous monitoring system, which meets the performance specifications of 326 IAC 3-5-2, shall be calibrated, maintained, and operated for each boiler BL5001 and BL5002 for measuring NOx.

D.3.9 NO_X Monitoring System Downtime [326 IAC 2-2] [326 IAC 2-8-4] [326 IAC 12] [40 CFR 60, Subpart Db]

In instances of NO_X continuous emission monitoring system (CEMS) downtime, the Permittee shall obtain NO_X emissions data according to the requirements of 40 CFR 60.48b(f).

D.3.10 Testing Requirements [326 IAC 2-8-5(a)(1), (4)] [326 IAC 2-1.1-11]

In order to demonstrate compliance with Condition D.3.4, the Permittee shall perform PM, PM10 and CO testing for one of the boilers (BL5001 and BL5002) within sixty (60) days after achieving the maximum capacity, but not later than one hundred eighty (180) days after initial startup, utilizing methods as approved by the Commissioner. These tests shall be repeated on a different boiler at least once every five (5) years from the date of this valid compliance demonstration. Testing shall be conducted in accordance with Section C - Performance Testing.

Record Keeping and Reporting Requirements [326 IAC 2-8-4(3)] [326 IAC 2-8-16]

D.3.11 Record Keeping Requirements

(a) To document compliance with Condition D.3.4, the Permittee shall maintain daily records of the amount of natural gas combusted in the boilers.

(b) To document compliance with Conditions D.3.4 and D.3.8, the Permittee shall maintain records of all NO_X continuous emissions monitoring data, pursuant to 326 IAC 3-5-6.

(c) All records shall be maintained in accordance with Section C - General Record Keeping Requirements, of this permit.

D.3.12 Reporting Requirements

A quarterly summary of the information to document compliance with Conditions D.3.4 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.4 FACILITY OPERATION CONDITIONS – Dryer and Cooling System

Facility Description [326 IAC 2-8-4(10)] :

(g) Two (2) natural gas fired Swiss Combi "Eco-Dry" Dryer Systems, identified as D1801 and D1802, approved for construction in 2007, with a maximum heat input rate of 76.7MMBtu/hr and a design throughput rate of 20 tons per hour of DDGS each, with emissions exhausting through stacks S-1801 and S-1802.

Note: The basis of the Swiss Combi Dryer System is an indirect heat drying process using a closed steam loop with thermal oxidation. The DDGS cooler is also integrated into the Eco-Dry system.

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

THIS SECTION OF THE PERMIT IS BEING ISSUED UNDER THE PROVISIONS OF 326 IAC 2-1 AND 326 IAC 2-8-11.1, WITH CONDITIONS LISTED BELOW.

Construction Conditions

General Construction Conditions

D.4.1 Permit No Defense

This permit to construct does not relieve the Permittee of the responsibility to comply with the provisions of the Indiana Environmental Management Law (IC 13-11 through 13-20; 13-22 through 13-25; and 13-30), the Air Pollution Control Law (IC 13-17) and the rules promulgated thereunder, as well as other applicable local, state, and federal requirements.

Effective Date of the Permit

D.4.2 Effective Date of the Permit [IC13-15-5-3]

Pursuant to IC 13-15-5-3, this section of this permit becomes effective upon its issuance.

D.4.3 Modification to Construction Conditions [326 IAC 2]

All requirements of these construction conditions shall remain in effect unless modified in a manner consistent with procedures established for revisions pursuant to 326 IAC 2.

Operation Conditions

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

D.4.4 FESOP Limits [326 IAC 2-2] [326 IAC 2-8-4] [326 IAC 2-4.1]

Pursuant to 326 IAC 2-8-4 (FESOP), and in order to render the requirements of 326 IAC 2-2 (PSD) not applicable, the Permittee shall comply with the following emission limits for the Swiss Combi Dryer Systems (D1801 and D1802) which are used to control the emissions from DDGS drying and cooling:

(a) PM/PM10 emissions shall not exceed 3.71 lbs/hr for each stack (S-1801 and S-1802).

(b) VOC emissions shall not exceed 1.97 lbs/hr for each stack (S-1801 and S-1802).

(c) CO emissions shall not exceed 7.97 lbs/hr for each stack (S-1801 and S-1802).

(d) SO2 emissions shall not exceed 0.046 lbs/hr for each stack (S-1801 and S-1802).

(e) NOx emissions shall not exceed 6.52 lbs/hr for each stack (S-1801 and S-1802).

(f) Acetaldehyde emissions shall not exceed 0.017 lbs/hr for each stack (S-1801 and S-1802).

(g) Total HAP emissions shall not exceed 0.13 lbs/hr for each stack (S-1801 and S-1802).

Combined with the PM/PM10, VOC, SO_2, CO, and NOx emissions from other units, the PM/PM10, SO_2, VOC, CO, NOx emissions from the entire source are each limited to less than 100 tons/yr. Combined with the HAP emissions from other units, the HAP emissions from the entire source are limited to less than 10 tons/yr for a single HAP and less than 25 tons/yr for total HAPs. Therefore, the requirements of 326 IAC 2-7 (Part 70 Program), 326 IAC 2-2 (PSD), and 326 IAC 2-4.1 (MACT) are not applicable.

D.4.5 VOC Emissions [326 IAC 8-1-6]

Pursuant to 326 IAC 8-1-6 (BACT), the Permittee shall control the VOC emissions from each of the Swiss Combi Dryer Systems (D1801 and D1802) with a Best Available Control Technology (BACT), which has been determined to be the following:

(a) The VOC emissions from the Swiss Combi Dryer Systems (D1801 and D1802) shall be controlled by thermal oxidation.

(b) The overall efficiency for the Swiss Combi Dryer Systems, identified as D1801 and D1802, (including the capture efficiency and destruction efficiency) shall be at least 98%, or the VOC outlet concentration shall not exceed 10 ppmv.

(c) The total VOC emissions from each of the thermal oxidation systems stacks (S-1801 and S-1802) shall not exceed 1.97 lbs/hr.

D.4.6 Particulate Emission Limitations [326 IAC 6-3-2]

Pursuant to 326 IAC 6-3-2 (Particulate Emission Limitations for Manufacturing Processes), particulate emissions from each of following operations shall not exceed the pound per hour limit listed in the table below:

Emission Unit	Max. Throughput Rate (tons/hr)	Particulate Emission Limit (lbs/hr)
D1801	20.1	30.5
D1802	20.1	30.5

The pounds per hour limitations were calculated using the following equation:

Interpolation of the data for the process weight rate up to sixty thousand (60,000) pounds per hour shall be accomplished by use of the equation:

$E = 4.10\ P^{0.67}$ where E = rate of emission in pounds per hour; and
P = process weight rate in tons per hour

D.4.7 Preventive Maintenance Plan [326 IAC 2-8-4(9)]

A Preventive Maintenance Plan, in accordance with Section B - Preventive Maintenance Plan, of this permit, is required for this facility and any control device.

Compliance Determination Requirements

D.4.8 Particulate Control

In order to comply with Conditions D.4.4 and D.4.5, the Swiss Combi Dryer Systems (D1801 and D1802) shall be in operation and control emissions from the DDGS dryers and coolers at all times that these units are in operation.

D.4.9 Testing Requirements [326 IAC 2-8-5(a)(1), (4)] [326 IAC 2-1.1-11]

In order to demonstrate compliance with Conditions D.4.4, D.4.5, and D.4.6, the Permittee shall perform PM, PM10, VOC (including emission rate, destruction efficiency, and capture efficiency), NOx, CO, and Acetaldehyde testing for each of the thermal oxidizer stacks (S-1801 and S-1802) within 60 days after achieving the maximum capacity, but not later than 180 days after initial startup, utilizing methods as approved by the Commissioner. PM10 includes filterable and condensible PM10. These tests shall be repeated at least once every five (5) years from the date of this valid compliance demonstration. Testing shall be conducted in accordance with Section C - Performance Testing.

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

D.4.10 Visible Emissions Notations

(a) Visible emission notations of the stack exhaust from the thermal oxidizers (stacks S-1801 and S-1802) shall be performed once per day during normal daylight operations. A trained employee or a trained contractor 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 or contractor is a person who has worked or trained 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 Excursions or Exceedances. Failure to take response steps in accordance with Section C - Response to Excursions or Exceedances shall be considered a deviation from this permit.

D.4.11 Thermal Oxidation Temperature

(a) A continuous monitoring system shall be calibrated, maintained, and operated on the Swiss Combi Dryer Systems (D1801 and D1802) for measuring operating temperature. For the purpose of this condition, continuous means no less than once per minute. The output of this system shall be recorded as 3-hour average. From the date of issuance of this permit until the approved stack test results are available, the Permittee shall operate the thermal oxidizers at or above the 3-hour average temperature of 1,400°F.

(b) The Permittee shall determine the 3-hour average temperature from the most recent valid stack test that demonstrates compliance with limits in Conditions D.4.4 and D.4.5, as approved by IDEM.

(c) On and after the date the approved stack test results are available, the Permittee shall operate the thermal oxidizers at or above the hourly average temperature as observed during the compliant stack test.

D.4.12 Parametric Monitoring

(a) The Permittee shall determine the appropriate duct pressure or fan amperage from the most recent valid stack test that demonstrates compliance with limits in Conditions D.4.4 and D.4.5, as approved by IDEM.

(b) The duct pressure or fan amperage shall be observed at least once per day when the thermal oxidizers are in operation. On and after the date the approved stack test results

are available, the duct pressure or fan amperage shall be maintained within the normal range as established in most recent compliant stack test.

Record Keeping and Reporting Requirement [326 IAC 2-8-4(3)] [326 IAC 2-8-16]

D.4.13 Record Keeping Requirements

(a) To document compliance with Condition D.4.10, the Permittee shall maintain records of once per day visible emission notations of stacks S-1801 and S-1802.

(b) To document compliance with Condition D.4.11, the Permittee shall maintain continuous temperature records for the thermal oxidizers and the 3-hour average temperature used to demonstrate compliance during the most recent compliant stack test.

(c) To document compliance with Condition D.4.12, the Permittee shall maintain daily records of the duct pressure or fan amperage for the thermal oxidizers.

(d) All records shall be maintained in accordance with Section C - General Record Keeping Requirements, of this permit.

SECTION D.5 FACILITY OPERATION CONDITIONS – Ethanol Loading Racks

Facility Description [326 IAC 2-8-4(10)]:

(h) One (1) ethanol and E85 loading rack for trucks and railcars, identified as EP-2210, approved for construction in 2007, with a maximum throughput rate of 600 gallons per minute for trucks and 1,200 gallons per minute for railcars, controlled by a flare, identified as CE-2210, which is fueled by natural gas and has a maximum heat input capacity of 1.26 MMBtu/hr, and exhausts through stack S-2210.

(i) One (1) ethanol and E85 loading rack for barges, identified as EP-2211, approved for construction in 2007, with a maximum throughput rate of 2,000 gallons per minute, controlled by a flare, identified as CE-2211, which is fueled by natural gas and has a maximum heat input capacity of 3.78 MMBtu/hr, and exhausts through stack S-2211.

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

THIS SECTION OF THE PERMIT IS BEING ISSUED UNDER THE PROVISIONS OF 326 IAC 2-1 AND 326 IAC 2-8-11.1, WITH CONDITIONS LISTED BELOW.

Construction Conditions

General Construction Conditions

D.5.1 Permit No Defense

This permit to construct does not relieve the Permittee of the responsibility to comply with the provisions of the Indiana Environmental Management Law (IC 13-11 through 13-20; 13-22 through 13-25; and 13-30), the Air Pollution Control Law (IC 13-17) and the rules promulgated thereunder, as well as other applicable local, state, and federal requirements.

Effective Date of the Permit

D.5.2 Effective Date of the Permit [IC13-15-5-3]

Pursuant to IC 13-15-5-3, this section of this permit becomes effective upon its issuance.

D.5.3 Modification to Construction Conditions [326 IAC 2]

All requirements of these construction conditions shall remain in effect unless modified in a manner consistent with procedures established for revisions pursuant to 326 IAC 2.

Operation Conditions

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

D.5.4 FESOP Limits [326 IAC 2-2] [326 IAC 2-8-4]

Pursuant to 326 IAC 2-8-4 (FESOP), and in order to render the requirements of 326 IAC 2-2 (PSD) not applicable, the Permittee shall comply with the following emission limits for the ethanol loading racks:

(a) The combined total denatured ethanol and E85 load-out rate shall not exceed 135,700,000 gallons per twelve (12) consecutive month period with compliance determined at the end of each month.

(b) The Permittee shall use a flare identified as CE-2210 to control the emissions from ethanol loading to trucks and railcars.

(1) CO emissions from CE-2210 shall not exceed 0.63 lbs/hr.

(2) NOx emissions from CE-2210 shall not exceed 0.38 lbs/hr.

(c) The Permittee shall use a flare identified as EP-2211 to control the emissions from ethanol loading to barges.

(1) The operation of CE-2211 shall be limited to 2000 operating hours per twelve (12) consecutive month period with compliance determined at the end of each month.

(2) CO emissions from CE-2211 shall not exceed 1.89 lbs/hr.

(3) NOx emissions from CE-2211 shall not exceed 1.13 lbs/hr.

(d) The ethanol loading racks shall utilize submerged loading methods.

(e) The railcars, trucks, and barges shall not use vapor balance services.

(f) The flares (CE-2210 and CE-2211) shall be designed as smokeless flares.

Combined with the VOC, CO, NOx and HAP emissions from other units, the VOC, CO, and NOx emissions from the entire source are each limited to less than 100 tons/yr and the HAP emissions from the entire source are limited to less than 10 tons/yr for a single HAP and less than 25 tons/yr for total HAPs. Therefore, the requirements of 326 IAC 2-7 (Part 70 Program) and 326 IAC 2-2 (PSD) are not applicable.

D.5.5 VOC Emissions [326 IAC 8-1-6]

Pursuant to 326 IAC 8-1-6 (BACT), and the Permittee shall collect and control the VOC emissions from the ethanol loading racks with a Best Available Control Technology (BACT). The BACT for these units has been determined to be the following:

(a) The VOC emissions from the ethanol loading racks shall be collected and controlled by the enclosed flares identified as CE-2210 and CE-2211.

(b) The overall efficiency for each of the enclosed flares identified as CE-2210 and CE-2211 (including the capture efficiency and destruction efficiency) shall be at least 98%.

(c) The VOC emissions from the enclosed flare identified as CE-2210 shall not exceed 8.96 lbs/hr.

(d) The VOC emissions from the enclosed flare identified as CE-2211 shall not exceed 9.36 lbs/hr.

D.5.6 Equipment Leaks of VOC [326 IAC 12][40 CFR 60, Subpart VV]

Pursuant to 40 CFR 60, Subpart VV, the Permittee shall comply with the requirements of Section E.1 for pumps; compressors; pressure relief devices in gas/vapor service; sampling connection systems; open-ended valves or lines; and valves.

D.5.7 Preventive Maintenance Plan [326 IAC 2-8-4(9)]

A Preventive Maintenance Plan, in accordance with Section B - Preventive Maintenance Plan, of this permit, is required for these facilities and any control devices.

Compliance Determination Requirements

D.5.8 VOC Control

In order to comply with Conditions D.5.4 and D.5.5, enclosed flares (CE-2210 and CE2211) shall be in operation and control emissions from the ethanol loading system at all times when these units are in operation.

D.5.9 Testing Requirements [326 IAC 2-8-5(a)(1), (4)] [326 IAC 2-1.1-11] [326 IAC 2-2]

In order to demonstrate compliance with Conditions D.5.4 and D.5.5, the Permittee shall perform VOC (including emission rate, destruction efficiency, and capture efficiency), CO, and NOx testing for the enclosed flares (CE-2210 and CE-2211), within 60 days after achieving the maximum production, but not later than 180 days after initial startup, utilizing methods as approved by the Commissioner. These tests shall be repeated at least once every five (5) years from the date of this valid compliance demonstration. Testing shall be conducted in accordance with Section C - Performance Testing.

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

D.5.10 Flare Pilot Flame

In order to comply with Conditions D.5.4 and D.5.5, the Permittee shall monitor the presence of a flare pilot flame for the flares (CE-2210 and CE-2211) using a thermocouple or any other equivalent device to detect the presence of a flame when the ethanol loading system is in operation.

Record Keeping and Reporting Requirement [326 IAC 2-8-4(3)] [326 IAC 2-8-16]

D.5.11 Record Keeping Requirements

(a) To document compliance with Condition D.5.4(a), the Permittee shall maintain monthly records of the combined total amount of denatured ethanol and E85 loaded out from the ethanol loading racks.

(b) To document compliance with Condition D.5.4(c)(1), the Permittee shall maintain records of the number of hours that the flare identified as CE-2211 operates each month.

(c) To document compliance with Condition D.5.10, the Permittee shall maintain records of temperature or other parameters sufficient to demonstrate the presence of a pilot flame when the ethanol loading racks are in operation.

(d) All records shall be maintained in accordance with Section C - General Record Keeping Requirements, of this permit.

D.5.12 Reporting Requirements

A quarterly summary of the information to document compliance with Conditions D.5.4(a) and D.5.4(c)(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 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.6 FACILITY OPERATION CONDITIONS – Diesel Generator

Facility Description [326 IAC 2-8-4(10)]: Insignificant Activities

(a) One (1) diesel fired stationary fire pump, identified as EP-1075, approved for construction in 2007, with a maximum power output rate of 420 horsepower, and exhausting to stack S-1075. [326 IAC 2-8-4]

(h) Other emission units, not regulated by a NESHAP, with PM10, NOx, and SO_2 emissions less than five (5) pounds per hour or twenty-five (25) pounds per day, CO emissions less than twenty-five (25) pounds per day, VOC emissions less than three (3) pounds per hour or fifteen (15) pounds per day, lead emissions less than six-tenths (0.6) tons per year or three and twenty-nine hundredths (3.29) pounds per day, and emitting greater than one (1) pound per day but less than five (5) pounds per day or one (1) ton per year of a single HAP, or emitting greater than one (1) pound per day but less than twelve and five tenths (12.5) pounds per day or two and five tenths (2.5) ton per year of any combination of HAPs:

(5) One (1) three unit biomethanator anaerobic wastewater treatment system followed by a single unit aerobic polishing treatment system, identified as EP-7001, approved for construction in 2007, offgasses from this unit are routed to a combustion unit within the plant or to a flare when the combustion units are offline, identified as CE-7001, which is fueled by natural gas and has a maximum heat input capacity of 3.48 MMBtu/hr, and exhausts through stack S-7001.

(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.6.1 FESOP Limits [326 IAC 2-2] [326 IAC 2-8-4] [326 IAC 2-4.1]

(a) Pursuant to 326 IAC 2-8-4 (FESOP), and in order to render the requirements of 326 IAC 2-2 (PSD) not applicable, the operating hours for the diesel fired stationary fire pump, identified as EP-1075, shall not exceed 500 hours per twelve (12) consecutive month period with compliance determined at the end of each month.

(b) CO emissions from EP-1075 shall not exceed 6.68E-03 lbs/hp-hr.

(c) The Permittee shall comply with the following requirements for the biomethanator flare, identified as CE-7001:

(1) The input of biogas to the biomethanator flare shall be limited to 24.3 MMCF per twelve (12) consecutive month period, with compliance determined at the end of each month.

(2) CO emissions shall not exceed 152 pounds per MMCF.

(3) The flare (CE-7001) shall be designed as a smokeless flare.

Combined with the CO and NOx emissions from other emission units, the CO and NOx emissions from the entire source are each limited to less than 100 tons/yr. Therefore, the requirements of 326 IAC 2-7 (Part 70 Program) and 326 IAC 2-2 (PSD) are not applicable.

D.6.2 Internal Combustion Engine [326 IAC 12] [40 CFR 60, Subpart IIII]

Pursuant to 40 CFR 60, Subpart IIII, the Permittee shall comply with the requirements of Section E.4 for the fire pump, identified as EP-1075.

Compliance Determination Requirements

D.6.3 Testing Requirements [326 IAC 2-8-5(a)(1), (4)] [326 IAC 2-1.1-11] [326 IAC 2-2]

In order to demonstrate compliance with Condition D.6.1(b)(2), the Permittee shall perform CO testing for enclosed flare CE-7001, within 60 days after achieving the maximum production, but not later than 180 days after initial startup, utilizing methods as approved by the Commissioner. These tests shall be repeated at least once every five (5) years from the date of this valid compliance demonstration. Testing shall be conducted in accordance with Section C - Performance Testing.

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

D.6.4 Flare Pilot Flame

In order to comply with Conditions D.6.1(b), the Permittee shall monitor the presence of a flare pilot flame for flare CE-7001 using a thermocouple or any other equivalent device to detect the presence of a flame when the biomethanator is in operation.

Record Keeping and Reporting Requirement [326 IAC 2-8-4(3)] [326 IAC 2-8-16]

D.6.5 Record Keeping Requirements

(a) To document compliance with Condition D.6.1(a), the Permittee shall maintain monthly records of the operating hours for EP-1075.

(b) To document compliance with Condition D.6.1(c)(1), the Permittee shall maintain monthly records of the total amount of biogas delivered to the flare CE-7001.

(c) To document compliance with Condition D.6.4, the Permittee shall maintain records of temperature or other parameters sufficient to demonstrate the presence of a pilot flame when the biomethanator is in operation.

(d) All records shall be maintained in accordance with Section C - General Record Keeping Requirements, of this permit.

D.6.6 Reporting Requirements

A quarterly summary of the information to document compliance with Condition D.6.1 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 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.7 FACILITY OPERATION CONDITIONS – Storage Tanks

Facility Description [326 IAC 2-8-4(10)]:

Insignificant Activities

(h) Other emission units, not regulated by a NESHAP, with PM10, NOx, and SO_2 emissions less than five (5) pounds per hour or twenty-five (25) pounds per day, CO emissions less than twenty-five (25) pounds per day, VOC emissions less than three (3) pounds per hour or fifteen (15) pounds per day, lead emissions less than six-tenths (0.6) tons per year or three and twenty-nine hundredths (3.29) pounds per day, and emitting greater than one (1) pound per day but less than five (5) pounds per day or one (1) ton per year of a single HAP, or emitting greater than one (1) pound per day but less than twelve and five tenths (12.5) pounds per day or two and five tenths (2.5) ton per year of any combination of HAPs:

(1) One (1) denaturant storage tank, identified as T2104, with a maximum capacity of 55,000 gallons equipped with an internal floating roof for VOC emissions control. [326 IAC 8-4-3] [40 CFR 60, Subpart Kb]

(2) Three (3) tanks for storage of denatured fuel ethanol and/or E-85, identified as T2102, T2103, and T2105 each with a maximum capacity of 1,000,000 gallons, and each equipped with an internal floating roof for VOC emissions control. [40 CFR 60, Subpart Kb]

(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.7.1 Volatile Organic Compounds (VOC) [326 IAC 8-4-3]

(a) Pursuant to 326 IAC 8-4-3(b)(1)(B), the denaturant storage tank (T2104) shall be maintained such that there are no visible holes, tears, or other openings in the seal or any seal fabric or materials.

(b) Pursuant to 326 IAC 8-4-3(b)(1)(C), all openings, except stub drains, are equipped with covers, lids, or seals such that:

(1) The cover, lid or seal in the closed potion at all times except when in actual use;

(2) Automatic bleeder vents are closed at all times except when the roof is floated off or landed on the roof leg supports;

(3) Rim vents, if provided, are set to open when the roof is being floated off the roof leg supports or at the manufacturer's recommended setting.

(c) Pursuant to 326 IAC 8-4-3(d), the Permittee shall maintain the following records for a period of two (2) years for the denaturant storage tank (T2104):

(1) The types of volatile petroleum liquid stored;

(2) The maximum true vapor pressure of the liquids as stored; and

(3) The results of the inspections performed on the storage vessel.

The above records shall be made available to the IDEM, OAQ upon written request.

D.7.2 Storage Tanks [326 IAC 12][40 CFR 60, Subpart Kb]

Pursuant to 40 CFR 60, Subpart Kb, the Permittee shall comply with the requirements of Section E.3 for T2102, T2103, T2104, and T2105.

D.7.3 Preventive Maintenance Plan [326 IAC 2-8-4(9)]

A Preventive Maintenance Plan, in accordance with Section B - Preventive Maintenance Plan, of this permit, is required for T2104.

Record Keeping and Reporting Requirement [326 IAC 2-8-4(3)] [326 IAC 2-8-16]

D.7.4 Record Keeping Requirements

(a) To document compliance with Condition D.7.1, the Permittee shall maintain the following records for T2104:

(1) The types of volatile petroleum liquid stored;

(2) The maximum true vapor pressure of the liquids as stored; and

(3) The results of the inspections performed on the storage vessels.

(b) All records shall be maintained in accordance with Section C - General Record Keeping Requirements, of this permit.

SECTION E.1 FACILITY OPERATION CONDITIONS

Facility Description [326 IAC 2-8-4(10)]:

(d) One (1) fermentation process, approved for construction in 2007, with a maximum throughput rate of 12,000 gallons of anhydrous ethanol per hour, consisting of the following:

(1) One (1) prefermenter tank, identified as T-1400, using a wet scrubber (CE1400), and sodium bisulfite injection for VOC control, exhausting through stack S-1400.

(2) Six (6) main fermenters and one (1) beer well, identified as T-1401 through T-1407, using a wet scrubber, (CE1401), and sodium bisulfite injection for VOC control, exhausting through stack S-1401.

(e) One (1) distillation process, approved for construction in 2007, with a maximum throughput rate of 12,000 gallons of anhydrous ethanol per hour, using a wet scrubber (CE1504), and sodium bisulfite injection for VOC control exhausting through stack S-1504, and consisting of the following:

(1) One (1) beer column identified as C-1510.

(2) One (1) stripping column identified as C-1520.

(3) One (1) rectifying column identified as C-1530.

(4) One (1) four-tower molecular sieve unit, with associated heat exchangers and pumps.

(h) One (1) ethanol loading rack for trucks and railcars, identified as EP-2210, approved for construction in 2007, with a maximum throughput rate of 600 gallons per minute for trucks and 1,200 gallons per minute for railcars, controlled by a flare, identified as CE-2210, which is fueled by natural gas and has a maximum heat input capacity of 1.26 MMBtu/hr, and exhausts through stack S-2210.

(i) One (1) ethanol loading rack for barges, identified as EP-2211, approved for construction in 2007, with a maximum throughput rate of 2,000 gallons per minute, controlled by a flare, identified as CE-2211, which is fueled by natural gas and has a maximum heat input capacity of 3.78 MMBtu/hr, and exhausts through stack S-2211.

(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 2-7-5(1)]

E.1.1 General Provisions Relating to New Source Performance Standards [326 IAC 12-1] [40 CFR Part 60, Subpart A]

(a) The provisions of 40 CFR 60, Subpart A - General Provisions, which are incorporated by reference in 326 IAC 12-1, apply to the facilities described in this Section E.1 except when otherwise specified in 40 CFR 60, Subpart VV.

(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,
Indianapolis, Indiana 46204-2251

E.1.2 Standards of Performance for Equipment Leaks of VOC in the Synthetic Organic Chemicals Manufacturing Industry [40 CFR Part 60, Subpart VV] [326 IAC 12]

Pursuant to 40 CFR Part 60, Subpart VV, the Permittee shall comply with the provisions of Standards of Performance for Equipment Leaks of VOC in the Synthetic Organic Chemicals Manufacturing Industry, which are incorporated by reference as 326 IAC 12, as specified as follows:

Subpart VV—Standards of Performance for Equipment Leaks of VOC in the Synthetic Organic Chemicals Manufacturing Industry
Source: 48 FR 48335, Oct. 18, 1983, unless otherwise noted.

§ 60.480 Applicability and designation of affected facility.

(a)(1) The provisions of this subpart apply to affected facilities in the synthetic organic chemicals manufacturing industry.

(2) The group of all equipment (defined in §60.481) within a process unit is an affected facility.

(b) Any affected facility under paragraph (a) of this section that commences construction or modification after January 5, 1981, shall be subject to the requirements of this subpart.

(c) Addition or replacement of equipment for the purpose of process improvement which is accomplished without a capital expenditure shall not by itself be considered a modification under this subpart.

(d)(1) If an owner or operator applies for one or more of the exemptions in this paragraph, then the owner or operator shall maintain records as required in §60.486(i).

(2) Any affected facility that has the design capacity to produce less than 1,000 Mg/yr (1,102 ton/yr) is exempt from §60.482.

(3) If an affected facility produces heavy liquid chemicals only from heavy liquid feed or raw materials, then it is exempt from §60.482.

(4) Any affected facility that produces beverage alcohol is exempt from §60.482.

(5) Any affected facility that has no equipment in VOC service is exempt from §60.482.

(e) *Alternative means of compliance*—(1) *Option to comply with part 65.* Owners or operators may choose to comply with the provisions of 40 CFR part 65, subpart F, to satisfy the requirements of §§60.482 through 60.487 for an affected facility. When choosing to comply with 40 CFR part 65, subpart F, the requirements of §60.485(d), (e), and (f), and §60.486(i) and (j) still apply. Other provisions applying to an owner or operator who chooses to comply with 40 CFR part 65 are provided in 40 CFR 65.1.

(2) *Part 60, subpart A.* Owners or operators who choose to comply with 40 CFR part 65, subpart F must also comply with §§60.1, 60.2, 60.5, 60.6, 60.7(a)(1) and (4), 60.14, 60.15, and 60.16 for that equipment. All sections and paragraphs of subpart A of this part that are not mentioned in this paragraph (e)(2) do not apply to owners or operators of equipment subject to this subpart complying with 40 CFR part 65, subpart F, except that provisions required to be met prior to implementing 40 CFR part 65 still apply. Owners and operators who choose to comply with 40 CFR part 65, subpart F, must comply with 40 CFR part 65, subpart A.

[48 FR 48335, Oct. 18, 1983, as amended at 49 FR 22607, May 30, 1984; 65 FR 61762, Oct. 17, 2000; 65 FR 78276, Dec. 14, 2000]

§ 60.481 Definitions.

As used in this subpart, all terms not defined herein shall have the meaning given them in the Act or in subpart A of part 60, and the following terms shall have the specific meanings given them.

Capital expenditure means, in addition to the definition in 40 CFR 60.2, an expenditure for a physical or operational change to an existing facility that:

(a) Exceeds P, the product of the facility's replacement cost, R, and an adjusted annual asset guideline repair allowance, A, as reflected by the following equation: P = R × A, where

(1) The adjusted annual asset guideline repair allowance, A, is the product of the percent of the replacement cost, Y, and the applicable basic annual asset guideline repair allowance, B, divided by 100 as reflected by the following equation:

A = Y × (B ÷ 100);

(2) The percent Y is determined from the following equation: Y = 1.0 − 0.575 log X, where X is 1982 minus the year of construction; and

(3) The applicable basic annual asset guideline repair allowance, B, is selected from the following table consistent with the applicable subpart:

Table for Determining Applicable for B

Subpart applicable to facility	Value of B to be used in equation
VV	12.5
DDD	12.5
GGG	7.0
KKK	4.5

Closed vent system means a system that is not open to the atmosphere and that is composed of hard-piping, ductwork, connections, and, if necessary, flow-inducing devices that transport gas or vapor from a piece or pieces of equipment to a control device or back to a process.

Connector means flanged, screwed, welded, or other joined fittings used to connect two pipe lines or a pipe line and a piece of process equipment.

Control device means an enclosed combustion device, vapor recovery system, or flare.

Distance piece means an open or enclosed casing through which the piston rod travels, separating the compressor cylinder from the crankcase.

Double block and bleed system means two block valves connected in series with a bleed valve or line that can vent the line between the two block valves.

Duct work means a conveyance system such as those commonly used for heating and ventilation systems. It is often made of sheet metal and often has sections connected by screws or crimping. Hard-piping is not ductwork.

Equipment means each pump, compressor, pressure relief device, sampling connection system, open-ended valve or line, valve, and flange or other connector in VOC service and any devices or systems required by this subpart.

First attempt at repair means to take rapid action for the purpose of stopping or reducing leakage of organic material to atmosphere using best practices.

Fuel gas means gases that are combusted to derive useful work or heat.

Fuel gas system means the offsite and onsite piping and flow and pressure control system that gathers gaseous stream(s) generated by onsite operations, may blend them with other sources of gas, and transports the gaseous stream for use as fuel gas in combustion devices or in-process combustion equipment, such as furnaces and gas turbines, either singly or in combination.

Hard-piping means pipe or tubing that is manufactured and properly installed using good engineering judgement and standards such as ASME B31.3, Process Piping (available from the American Society of Mechanical Engineers, PO Box 2900, Fairfield, NJ 07007–2900).

In gas/vapor service means that the piece of equipment contains process fluid that is in the gaseous state at operating conditions.

In heavy liquid service means that the piece of equipment is not in gas/vapor service or in light liquid service.

In light liquid service means that the piece of equipment contains a liquid that meets the conditions specified in §60.485(e).

In-situ sampling systems means nonextractive samplers or in-line samplers.

In vacuum service means that equipment is operating at an internal pressure which is at least 5 kilopascals (kPa)(0.7 psia) below ambient pressure.

In VOC service means that the piece of equipment contains or contacts a process fluid that is at least 10 percent VOC by weight. (The provisions of §60.485(d) specify how to determine that a piece of equipment is not in VOC service.)

Liquids dripping means any visible leakage from the seal including spraying, misting, clouding, and ice formation.

Open-ended valve or line means any valve, except safety relief valves, having one side of the valve seat in contact with process fluid and one side open to the atmosphere, either directly or through open piping.

Pressure release means the emission of materials resulting from system pressure being greater than set pressure of the pressure relief device.

Process improvement means routine changes made for safety and occupational health requirements, for energy savings, for better utility, for ease of maintenance and operation, for correction of design deficiencies, for bottleneck removal, for changing product requirements, or for environmental control.

Process unit means components assembled to produce, as intermediate or final products, one or more of the chemicals listed in §60.489 of this part. A process unit can operate independently if supplied with sufficient feed or raw materials and sufficient storage facilities for the product.

Process unit shutdown means a work practice or operational procedure that stops production from a process unit or part of a process unit. An unscheduled work practice or operational procedure that stops production from a process unit or part of a process unit for less than 24 hours is not a process unit shutdown. The use of spare equipment and technically feasible bypassing of equipment without stopping production are not process unit shutdowns.

Quarter means a 3-month period; the first quarter concludes on the last day of the last full month during the 180 days following initial startup.

Repaired means that equipment is adjusted, or otherwise altered, in order to eliminate a leak as indicated by one of the following: an instrument reading of 10,000 ppm or greater, indication of liquids dripping, or indication by a sensor that a seal or barrier fluid system has failed.

Replacement cost means the capital needed to purchase all the depreciable components in a facility.

Sampling connection system means an assembly of equipment within a process unit used during periods of representative operation to take samples of the process fluid. Equipment used to take nonroutine grab samples is not considered a sampling connection system.

Sensor means a device that measures a physical quantity or the change in a physical quantity such as temperature, pressure, flow rate, pH, or liquid level.

Synthetic organic chemicals manufacturing industry means the industry that produces, as intermediates or final products, one or more of the chemicals listed in §60.489.

Volatile organic compounds or VOC means, for the purposes of this subpart, any reactive organic compounds as defined in §60.2 Definitions.

[48 FR 48335, Oct. 18, 1983, as amended at 49 FR 22607, May 30, 1984; 49 FR 26738, June 29, 1984; 60 FR 43258, Aug. 18, 1995; 65 FR 61762, Oct. 17, 2000; 65 FR 78276, Dec. 14, 2000]

§ 60.482-1 Standards: General.

(a) Each owner or operator subject to the provisions of this subpart shall demonstrate compliance with the requirements of §§60.482–1 through 60.482–10 or §60.480(e) for all equipment within 180 days of initial startup.

(b) Compliance with §§60.482–1 to 60.482–10 will be determined by review of records and reports, review of performance test results, and inspection using the methods and procedures specified in §60.485.

(c)(1) An owner or operator may request a determination of equivalence of a means of emission limitation to the requirements of §§60.482–2, 60.482–3, 60.482–5, 60.482–6, 60.482–7, 60.482–8, and 60.482–10 as provided in §60.484.

(2) If the Administrator makes a determination that a means of emission limitation is at least equivalent to the requirements of §§60.482–2, 60.482–3, 60.482–5, 60.482–6, 60.482–7, 60.482–8, or 60.482–10, an owner or operator shall comply with the requirements of that determination.

(d) Equipment that is in vacuum service is excluded from the requirements of §§60.482–2 to 60.482–10 if it is identified as required in §60.486(e)(5).

[48 FR 48335, Oct. 18, 1983, as amended at 49 FR 22608, May 30, 1984; 65 FR 78276, Dec. 14, 2000]

§ 60.482-2 Standards: Pumps in light liquid service.

(a)(1) Each pump in light liquid service shall be monitored monthly to detect leaks by the methods specified in §60.485(b), except as provided in §60.482–1(c) and paragraphs (d), (e), and (f) of this section.

(2) Each pump in light liquid service shall be checked by visual inspection each calendar week for indications of liquids dripping from the pump seal.

(b)(1) If an instrument reading of 10,000 ppm or greater is measured, a leak is detected.

(2) If there are indications of liquids dripping from the pump seal, a leak is detected.

(c)(1) When a leak is detected, it shall be repaired as soon as practicable, but not later than 15 calendar days after it is detected, except as provided in §60.482–9.

(2) A first attempt at repair shall be made no later than 5 calendar days after each leak is detected.

(d) Each pump equipped with a dual mechanical seal system that includes a barrier fluid system is exempt from the requirements of paragraph (a), *Provided* the following requirements are met:

(1) Each dual mechanical seal system is—

(i) Operated with the barrier fluid at a pressure that is at all times greater than the pump stuffing box pressure; or

(ii) Equipment with a barrier fluid degassing reservoir that is routed to a process or fuel gas system or connected by a closed vent system to a control device that complies with the requirements of §60.482–10; or

(iii) Equipped with a system that purges the barrier fluid into a process stream with zero VOC emissions to the atmosphere.

(2) The barrier fluid system is in heavy liquid service or is not in VOC service.

(3) Each barrier fluid system is equipped with a sensor that will detect failure of the seal system, the barrier fluid system, or both.

(4) Each pump is checked by visual inspection, each calendar week, for indications of liquids dripping from the pump seals.

(5)(i) Each sensor as described in paragraph (d)(3) is checked daily or is equipped with an audible alarm, and

(ii) The owner or operator determines, based on design considerations and operating experience, a criterion that indicates failure of the seal system, the barrier fluid system, or both.

(6)(i) If there are indications of liquids dripping from the pump seal or the sensor indicates failure of the seal system, the barrier fluid system, or both based on the criterion determined in paragraph (d)(5)(ii), a leak is detected.

(ii) When a leak is detected, it shall be repaired as soon as practicable, but not later than 15 calendar days after it is detected, except as provided in §60.482–9.

(iii) A first attempt at repair shall be made no later than 5 calendar days after each leak is detected.

(e) Any pump that is designated, as described in §60.486(e)(1) and (2), for no detectable emission, as indicated by an instrument reading of less than 500 ppm above background, is exempt from the requirements of paragraphs (a), (c), and (d) of this section if the pump:

(1) Has no externally actuated shaft penetrating the pump housing,

(2) Is demonstrated to be operating with no detectable emissions as indicated by an instrument reading of less than 500 ppm above background as measured by the methods specified in §60.485(c), and

(3) Is tested for compliance with paragraph (e)(2) of this section initially upon designation, annually, and at other times requested by the Administrator.

(f) If any pump is equipped with a closed vent system capable of capturing and transporting any leakage from the seal or seals to a process or to a fuel gas system or to a control device that complies with the requirements of §60.482–10, it is exempt from paragraphs (a) through (e) of this section.

(g) Any pump that is designated, as described in §60.486(f)(1), as an unsafe-to-monitor pump is exempt from the monitoring and inspection requirements of paragraphs (a) and (d)(4) through (6) of this section if:

(1) The owner or operator of the pump demonstrates that the pump is unsafe-to-monitor because monitoring personnel would be exposed to an immediate danger as a consequence of complying with paragraph (a) of this section; and

(2) The owner or operator of the pump has a written plan that requires monitoring of the pump as frequently as practicable during safe-to-monitor times but not more frequently than the periodic monitoring schedule otherwise applicable, and repair of the equipment according to the procedures in paragraph (c) of this section if a leak is detected.

(h) Any pump that is located within the boundary of an unmanned plant site is exempt from the weekly visual inspection requirement of paragraphs (a)(2) and (d)(4) of this section, and the daily requirements of paragraph (d)(5) of this section, provided that each pump is visually inspected as often as practicable and at least monthly.

[48 FR 48335, Oct. 18, 1983, as amended at 65 FR 61762, Oct. 17, 2000; 65 FR 78276, Dec. 14, 2000]

§ 60.482-3 Standards: Compressors.

(a) Each compressor shall be equipped with a seal system that includes a barrier fluid system and that prevents leakage of VOC to the atmosphere, except as provided in §60.482–1(c) and paragraph (h) and (i) of this section.

(b) Each compressor seal system as required in paragraph (a) shall be:

(1) Operated with the barrier fluid at a pressure that is greater than the compressor stuffing box pressure; or

(2) Equipped with a barrier fluid system degassing reservoir that is routed to a process or fuel gas system or connected by a closed vent system to a control device that complies with the requirements of §60.482–10; or

(3) Equipped with a system that purges the barrier fluid into a process stream with zero VOC emissions to the atmosphere.

(c) The barrier fluid system shall be in heavy liquid service or shall not be in VOC service.

(d) Each barrier fluid system as described in paragraph (a) shall be equipped with a sensor that will detect failure of the seal system, barrier fluid system, or both.

(e)(1) Each sensor as required in paragraph (d) shall be checked daily or shall be equipped with an audible alarm.

(2) The owner or operator shall determine, based on design considerations and operating experience, a criterion that indicates failure of the seal system, the barrier fluid system, or both.

(f) If the sensor indicates failure of the seal system, the barrier system, or both based on the criterion determined under paragraph (e)(2), a leak is detected.

(g)(1) When a leak is detected, it shall be repaired as soon as practicable, but not later than 15 calendar days after it is detected, except as provided in §60.482–9.

(2) A first attempt at repair shall be made no later than 5 calendar days after each leak is detected.

(h) A compressor is exempt from the requirements of paragraphs (a) and (b) of this section, if it is equipped with a closed vent system to capture and transport leakage from the compressor drive shaft back to a process or fuel gas system or to a control device that complies with the requirements of §60.482–10, except as provided in paragraph (i) of this section.

(i) Any compressor that is designated, as described in §60.486(e) (1) and (2), for no detectable emissions, as indicated by an instrument reading of less than 500 ppm above background, is exempt from the requirements of paragraphs (a)–(h) if the compressor:

(1) Is demonstrated to be operating with no detectable emissions, as indicated by an instrument reading of less than 500 ppm above background, as measured by the methods specified in §60.485(c); and

(2) Is tested for compliance with paragraph (i)(1) of this section initially upon designation, annually, and at other times requested by the Administrator.

(j) Any existing reciprocating compressor in a process unit which becomes an affected facility under provisions of §60.14 or §60.15 is exempt from §60.482(a), (b), (c), (d), (e), and (h), provided the owner or operator demonstrates that recasting the distance piece or replacing the compressor are the only options available to bring the compressor into compliance with the provisions of paragraphs (a) through (e) and (h) of this section.

[48 FR 48335, Oct. 18, 1983, as amended at 65 FR 61762, Oct. 17, 2000; 65 FR 78277, Dec. 14, 2000]

§ 60.482-4 Standards: Pressure relief devices in gas/vapor service.

(a) Except during pressure releases, each pressure relief device in gas/vapor service shall be operated with no detectable emissions, as indicated by an instrument reading of less than 500 ppm above background, as determined by the methods specified in §60.485(c).

(b)(1) After each pressure release, the pressure relief device shall be returned to a condition of no detectable emissions, as indicated by an instrument reading of less than 500 ppm above background, as soon as practicable, but no later than 5 calendar days after the pressure release, except as provided in §60.482–9.

(2) No later than 5 calendar days after the pressure release, the pressure relief device shall be monitored to confirm the conditions of no detectable emissions, as indicated by an instrument reading of less than 500 ppm above background, by the methods specified in §60.485(c).

(c) Any pressure relief device that is routed to a process or fuel gas system or equipped with a closed vent system capable of capturing and transporting leakage through the pressure relief device to a control device as described in §60.482–10 is exempted from the requirements of paragraphs (a) and (b) of this section.

(d)(1) Any pressure relief device that is equipped with a rupture disk upstream of the pressure relief device is exempt from the requirements of paragraphs (a) and (b) of this section, provided the owner or operator complies with the requirements in paragraph (d)(2) of this section.

(2) After each pressure release, a new rupture disk shall be installed upstream of the pressure relief device as soon as practicable, but no later than 5 calendar days after each pressure release, except as provided in §60.482–9.

[48 FR 48335, Oct. 18, 1983, as amended at 65 FR 61762, Oct. 17, 2000; 65 FR 78277, Dec. 14, 2000]

§ 60.482-5 Standards: Sampling connection systems.

(a) Each sampling connection system shall be equipped with a closed-purged, closed-loop, or closed-vent system, except as provided in §60.482–1(c). Gases displaced during filling of the sample container are not required to be collected or captured.

(b) Each closed-purge, closed-loop, or closed-vent system as required in paragraph (a) of this section shall comply with the requirements specified in paragraphs (b)(1) through (4) of this section:

(1) Return the purged process fluid directly to the process line; or

(2) Collect and recycle the purged process fluid to a process; or

(3) Be designed and operated to capture and transport all the purged process fluid to a control device that complies with the requirements of §60.482–10; or

(4) Collect, store, and transport the purged process fluid to any of the following systems or facilities:

(i) A waste management unit as defined in 40 CFR 63.111, if the waste management unit is subject to, and operated in compliance with the provisions of 40 CFR part 63, subpart G, applicable to Group 1 wastewater streams;

(ii) A treatment, storage, or disposal facility subject to regulation under 40 CFR part 262, 264, 265, or 266; or

(iii) A facility permitted, licensed, or registered by a State to manage municipal or industrial solid waste, if the process fluids are not hazardous waste as defined in 40 CFR part 261.

(c) In situ sampling systems and sampling systems without purges are exempt from the requirements of paragraphs (a) and (b) of this section.

[60 FR 43258, Aug. 18, 1995, as amended at 65 FR 61762, Oct. 17, 2000; 65 FR 78277, Dec. 14, 2000]

§ 60.482-6 Standards: Open-ended valves or lines.

(a)(1) Each open-ended valve or line shall be equipped with a cap, blind flange, plug, or a second valve, except as provided in §60.482–1(c).

(2) The cap, blind flange, plug, or second valve shall seal the open end at all times except during operations requiring process fluid flow through the open-ended valve or line.

(b) Each open-ended valve or line equipped with a second valve shall be operated in a manner such that the valve on the process fluid end is closed before the second valve is closed.

(c) When a double block-and-bleed system is being used, the bleed valve or line may remain open during operations that require venting the line between the block valves but shall comply with paragraph (a) at all other times.

(d) Open-ended valves or lines in an emergency shutdown system which are designed to open automatically in the event of a process upset are exempt from the requirements of paragraphs (a), (b) and (c) of this section.

(e) Open-ended valves or lines containing materials which would autocatalytically polymerize or would present an explosion, serious overpressure, or other safety hazard if capped or equipped with a double block and bleed system as specified in paragraphs (a) through (c) of this section are exempt from the requirements of paragraphs (a) through (c) of this section.

[48 FR 48335, Oct. 18, 1983, as amended at 49 FR 22607, May 30, 1984; 65 FR 78277, Dec. 14, 2000]

§ 60.482-7 Standards: Valves in gas/vapor service and in light liquid service.

(a) Each valve shall be monitored monthly to detect leaks by the methods specified in §60.485(b) and shall comply with paragraphs (b) through (e), except as provided in paragraphs (f), (g), and (h), §60.483–1, 2, and §60.482–1(c).

(b) If an instrument reading of 10,000 ppm or greater is measured, a leak is detected.

(c)(1) Any valve for which a leak is not detected for 2 successive months may be monitored the first month of every quarter, beginning with the next quarter, until a leak is detected.

(2) If a leak is detected, the valve shall be monitored monthly until a leak is not detected for 2 successive months.

(d)(1) When a leak is detected, it shall be repaired as soon as practicable, but no later than 15 calendar days after the leak is detected, except as provided in §60.482–9.

(2) A first attempt at repair shall be made no later than 5 calendar days after each leak is detected.

(e) First attempts at repair include, but are not limited to, the following best practices where practicable:

(1) Tightening of bonnet bolts;

(2) Replacement of bonnet bolts;

(3) Tightening of packing gland nuts;

(4) Injection of lubricant into lubricated packing.

(f) Any valve that is designated, as described in §60.486(e)(2), for no detectable emissions, as indicated by an instrument reading of less than 500 ppm above background, is exempt from the requirements of paragraph (a) if the valve:

(1) Has no external actuating mechanism in contact with the process fluid,

(2) Is operated with emissions less than 500 ppm above background as determined by the method specified in §60.485(c), and

(3) Is tested for compliance with paragraph (f)(2) of this section initially upon designation, annually, and at other times requested by the Administrator.

(g) Any valve that is designated, as described in §60.486(f)(1), as an unsafe-to-monitor valve is exempt from the requirements of paragraph (a) if:

(1) The owner or operator of the valve demonstrates that the valve is unsafe to monitor because monitoring personnel would be exposed to an immediate danger as a consequence of complying with paragraph (a), and

(2) The owner or operator of the valve adheres to a written plan that requires monitoring of the valve as frequently as practicable during safe-to-monitor times.

(h) Any valve that is designated, as described in §60.486(f)(2), as a difficult-to-monitor valve is exempt from the requirements of paragraph (a) if:

(1) The owner or operator of the valve demonstrates that the valve cannot be monitored without elevating the monitoring personnel more than 2 meters above a support surface.

(2) The process unit within which the valve is located either becomes an affected facility through §60.14 or §60.15 or the owner or operator designates less than 3.0 percent of the total number of valves as difficult-to-monitor, and

(3) The owner or operator of the valve follows a written plan that requires monitoring of the valve at least once per calendar year.

[48 FR 48335, Oct. 18, 1983, as amended at 49 FR 22608, May 30, 1984; 65 FR 61762, Oct. 17, 2000]

§ 60.482-8 Standards: Pumps and valves in heavy liquid service, pressure relief devices in light liquid or heavy liquid service, and connectors.

(a) If evidence of a potential leak is found by visual, audible, olfactory, or any other detection method at pumps and valves in heavy liquid service, pressure relief devices in light liquid or heavy liquid service, and connectors, the owner or operator shall follow either one of the following procedures:

(1) The owner or operator shall monitor the equipment within 5 days by the method specified in §60.485(b) and shall comply with the requirements of paragraphs (b) through (d) of this section.

(2) The owner or operator shall eliminate the visual, audible, olfactory, or other indication of a potential leak.

(b) If an instrument reading of 10,000 ppm or greater is measured, a leak is detected.

(c)(1) When a leak is detected, it shall be repaired as soon as practicable, but not later than 15 calendar days after it is detected, except as provided in §60.482–9.

(2) The first attempt at repair shall be made no later than 5 calendar days after each leak is detected.

(d) First attempts at repair include, but are not limited to, the best practices described under §60.482–7(e).

[48 CFR 48335, Oct. 18, 1983, as amended at 65 FR 78277, Dec. 14, 2000]

§ 60.482-9 Standards: Delay of repair.

(a) Delay of repair of equipment for which leaks have been detected will be allowed if repair within 15 days is technically infeasible without a process unit shutdown. Repair of this equipment shall occur before the end of the next process unit shutdown.

(b) Delay of repair of equipment will be allowed for equipment which is isolated from the process and which does not remain in VOC service.

(c) Delay of repair for valves will be allowed if:

(1) The owner or operator demonstrates that emissions of purged material resulting from immediate repair are greater than the fugitive emissions likely to result from delay of repair, and

(2) When repair procedures are effected, the purged material is collected and destroyed or recovered in a control device complying with §60.482–10.

(d) Delay of repair for pumps will be allowed if:

(1) Repair requires the use of a dual mechanical seal system that includes a barrier fluid system, and

(2) Repair is completed as soon as practicable, but not later than 6 months after the leak was detected.

(e) Delay of repair beyond a process unit shutdown will be allowed for a valve, if valve assembly replacement is necessary during the process unit shutdown, valve assembly supplies have been depleted, and valve assembly supplies had been sufficiently stocked before the supplies were depleted. Delay of repair beyond the next process unit shutdown will not be allowed unless the next process unit shutdown occurs sooner than 6 months after the first process unit shutdown.

[48 FR 48335, Oct. 18, 1983, as amended at 65 FR 78277, Dec. 14, 2000]

§ 60.482-10 Standards: Closed vent systems and control devices.

(a) Owners or operators of closed vent systems and control devices used to comply with provisions of this subpart shall comply with the provisions of this section.

(b) Vapor recovery systems (for example, condensers and absorbers) shall be designed and operated to recover the VOC emissions vented to them with an efficiency of 95 percent or greater, or to an exit concentration of 20 parts per million by volume, whichever is less stringent.

(c) Enclosed combustion devices shall be designed and operated to reduce the VOC emissions vented to them with an efficiency of 95 percent or greater, or to an exit concentration of 20 parts per million by volume, on a dry basis, corrected to 3 percent oxygen, whichever is less stringent or to provide a minimum residence time of 0.75 seconds at a minimum temperature of 816 °C.

(d) Flares used to comply with this subpart shall comply with the requirements of §60.18.

(e) Owners or operators of control devices used to comply with the provisions of this subpart shall monitor these control devices to ensure that they are operated and maintained in conformance with their designs.

(f) Except as provided in paragraphs (i) through (k) of this section, each closed vent system shall be inspected according to the procedures and schedule specified in paragraphs (f)(1) and (f)(2) of this section.

(1) If the vapor collection system or closed vent system is constructed of hard-piping, the owner or operator shall comply with the requirements specified in paragraphs (f)(1)(i) and (f)(1)(ii) of this section:

(i) Conduct an initial inspection according to the procedures in §60.485(b); and

(ii) Conduct annual visual inspections for visible, audible, or olfactory indications of leaks.

(2) If the vapor collection system or closed vent system is constructed of ductwork, the owner or operator shall:

(i) Conduct an initial inspection according to the procedures in §60.485(b); and

(ii) Conduct annual inspections according to the procedures in §60.485(b).

(g) Leaks, as indicated by an instrument reading greater than 500 parts per million by volume above background or by visual inspections, shall be repaired as soon as practicable except as provided in paragraph (h) of this section.

(1) A first attempt at repair shall be made no later than 5 calendar days after the leak is detected.

(2) Repair shall be completed no later than 15 calendar days after the leak is detected.

(h) Delay of repair of a closed vent system for which leaks have been detected is allowed if the repair is technically infeasible without a process unit shutdown or if the owner or operator determines that emissions resulting from immediate repair would be greater than the fugitive emissions likely to result from delay of repair. Repair of such equipment shall be complete by the end of the next process unit shutdown.

(i) If a vapor collection system or closed vent system is operated under a vacuum, it is exempt from the inspection requirements of paragraphs (f)(1)(i) and (f)(2) of this section.

(j) Any parts of the closed vent system that are designated, as described in paragraph (l)(1) of this section, as unsafe to inspect are exempt from the inspection requirements of paragraphs (f)(1)(i) and (f)(2) of this section if they comply with the requirements specified in paragraphs (j)(1) and (j)(2) of this section:

(1) The owner or operator determines that the equipment is unsafe to inspect because inspecting personnel would be exposed to an imminent or potential danger as a consequence of complying with paragraphs (f)(1)(i) or (f)(2) of this section; and

(2) The owner or operator has a written plan that requires inspection of the equipment as frequently as practicable during safe-to-inspect times.

(k) Any parts of the closed vent system that are designated, as described in paragraph (l)(2) of this section, as difficult to inspect are exempt from the inspection requirements of paragraphs (f)(1)(i) and (f)(2) of this section if they comply with the requirements specified in paragraphs (k)(1) through (k)(3) of this section:

(1) The owner or operator determines that the equipment cannot be inspected without elevating the inspecting personnel more than 2 meters above a support surface; and

(2) The process unit within which the closed vent system is located becomes an affected facility through §§60.14 or 60.15, or the owner or operator designates less than 3.0 percent of the total number of closed vent system equipment as difficult to inspect; and

(3) The owner or operator has a written plan that requires inspection of the equipment at least once every 5 years. A closed vent system is exempt from inspection if it is operated under a vacuum.

(l) The owner or operator shall record the information specified in paragraphs (l)(1) through (l)(5) of this section.

(1) Identification of all parts of the closed vent system that are designated as unsafe to inspect, an explanation of why the equipment is unsafe to inspect, and the plan for inspecting the equipment.

(2) Identification of all parts of the closed vent system that are designated as difficult to inspect, an explanation of why the equipment is difficult to inspect, and the plan for inspecting the equipment.

(3) For each inspection during which a leak is detected, a record of the information specified in §60.486(c).

(4) For each inspection conducted in accordance with §60.485(b) during which no leaks are detected, a record that the inspection was performed, the date of the inspection, and a statement that no leaks were detected.

(5) For each visual inspection conducted in accordance with paragraph (f)(1)(ii) of this section during which no leaks are detected, a record that the inspection was performed, the date of the inspection, and a statement that no leaks were detected.

(m) Closed vent systems and control devices used to comply with provisions of this subpart shall be operated at all times when emissions may be vented to them.

[48 FR 48335, Oct. 18, 1983, as amended at 51 FR 2702, Jan. 21, 1986; 60 FR 43258, Aug. 18, 1995; 61 FR 29878, June 12, 1996; 65 FR 78277, Dec. 14, 2000]

§ 60.483-1 Alternative standards for valves—allowable percentage of valves leaking.

(a) An owner or operator may elect to comply with an allowable percentage of valves leaking of equal to or less than 2.0 percent.

(b) The following requirements shall be met if an owner or operator wishes to comply with an allowable percentage of valves leaking:

(1) An owner or operator must notify the Administrator that the owner or operator has elected to comply with the allowable percentage of valves leaking before implementing this alternative standard, as specified in §60.487(d).

(2) A performance test as specified in paragraph (c) of this section shall be conducted initially upon designation, annually, and at other times requested by the Administrator.

(3) If a valve leak is detected, it shall be repaired in accordance with §60.482–7(d) and (e).

(c) Performance tests shall be conducted in the following manner:

(1) All valves in gas/vapor and light liquid service within the affected facility shall be monitored within 1 week by the methods specified in §60.485(b).

(2) If an instrument reading of 10,000 ppm or greater is measured, a leak is detected.

(3) The leak percentage shall be determined by dividing the number of valves for which leaks are detected by the number of valves in gas/vapor and light liquid service within the affected facility.

(d) Owners and operators who elect to comply with this alternative standard shall not have an affected facility with a leak percentage greater than 2.0 percent.

[48 FR 48335, Oct. 18, 1983, as amended at 65 FR 61762, Oct. 17, 2000; 65 FR 78278, Dec. 14, 2000]

§ 60.483-2 Alternative standards for valves—skip period leak detection and repair.

(a)(1) An owner or operator may elect to comply with one of the alternative work practices specified in paragraphs (b)(2) and (3) of this section.

(2) An owner or operator must notify the Administrator before implementing one of the alternative work practices, as specified in §60.487(d).

(b)(1) An owner or operator shall comply initially with the requirements for valves in gas/vapor service and valves in light liquid service, as described in §60.482–7.

(2) After 2 consecutive quarterly leak detection periods with the percent of valves leaking equal to or less than 2.0, an owner or operator may begin to skip 1 of the quarterly leak detection periods for the valves in gas/vapor and light liquid service.

(3) After 5 consecutive quarterly leak detection periods with the percent of valves leaking equal to or less than 2.0, an owner or operator may begin to skip 3 of the quarterly leak detection periods for the valves in gas/vapor and light liquid service.

(4) If the percent of valves leaking is greater than 2.0, the owner or operator shall comply with the requirements as described in §60.482–7 but can again elect to use this section.

(5) The percent of valves leaking shall be determined by dividing the sum of valves found leaking during current monitoring and valves for which repair has been delayed by the total number of valves subject to the requirements of this section.

(6) An owner or operator must keep a record of the percent of valves found leaking during each leak detection period.

[48 FR 48335, Oct. 18, 1983, as amended at 65 FR 61762, Oct. 17, 2000; 65 FR 78278, Dec. 14, 2000]

§ 60.485 Test methods and procedures.

(a) In conducting the performance tests required in §60.8, the owner or operator shall use as reference methods and procedures the test methods in appendix A of this part or other methods and procedures as specified in this section, except as provided in §60.8(b).

(b) The owner or operator shall determine compliance with the standards in §§60.482, 60.483, and 60.484 as follows:

(1) Method 21 shall be used to determine the presence of leaking sources. The instrument shall be calibrated before use each day of its use by the procedures specified in Method 21. The following calibration gases shall be used:

(i) Zero air (less than 10 ppm of hydrocarbon in air); and

(ii) A mixture of methane or n-hexane and air at a concentration of about, but less than, 10,000 ppm methane or n-hexane.

(c) The owner or operator shall determine compliance with the no detectable emission standards in §§60.482–2(e), 60.482–3(i), 60.482–4, 60.482–7(f), and 60.482–10(e) as follows:

(1) The requirements of paragraph (b) shall apply.

(2) Method 21 shall be used to determine the background level. All potential leak interfaces shall be traversed as close to the interface as possible. The arithmetic difference between the maximum concentration indicated by the instrument and the background level is compared with 500 ppm for determining compliance.

(d) The owner or operator shall test each piece of equipment unless he demonstrates that a process unit is not in VOC service, i.e., that the VOC content would never be reasonably expected to exceed 10 percent by weight. For purposes of this demonstration, the following methods and procedures shall be used:

(1) Procedures that conform to the general methods in ASTM E260–73, 91, or 96, E168–67, 77, or 92, E169–63, 77, or 93 (incorporated by reference—see §60.17) shall be used to determine the percent VOC content in the process fluid that is contained in or contacts a piece of equipment.

(2) Organic compounds that are considered by the Administrator to have negligible photochemical reactivity may be excluded from the total quantity of organic compounds in determining the VOC content of the process fluid.

(3) Engineering judgment may be used to estimate the VOC content, if a piece of equipment had not been shown previously to be in service. If the Administrator disagrees with the judgment, paragraphs (d) (1) and (2) of this section shall be used to resolve the disagreement.

(e) The owner or operator shall demonstrate that an equipment is in light liquid service by showing that all the following conditions apply:

(1) The vapor pressure of one or more of the components is greater than 0.3 kPa at 20 °C (1.2 in. H_2O at 68 °F). Standard reference texts or ASTM D2879–83, 96, or 97 (incorporated by reference—see §60.17) shall be used to determine the vapor pressures.

(2) The total concentration of the pure components having a vapor pressure greater than 0.3 kPa at 20 °C (1.2 in. H_2O at 68 °F) is equal to or greater than 20 percent by weight.

(3) The fluid is a liquid at operating conditions.

(f) Samples used in conjunction with paragraphs (d), (e), and (g) of this section shall be representative of the process fluid that is contained in or contacts the equipment or the gas being combusted in the flare.

(g) The owner or operator shall determine compliance with the standards of flares as follows:

(1) Method 22 shall be used to determine visible emissions.

(2) A thermocouple or any other equivalent device shall be used to monitor the presence of a pilot flame in the flare.

(3) The maximum permitted velocity for air assisted flares shall be computed using the following equation:

$$V_{max} = K_1 + K_2 H_T$$

Where:

V_{max} = Maximum permitted velocity, m/sec (ft/sec)

H_T = Net heating value of the gas being combusted, MJ/scm (Btu/scf).

K_1 = 8.706 m/sec (metric units)

= 28.56 ft/sec (English units)

K_2 = 0.7084 m^4 /(MJ-sec) (metric units)

= 0.087 ft^4 /(Btu-sec) (English units)

(4) The net heating value (HT) of the gas being combusted in a flare shall be computed using the following equation:

$$H_T = K\sum_{i=1}^{n} C_i H_i$$

Where:

K = Conversion constant, 1.740×10^{7} (g-mole)(MJ)/ (ppm-scm-kcal) (metric units)

= 4.674×10^{8} [(g-mole)(Btu)/(ppm-scf-kcal)] (English units)

C_i = Concentration of sample component "i," ppm

H_i = net heat of combustion of sample component "i" at 25 °C and 760 mm Hg (77 °F and 14.7 psi), kcal/g-mole

(5) Method 18 and ASTM D2504–67, 77, or 88 (Reapproved 1993) (incorporated by reference—see §60.17) shall be used to determine the concentration of sample component "i."

(6) ASTM D2382–76 or 88 or D4809–95 (incorporated by reference—see §60.17) shall be used to determine the net heat of combustion of component "i" if published values are not available or cannot be calculated.

(7) Method 2, 2A, 2C, or 2D, as appropriate, shall be used to determine the actual exit velocity of a flare. If needed, the unobstructed (free) cross-sectional area of the flare tip shall be used.

[54 FR 6678, Feb. 14, 1989, as amended at 54 FR 27016, June 27, 1989; 65 FR 61763, Oct. 17, 2000]

§ 60.486 Recordkeeping requirements.

(a)(1) Each owner or operator subject to the provisions of this subpart shall comply with the recordkeeping requirements of this section.

(2) An owner or operator of more than one affected facility subject to the provisions of this subpart may comply with the recordkeeping requirements for these facilities in one recordkeeping system if the system identifies each record by each facility.

(b) When each leak is detected as specified in §§60.482–2, 60.482–3, 60.482–7, 60.482–8, and 60.483–2, the following requirements apply:

(1) A weatherproof and readily visible identification, marked with the equipment identification number, shall be attached to the leaking equipment.

(2) The identification on a valve may be removed after it has been monitored for 2 successive months as specified in §60.482–7(c) and no leak has been detected during those 2 months.

(3) The identification on equipment except on a valve, may be removed after it has been repaired.

(c) When each leak is detected as specified in §§60.482–2, 60.482–3, 60.482–7, 60.482–8, and 60.483–2, the following information shall be recorded in a log and shall be kept for 2 years in a readily accessible location:

(1) The instrument and operator identification numbers and the equipment identification number.

(2) The date the leak was detected and the dates of each attempt to repair the leak.

(3) Repair methods applied in each attempt to repair the leak.

(4) "Above 10,000" if the maximum instrument reading measured by the methods specified in §60.485(a) after each repair attempt is equal to or greater than 10,000 ppm.

(5) "Repair delayed" and the reason for the delay if a leak is not repaired within 15 calendar days after discovery of the leak.

(6) The signature of the owner or operator (or designate) whose decision it was that repair could not be effected without a process shutdown.

(7) The expected date of successful repair of the leak if a leak is not repaired within 15 days.

(8) Dates of process unit shutdowns that occur while the equipment is unrepaired.

(9) The date of successful repair of the leak.

(d) The following information pertaining to the design requirements for closed vent systems and control devices described in §60.482–10 shall be recorded and kept in a readily accessible location:

(1) Detailed schematics, design specifications, and piping and instrumentation diagrams.

(2) The dates and descriptions of any changes in the design specifications.

(3) A description of the parameter or parameters monitored, as required in §60.482–10(e), to ensure that control devices are operated and maintained in conformance with their design and an explanation of why that parameter (or parameters) was selected for the monitoring.

(4) Periods when the closed vent systems and control devices required in §§60.482–2, 60.482–3, 60.482–4, and 60.482–5 are not operated as designed, including periods when a flare pilot light does not have a flame.

(5) Dates of startups and shutdowns of the closed vent systems and control devices required in §§60.482–2, 60.482–3, 60.482–4, and 60.482–5.

(e) The following information pertaining to all equipment subject to the requirements in §§60.482–1 to 60.482–10 shall be recorded in a log that is kept in a readily accessible location:

(1) A list of identification numbers for equipment subject to the requirements of this subpart.

(2)(i) A list of identification numbers for equipment that are designated for no detectable emissions under the provisions of §§60.482–2(e), 60.482–3(i) and 60.482–7(f).

(ii) The designation of equipment as subject to the requirements of §60.482–2(e), §60.482–3(i), or §60.482–7(f) shall be signed by the owner or operator.

(3) A list of equipment identification numbers for pressure relief devices required to comply with §60.482–4.

(4)(i) The dates of each compliance test as required in §§60.482–2(e), 60.482–3(i), 60.482–4, and 60.482–7(f).

(ii) The background level measured during each compliance test.

(iii) The maximum instrument reading measured at the equipment during each compliance test.

(5) A list of identification numbers for equipment in vacuum service.

(f) The following information pertaining to all valves subject to the requirements of §60.482–7(g) and (h) and to all pumps subject to the requirements of §60.482–2(g) shall be recorded in a log that is kept in a readily accessible location:

(1) A list of identification numbers for valves and pumps that are designated as unsafe-to-monitor, an explanation for each valve or pump stating why the valve or pump is unsafe-to-monitor, and the plan for monitoring each valve or pump.

(2) A list of identification numbers for valves that are designated as difficult-to-monitor, an explanation for each valve stating why the valve is difficult-to-monitor, and the schedule for monitoring each valve.

(g) The following information shall be recorded for valves complying with §60.483–2:

(1) A schedule of monitoring.

(2) The percent of valves found leaking during each monitoring period.

(h) The following information shall be recorded in a log that is kept in a readily accessible location:

(1) Design criterion required in §§60.482–2(d)(5) and 60.482–3(e)(2) and explanation of the design criterion; and

(2) Any changes to this criterion and the reasons for the changes.

(i) The following information shall be recorded in a log that is kept in a readily accessible location for use in determining exemptions as provided in §60.480(d):

(1) An analysis demonstrating the design capacity of the affected facility,

(2) A statement listing the feed or raw materials and products from the affected facilities and an analysis demonstrating whether these chemicals are heavy liquids or beverage alcohol, and

(3) An analysis demonstrating that equipment is not in VOC service.

(j) Information and data used to demonstrate that a piece of equipment is not in VOC service shall be recorded in a log that is kept in a readily accessible location.

(k) The provisions of §60.7 (b) and (d) do not apply to affected facilities subject to this subpart.

[48 FR 48335, Oct. 18, 1983, as amended at 65 FR 61763, Oct. 17, 2000; 65 FR 78278, Dec. 14, 2000]

§ 60.487 Reporting requirements.

(a) Each owner or operator subject to the provisions of this subpart shall submit semiannual reports to the Administrator beginning six months after the initial startup date.

(b) The initial semiannual report to the Administrator shall include the following information:

(1) Process unit identification.

(2) Number of valves subject to the requirements of §60.482–7, excluding those valves designated for no detectable emissions under the provisions of §60.482–7(f).

(3) Number of pumps subject to the requirements of §60.482–2, excluding those pumps designated for no detectable emissions under the provisions of §60.482–2(e) and those pumps complying with §60.482–2(f).

(4) Number of compressors subject to the requirements of §60.482–3, excluding those compressors designated for no detectable emissions under the provisions of §60.482–3(i) and those compressors complying with §60.482–3(h).

(c) All semiannual reports to the Administrator shall include the following information, summarized from the information in §60.486:

(1) Process unit identification.

(2) For each month during the semiannual reporting period,

(i) Number of valves for which leaks were detected as described in §60.482(7)(b) or §60.483–2,

(ii) Number of valves for which leaks were not repaired as required in §60.482–7(d)(1),

(iii) Number of pumps for which leaks were detected as described in §60.482–2(b) and (d)(6)(i),

(iv) Number of pumps for which leaks were not repaired as required in §60.482–2(c)(1) and (d)(6)(ii),

(v) Number of compressors for which leaks were detected as described in §60.482–3(f),

(vi) Number of compressors for which leaks were not repaired as required in §60.482–3(g)(1), and

(vii) The facts that explain each delay of repair and, where appropriate, why a process unit shutdown was technically infeasible.

(3) Dates of process unit shutdowns which occurred within the semiannual reporting period.

(4) Revisions to items reported according to paragraph (b) if changes have occurred since the initial report or subsequent revisions to the initial report.

(d) An owner or operator electing to comply with the provisions of §§60.483–1 or 60.483–2 shall notify the Administrator of the alternative standard selected 90 days before implementing either of the provisions.

(e) An owner or operator shall report the results of all performance tests in accordance with §60.8 of the General Provisions. The provisions of §60.8(d) do not apply to affected facilities subject to the provisions of this subpart except that an owner or operator must notify the Administrator of the schedule for the initial performance tests at least 30 days before the initial performance tests.

(f) The requirements of paragraphs (a) through (c) of this section remain in force until and unless EPA, in delegating enforcement authority to a State under section 111(c) of the Act, approves reporting requirements or an alternative means of compliance surveillance adopted by such State. In that event, affected sources within the State will be relieved of the obligation to comply with the requirements of paragraphs (a) through (c) of this section, provided that they comply with the requirements established by the State.

[48 FR 48335, Oct. 18, 1983, as amended at 49 FR 22608, May 30, 1984; 65 FR 61763, Oct. 17, 2000]

SECTION E.2 FACILITY OPERATION CONDITIONS

Facility Description [326 IAC 2-8-4(10)]:

(f) Two (2) natural gas fired boilers, identified as BL5001 and BL5002, approved for construction in 2007, each with a maximum heat input rate of 182 MMBtu/hr, with emissions exhausting to stacks S-5001 and S-5002, respectively.

(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 2-7-5(1)]

E.2.1 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 boilers BL5001 and BL5002, except as otherwise specified in 40 CFR Part 60, Subpart Db.

(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,
Indianapolis, Indiana 46204-2251

E.2.2 Standard of Performance for Industrial-Commercial-Institutional Steam Generating Units Requirements [40 CFR Part 60, Subpart Db] [326 IAC 12]

Pursuant to 40 CFR Part 60, Subpart Db, the Permittee shall comply with the provisions of Standard of Performance for Industrial-Commercial-Institutional Steam Generating Units, which are incorporated by reference as 326 IAC 12, for boilers BL5001 and BL5002 as specified as follows:

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

§ 60.40b Applicability and delegation of authority.

(a) The affected facility to which this subpart applies is each steam generating unit that commences construction, modification, or reconstruction after June 19, 1984, and that has a heat input capacity from fuels combusted in the steam generating unit of greater than 29 MW (100 million Btu/hour).

(b) Any affected facility meeting the applicability requirements under paragraph (a) of this section and commencing construction, modification, or reconstruction after June 19, 1984, but on or before June 19, 1986, is subject to the following standards:

(1) Coal-fired affected facilities having a heat input capacity between 29 and 73 MW (100 and 250 million Btu/hour), inclusive, are subject to the particulate matter and nitrogen oxides standards under this subpart.

(2) Coal-fired affected facilities having a heat input capacity greater than 73 MW (250 million Btu/hour) and meeting the applicability requirements under subpart D (Standards of performance for fossil-fuel-fired steam generators; §60.40) are subject to the particulate matter and nitrogen oxides standards under this subpart and to the sulfur dioxide standards under subpart D (§60.43).

(3) Oil-fired affected facilities having a heat input capacity between 29 and 73 MW (100 and 250 million Btu/hour), inclusive, are subject to the nitrogen oxides standards under this subpart.

(4) Oil-fired affected facilities having a heat input capacity greater than 73 MW (250 million Btu/hour) and meeting the applicability requirements under subpart D (Standards of performance for fossil-fuel-fired steam generators; §60.40) are also subject to the nitrogen oxides standards under this subpart and the particulate matter and sulfur dioxide standards under subpart D (§60.42 and §60.43).

(c) Affected facilities which also meet the applicability requirements under subpart J (Standards of performance for petroleum refineries; §60.104) are subject to the particulate matter and nitrogen oxides standards under this subpart and the sulfur dioxide standards under subpart J (§60.104).

(d) Affected facilities which also meet the applicability requirements under subpart E (Standards of performance for incinerators; §60.50) are subject to the nitrogen oxides and particulate matter standards under this subpart.

(e) Steam generating units meeting the applicability requirements under subpart Da (Standards of performance for electric utility steam generating units; §60.40Da) are not subject to this subpart.

(f) Any change to an existing steam generating unit for the sole purpose of combusting gases containing TRS as defined under §60.281 is not considered a modification under §60.14 and the steam generating unit is not subject to this subpart.

(g) In delegating implementation and enforcement authority to a State under section 111(c) of the Act, the following authorities shall be retained by the Administrator and not transferred to a State.

(1) Section 60.44b(f).

(2) Section 60.44b(g).

(3) Section 60.49b(a)(4).

(h) Affected facilities which meet the applicability requirements under subpart Eb (Standards of performance for municipal waste combustors; §60.50b) are not subject to this subpart.

(i) Heat recovery steam generators that are associated with combined cycle gas turbines and that meet the applicability requirements of subpart 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 29 MW (100 MMBtu/h) 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.)

(j) Any affected facility meeting the applicability requirements under paragraph (a) of this section and commencing construction, modification, or reconstruction after June 19, 1986 is not subject to Subpart D (Standards of Performance for Fossil-Fuel-Fired Steam Generators, §60.40).

(k) Any facility covered by subpart Eb or subpart AAAA of this part is not covered by this subpart.

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

[52 FR 47842, Dec. 16, 1987, as amended at 63 FR 49454, Sept. 16, 1998; 65 FR 61752, Oct. 17, 2000; 71 FR 9881, Feb. 27, 2006; 71 FR 33400, June 9, 2006]

§ 60.41b Definitions.

As used in this subpart, all terms not defined herein shall have the meaning given them in the 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 the fuels listed in §60.42b(a), §60.43b(a), or §60.44b(a), as applicable, during a calendar year and the potential heat input to the steam generating unit had it been operated for 8,760 hours during a calendar year at the maximum steady state 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 in a calendar year.

Byproduct/waste means any liquid or gaseous substance produced at chemical manufacturing plants, petroleum refineries, or pulp and paper mills (except natural gas, distillate oil, or residual oil) and combusted in a steam generating unit for heat recovery or for disposal. Gaseous substances with carbon dioxide levels greater than 50 percent or carbon monoxide levels greater than 10 percent are not byproduct/waste for the purpose of this subpart.

Chemical manufacturing plants means industrial plants which are classified by the Department of Commerce under Standard Industrial Classification (SIC) Code 28.

Coal means all solid fuels classified as anthracite, bituminous, subbituminous, or lignite by the American Society of Testing and Materials in ASTM D388–77, 90, 91, 95, or 98a, Standard Specification for Classification of Coals by Rank (IBR—see §60.17), coal refuse, and petroleum coke. Coal-derived synthetic fuels, 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 byproduct 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 kJ/kg (6,000 Btu/lb) on a dry basis.

Cogeneration, also known as combined heat and power, means a facility that simultaneously produces both electric (or mechanical) and useful thermal energy from the same primary energy source.

Combined cycle system means a system in which a separate source, such as a gas turbine, internal combustion engine, kiln, etc., provides exhaust gas to a heat recovery steam generating unit.

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

Distillate oil means fuel oils that contain 0.05 weight percent nitrogen or less and comply with the specifications for fuel oil numbers 1 and 2, as defined by the American Society of Testing and Materials in ASTM D396–78, 89, 90, 92, 96, or 98, Standard Specifications for Fuel Oils (incorporated by reference—see §60.17).

Dry flue gas desulfurization technology means a sulfur dioxide control system that is located downstream of the steam generating unit and 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 dry powder material. This definition includes devices where the dry powder material is subsequently converted to another form. Alkaline slurries or solutions used in dry flue gas desulfurization technology include but are not limited to lime and sodium.

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 heat recovery steam generating unit.

Emerging technology means any sulfur dioxide control system that is not defined as a conventional technology under this section, and for which the owner or operator of the facility has applied to the Administrator and received approval to operate as an emerging technology under §60.49b(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 40 CFR 51.24.

Fluidized bed combustion technology means combustion of fuel in a bed or series of beds (including but not limited to bubbling bed units and circulating bed units) of limestone aggregate (or other sorbent materials) in which these materials are forced upward by the flow of combustion air and the gaseous products of combustion.

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.

Full capacity means operation of the steam generating unit at 90 percent or more of the maximum steady-state design heat input capacity.

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

Heat release rate means the steam generating unit design heat input capacity (in MW or Btu/hour) divided by the furnace volume (in cubic meters or cubic feet); the furnace volume is that volume bounded by the front furnace wall where the burner is located, the furnace side waterwall, and extending to the level just below or in front of the first row of convection pass tubes.

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

High heat release rate means a heat release rate greater than 730,000 J/sec-m ^{3} (70,000 Btu/hour-ft ^{3}).

Lignite means a type of coal classified as lignite A or lignite B by the American Society of Testing and Materials in ASTM D388–77, 90, 91, 95, or 98a, Standard Specification for Classification of Coals by Rank (IBR—see §60.17).

Low heat release rate means a heat release rate of 730,000 J/sec-m ^{3} (70,000 Btu/hour-ft ^{3}) or less.

Mass-feed stoker steam generating unit means a steam generating unit where solid fuel is introduced directly into a retort or is fed directly onto a grate where it is combusted.

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

Municipal-type solid waste means refuse, more than 50 percent of which is waste consisting of a mixture of paper, wood, yard wastes, food wastes, plastics, leather, rubber, and other combustible materials, and noncombustible materials such as glass and rock.

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) liquid petroleum gas, as defined by the American Society for Testing and Materials in ASTM D1835–82, 86, 87, 91, or 97, “Standard Specification for Liquid Petroleum Gases” (IBR—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 and residual oil.

Petroleum refinery means industrial plants as classified by the Department of Commerce under Standard Industrial Classification (SIC) Code 29.

Potential sulfur dioxide emission rate means the theoretical sulfur dioxide emissions (ng/J, lb/million Btu 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.

Pulp and paper mills means industrial plants which are classified by the Department of Commerce under North American Industry Classification System (NAICS) Code 322 or Standard Industrial Classification (SIC) Code 26.

Pulverized coal-fired steam generating unit means a steam generating unit in which pulverized coal is introduced into an air stream that carries the coal to the combustion chamber of the steam generating unit where it is fired in suspension. This includes both conventional pulverized coal-fired and micropulverized coal-fired steam generating units.

Residual oil means crude oil, fuel oil numbers 1 and 2 that have a nitrogen content greater than 0.05 weight percent, and all fuel oil numbers 4, 5 and 6, as defined by the American Society of Testing and Materials in ASTM D396–78, Standard Specifications for Fuel Oils (IBR—see §60.17).

Spreader stoker steam generating unit means a steam generating unit in which solid fuel is introduced to the combustion zone by a mechanism that throws the fuel onto a grate from above. Combustion takes place both in suspension and on the grate.

Steam generating unit means a device that combusts any fuel or byproduct/waste to produce steam or to heat water or any other heat transfer medium. This term includes any municipal-type solid waste incinerator with a heat recovery steam generating unit or any steam generating unit that combusts fuel and is part of a cogeneration system or a combined cycle system. This term does not include process heaters as they are 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.

Very low sulfur oil for units constructed, reconstructed, or modified on or before February 28, 2005, means an oil that contains no more than 0.5 weight percent sulfur or that, when combusted without sulfur dioxide emission control, has a sulfur dioxide emission rate equal to or less than 215 ng/J (0.5 lb/MMBtu) heat input. For units constructed, reconstructed, or modified after February 28, 2005, *very low sulfur oil* means an oil that contains no more than 0.3 weight percent sulfur or that, when combusted without sulfur dioxide emission control, has a sulfur dioxide emission rate equal to or less than 140 ng/J (0.32 lb/MMBtu) heat input.

Wet flue gas desulfurization technology means a sulfur dioxide control system that is located downstream of the steam generating unit and removes sulfur oxides from the combustion gases of the steam generating unit by contacting the combustion gas with an alkaline slurry or solution and forming a liquid material. This definition applies to devices where the aqueous liquid material product of this contact is subsequently converted to other forms. Alkaline reagents used in wet flue gas desulfurization technology include, but are not limited to, lime, limestone, and sodium.

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 particulate matter or sulfur dioxide.

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.

[52 FR 47842, Dec. 16, 1987, as amended at 54 FR 51819, Dec. 18, 1989; 65 FR 61752, Oct. 17, 2000; 66 FR 49834, Oct. 1, 2001; 71 FR 9881, Feb. 27, 2006]

§ 60.44b Standard for nitrogen oxides.

(a) Except as provided under paragraphs (k) and (l) of this section, on and after the date on which the initial performance test is completed or is required to be completed under §60.8 of this part, whichever date comes first, no owner or operator of an affected facility that is subject to the provisions of this section and that combusts only coal, oil, or natural gas shall cause to be discharged into the atmosphere from that affected facility any gases that contain nitrogen oxides (expressed as NO_2) in excess of the following emission limits:

Fuel/Steam generating unit type	Nitrogen oxide emission limits ng/J (lb/million Btu) (expressed as NO2) heat input

(1) Natural gas and distillate oil, except (4):	
(i) Low heat release rate	43 (0.10)
(ii) High heat release rate	86 (0.20)
(2) Residual oil:	
(i) Low heat release rate	130 (0.30)
(ii) High heat release rate	170 (0.40)
(3) Coal:	
(i) Mass-feed stoker	210 (0.50)
(ii) Spreader stoker and fluidized bed combustion	260 (0.60)
(iii) Pulverized coal	300 (0.70)
(iv) Lignite, except (v)	260 (0.60)
(v) Lignite mined in North Dakota, South Dakota, or Montana and combusted in a slag tap furnace	340 (0.80)
(vi) Coal-derived synthetic fuels	210 (0.50)
(4) Duct burner used in a combined cycle system:	
(i) Natural gas and distillate oil	86 (0.20)
(ii) Residual oil	170 (0.40)

(h) For purposes of paragraph (i) of this section, the nitrogen oxide standards under this section apply at all times including periods of startup, shutdown, or malfunction.

(i) Except as provided under paragraph (j) of this section, compliance with the emission limits under this section is determined on a 30-day rolling average basis.

§ 60.46b Compliance and performance test methods and procedures for particulate matter and nitrogen oxides.

(a) The particulate matter emission standards and opacity limits under §60.43b apply at all times except during periods of startup, shutdown, or malfunction, and as specified in paragraphs (i) and (j) of this section. The nitrogen oxides emission standards under §60.44b apply at all times.

(c) Compliance with the nitrogen oxides emission standards under §60.44b shall be determined through performance testing under paragraph (e) or (f), or under paragraphs (g) and (h) of this section, as applicable.

(e) To determine compliance with the emission limits for nitrogen oxides required under §60.44b, the owner or operator of an affected facility shall conduct the performance test as required under §60.8 using the continuous system for monitoring nitrogen oxides under §60.48(b).

(1) For the initial compliance test, nitrogen oxides from the steam generating unit are monitored for 30 successive steam generating unit operating days and the 30-day average emission rate is used to determine compliance with the nitrogen oxides emission standards under §60.44b. The 30-day average emission rate is calculated as the average of all hourly emissions data recorded by the monitoring system during the 30-day test period.

§ 60.48b Emission monitoring for particulate matter and nitrogen oxides.

(b) Except as provided under paragraphs (g), (h), and (i) of this section, the owner or operator of an affected facility subject to a nitrogen oxides standard under §60.44b shall comply with either paragraphs (b)(1) or (b)(2) of this section.

(1) Install, calibrate, maintain, and operate a continuous monitoring system, and record the output of the system, for measuring nitrogen oxides emissions discharged to the atmosphere; or

(c) The continuous monitoring systems required under paragraph (b) of this section shall be operated and data recorded during all periods of operation of the affected facility except for continuous monitoring system breakdowns and repairs. Data is recorded during calibration checks, and zero and span adjustments.

(d) The 1-hour average nitrogen oxides emission rates measured by the continuous nitrogen oxides monitor required by paragraph (b) of this section and required under §60.13(h) shall be expressed in ng/J

or lb/MMBtu heat input and shall be used to calculate the average emission rates under §60.44b. The 1-hour averages shall be calculated using the data points required under §60.13(h)(2).

(e) The procedures under §60.13 shall be followed for installation, evaluation, and operation of the continuous monitoring systems.

(2) For affected facilities combusting coal, oil, or natural gas, the span value for nitrogen oxides is determined as follows:

Fuel	Span values for nitrogen oxides (PPM)
Natural gas	500
Oil	500
Coal	1,000
Mixtures	500(x+y)+1,000z

where:

x is the fraction of total heat input derived from natural gas,

y is the fraction of total heat input derived from oil, and

z is the fraction of total heat input derived from coal.

(f) When nitrogen oxides emission data are not obtained because of continuous monitoring system breakdowns, repairs, calibration checks and zero and span adjustments, emission data will be obtained by using standby monitoring systems, Method 7, Method 7A, or other approved reference methods to provide emission data for a minimum of 75 percent of the operating hours in each steam generating unit operating day, in at least 22 out of 30 successive steam generating unit operating days.

(g) The owner or operator of an affected facility that has a heat input capacity of 73 MW (250 million Btu/hour) or less, and which has an annual capacity factor for residual oil having a nitrogen content of 0.30 weight percent or less, natural gas, distillate oil, or any mixture of these fuels, greater than 10 percent (0.10) shall:

(1) Comply with the provisions of paragraphs (b), (c), (d), (e)(2), (e)(3), and (f) of this section, or

(2) Monitor steam generating unit operating conditions and predict nitrogen oxides emission rates as specified in a plan submitted pursuant to §60.49b(c).

[52 FR 47842, Dec. 16, 1987, as amended at 54 FR 51825, Dec. 18, 1989; 63 FR 49455, Sept. 16, 1998; 66 FR 18553, Apr. 10, 2001; 71 FR 9884, Feb. 27, 2006]

§ 60.49b Reporting and recordkeeping requirements.

(a) The owner or operator of each affected facility shall submit notification of the date of initial startup, as provided by §60.7. This notification shall include:

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

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

(b) The owner or operator of each affected facility subject to the sulfur dioxide, particulate matter, and/or nitrogen oxides emission limits under §§60.42b, 60.43b, and 60.44b shall submit to the Administrator the performance test data from the initial performance test and the performance evaluation of the CEMS using the applicable performance specifications in appendix B. The owner or operator of each affected facility described in §60.44b(j) or §60.44b(k) shall submit to the Administrator the maximum heat input capacity data from the demonstration of the maximum heat input capacity of the affected facility.

(c) The owner or operator of each affected facility subject to the nitrogen oxides standard of §60.44b who seeks to demonstrate compliance with those standards through the monitoring of steam generating unit operating conditions under the provisions of §60.48b(g)(2) shall submit to the Administrator for approval a plan that identifies the operating conditions to be monitored under §60.48b(g)(2) and the records to be maintained under §60.49b(j). This plan shall be submitted to the Administrator for approval within 360 days of the initial startup of the affected facility. The plan shall:

(1) Identify the specific operating conditions to be monitored and the relationship between these operating conditions and nitrogen oxides emission rates (i.e., ng/J or lbs/million Btu heat input). Steam generating unit operating conditions include, but are not limited to, the degree of staged combustion (i.e., the ratio of primary air to secondary and/or tertiary air) and the level of excess air (i.e., flue gas oxygen level);

(2) Include the data and information that the owner or operator used to identify the relationship between nitrogen oxides emission rates and these operating conditions;

(3) Identify how these operating conditions, including steam generating unit load, will be monitored under §60.48b(g) on an hourly basis by the owner or operator during the period of operation of the affected facility; the quality assurance procedures or practices that will be employed to ensure that the data generated by monitoring these operating conditions will be representative and accurate; and the type and format of the records of these operating conditions, including steam generating unit load, that will be maintained by the owner or operator under §60.49b(j).

If the plan is approved, the owner or operator shall maintain records of predicted nitrogen oxide emission rates and the monitored operating conditions, including steam generating unit load, identified in the plan.

(d) The owner or operator of an affected facility shall record and maintain records of the amounts of each fuel combusted during each day and calculate the annual capacity factor individually for coal, distillate oil, residual oil, natural gas, wood, and municipal-type solid waste for the reporting period. The annual capacity factor is determined on a 12-month rolling average basis with a new annual capacity factor calculated at the end of each calendar month.

(g) Except as provided under paragraph (p) of this section, the owner or operator of an affected facility subject to the nitrogen oxides standards under §60.44b shall maintain records of the following information for each steam generating unit operating day:

(1) Calendar date.

(2) The average hourly nitrogen oxides emission rates (expressed as NO_2) (ng/J or lb/million Btu heat input) measured or predicted.

(3) The 30-day average nitrogen oxides emission rates (ng/J or lb/million Btu heat input) calculated at the end of each steam generating unit operating day from the measured or predicted hourly nitrogen oxide emission rates for the preceding 30 steam generating unit operating days.

(4) Identification of the steam generating unit operating days when the calculated 30-day average nitrogen oxides emission rates are in excess of the nitrogen oxides emissions standards under §60.44b, with the reasons for such excess emissions as well as a description of corrective actions taken.

(5) Identification of the steam generating unit operating days for which pollutant data have not been obtained, including reasons for not obtaining sufficient data and a description of corrective actions taken.

(6) Identification of the times when emission data have been excluded from the calculation of average emission rates and the reasons for excluding data.

(7) Identification of “F” factor used for calculations, method of determination, and type of fuel combusted.

(8) Identification of the times when the pollutant concentration exceeded full span of the continuous monitoring system.

(9) Description of any modifications to the continuous monitoring system that could affect the ability of the continuous monitoring system to comply with Performance Specification 2 or 3.

(10) Results of daily CEMS drift tests and quarterly accuracy assessments as required under appendix F, Procedure 1.

(i) The owner or operator of any affected facility subject to the continuous monitoring requirements for nitrogen oxides under §60.48(b) shall submit reports containing the information recorded under paragraph (g) of this section.

(v) The owner or operator of an affected facility may submit electronic quarterly reports for SO_2 and/or NO_X and/or opacity in lieu of submitting the written reports required under paragraphs (h), (i), (j), (k) or (l) of this section. The format of each quarterly electronic report shall be coordinated with the permitting authority. The electronic report(s) shall be submitted no later than 30 days after the end of the calendar quarter and shall be accompanied by a certification statement from the owner or operator, indicating whether compliance with the applicable emission standards and minimum data requirements of this subpart was achieved during the reporting period. Before submitting reports in the electronic format, the owner or operator shall coordinate with the permitting authority to obtain their agreement to submit reports in this alternative format.

(w) The reporting period for the reports required under this subpart is each 6 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.

[52 FR 47842, Dec. 16, 1987, as amended at 54 FR 51820, 51825, Dec. 18, 1989; 60 FR 28062, May 30, 1995; 61 FR 14031, Mar. 29, 1996; 62 FR 52641, Oct. 8, 1997; 63 FR 49455, Sept. 16, 1998; 64 FR 7464, Feb. 12, 1999; 65 FR 13243, Mar. 13, 2000; 69 FR 40773, July 7, 2004]

SECTION E.3 FACILITY OPERATION CONDITIONS

Facility Description [326 IAC 2-8-4(10)]: Insignificant Activities

(h) Other emission units, not regulated by a NESHAP, with PM10, NOx, and SO_2 emissions less than five (5) pounds per hour or twenty-five (25) pounds per day, CO emissions less than twenty-five (25) pounds per day, VOC emissions less than three (3) pounds per hour or fifteen (15) pounds per day, lead emissions less than six-tenths (0.6) tons per year or three and twenty-nine hundredths (3.29) pounds per day, and emitting greater than one (1) pound per day but less than five (5) pounds per day or one (1) ton per year of a single HAP, or emitting greater than one (1) pound per day but less than twelve and five tenths (12.5) pounds per day or two and five tenths (2.5) ton per year of any combination of HAPs:

(1) One (1) denaturant storage tank, identified as T2104, with a maximum capacity of 55,000 gallons equipped with an internal floating roof for VOC emissions control. [326 IAC 8-4-3] [40 CFR 60, Subpart Kb]

(2) Three (3) tanks for storage of denatured fuel ethanol and/or E-85, identified as T2102, T2103, and T2105 each with a maximum capacity of 1,000,000 gallons, and each equipped with an internal floating roof for VOC emissions control. [40 CFR 60, Subpart Kb]

(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 2-7-5(1)]

E.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 tanks T2102, T2103, T2104, and T2105 except as otherwise specified in 40 CFR Part 60, Subpart Kb.

(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,
Indianapolis, Indiana 46204-2251

E.3.2 Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) [40 CFR Part 60, Subpart Kb] [326 IAC 12]

Pursuant to 40 CFR Part 60, Subpart Kb, the Permittee shall comply with the provisions of Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels), which are incorporated by reference as 326 IAC 12, for tanks T2102, T2103, T2104, and T2105 as specified as follows:

Subpart Kb - Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels)
Source: 52 FR 11429, April 8, 1987, unless otherwise noted.

§ 60.110b Applicability and designation of affected facility.

(a) Except as provided in paragraph (b) of this section, the affected facility to which this subpart applies is each storage vessel with a capacity greater than or equal to 75 cubic meters (m^3) that is used to store volatile organic liquids (VOL) for which construction, reconstruction, or modification is commenced after July 23, 1984.

(b) This subpart does not apply to storage vessels with a capacity greater than or equal to 151 m^3 storing a liquid with a maximum true vapor pressure less than 3.5 kilopascals (kPa) or with a capacity greater than or equal to 75 m^3 but less than 151 m^3 storing a liquid with a maximum true vapor pressure less than 15.0 kPa.

(c) [Reserved]

(d) This subpart does not apply to the following:

(1) Vessels at coke oven by-product plants.

(2) Pressure vessels designed to operate in excess of 204.9 kPa and without emissions to the atmosphere.

(3) Vessels permanently attached to mobile vehicles such as trucks, railcars, barges, or ships.

(4) Vessels with a design capacity less than or equal to 1,589.874 m^3 used for petroleum or condensate stored, processed, or treated prior to custody transfer.

(5) Vessels located at bulk gasoline plants.

(6) Storage vessels located at gasoline service stations.

(7) Vessels used to store beverage alcohol.

(8) Vessels subject to subpart GGGG of 40 CFR part 63.

(e) *Alternative means of compliance*—(1) *Option to comply with part 65.* Owners or operators may choose to comply with 40 CFR part 65, subpart C, to satisfy the requirements of §§60.112b through 60.117b for storage vessels that are subject to this subpart that meet the specifications in paragraphs (e)(1)(i) and (ii) of this section. When choosing to comply with 40 CFR part 65, subpart C, the monitoring requirements of §60.116b(c), (e), (f)(1), and (g) still apply. Other provisions applying to owners or operators who choose to comply with 40 CFR part 65 are provided in 40 CFR 65.1.

(i) A storage vessel with a design capacity greater than or equal to 151 m^3 containing a VOL that, as stored, has a maximum true vapor pressure equal to or greater than 5.2 kPa; or

(ii) A storage vessel with a design capacity greater than 75 m^3 but less than 151 m^3 containing a VOL that, as stored, has a maximum true vapor pressure equal to or greater than 27.6 kPa.

(2) *Part 60, subpart A.* Owners or operators who choose to comply with 40 CFR part 65, subpart C, must also comply with §§60.1, 60.2, 60.5, 60.6, 60.7(a)(1) and (4), 60.14, 60.15, and 60.16 for those storage vessels. All sections and paragraphs of subpart A of this part that are not mentioned in this paragraph (e)(2) do not apply to owners or operators of storage vessels complying with 40 CFR part 65, subpart C, except that provisions required to be met prior to implementing 40 CFR part 65 still apply. Owners and operators who choose to comply with 40 CFR part 65, subpart C, must comply with 40 CFR part 65, subpart A.

(3) *Internal floating roof report.* If an owner or operator installs an internal floating roof and, at initial startup, chooses to comply with 40 CFR part 65, subpart C, a report shall be furnished to the Administrator stating that the control equipment meets the specifications of 40 CFR 65.43. This report shall be an attachment to the notification required by 40 CFR 65.5(b).

(4) *External floating roof report.* If an owner or operator installs an external floating roof and, at initial startup, chooses to comply with 40 CFR part 65, subpart C, a report shall be furnished to the Administrator stating that the control equipment meets the specifications of 40 CFR 65.44. This report shall be an attachment to the notification required by 40 CFR 65.5(b).

[52 FR 11429, Apr. 8, 1987, as amended at 54 FR 32973, Aug. 11, 1989; 65 FR 78275, Dec. 14, 2000; 68 FR 59332, Oct. 15, 2003]

§ 60.111b Definitions.

Terms used in this subpart are defined in the Act, in subpart A of this part, or in this subpart as follows:

Bulk gasoline plant means any gasoline distribution facility that has a gasoline throughput less than or equal to 75,700 liters per day. Gasoline throughput shall be the maximum calculated design throughput as may be limited by compliance with an enforceable condition under Federal requirement or Federal, State or local law, and discoverable by the Administrator and any other person.

Condensate means hydrocarbon liquid separated from natural gas that condenses due to changes in the temperature or pressure, or both, and remains liquid at standard conditions.

Custody transfer means the transfer of produced petroleum and/or condensate, after processing and/or treatment in the producing operations, from storage vessels or automatic transfer facilities to pipelines or any other forms of transportation.

Fill means the introduction of VOL into a storage vessel but not necessarily to complete capacity.

Gasoline service station means any site where gasoline is dispensed to motor vehicle fuel tanks from stationary storage tanks.

Maximum true vapor pressure means the equilibrium partial pressure exerted by the volatile organic compounds (as defined in 40 CFR 51.100) in the stored VOL at the temperature equal to the highest calendar-month average of the VOL storage temperature for VOL's stored above or below the ambient temperature or at the local maximum monthly average temperature as reported by the National Weather Service for VOL's stored at the ambient temperature, as determined:

(1) In accordance with methods described in American Petroleum institute Bulletin 2517, Evaporation Loss From External Floating Roof Tanks, (incorporated by reference—see §60.17); or

(2) As obtained from standard reference texts; or

(3) As determined by ASTM D2879–83, 96, or 97 (incorporated by reference—see §60.17);

(4) Any other method approved by the Administrator.

Petroleum means the crude oil removed from the earth and the oils derived from tar sands, shale, and coal.

Petroleum liquids means petroleum, condensate, and any finished or intermediate products manufactured in a petroleum refinery.

Process tank means a tank that is used within a process (including a solvent or raw material recovery process) to collect material discharged from a feedstock storage vessel or equipment within the process before the material is transferred to other equipment within the process, to a product or by-product storage vessel, or to a vessel used to store recovered solvent or raw material. In many process tanks, unit operations such as reactions and blending are conducted. Other process tanks, such as surge control vessels and bottoms receivers, however, may not involve unit operations.

Reid vapor pressure means the absolute vapor pressure of volatile crude oil and volatile nonviscous petroleum liquids except liquified petroleum gases, as determined by ASTM D323–82 or 94 (incorporated by reference—see §60.17).

Storage vessel means each tank, reservoir, or container used for the storage of volatile organic liquids but does not include:

(1) Frames, housing, auxiliary supports, or other components that are not directly involved in the containment of liquids or vapors;

(2) Subsurface caverns or porous rock reservoirs; or

(3) Process tanks.

Volatile organic liquid (VOL) means any organic liquid which can emit volatile organic compounds (as defined in 40 CFR 51.100) into the atmosphere.

Waste means any liquid resulting from industrial, commercial, mining or agricultural operations, or from community activities that is discarded or is being accumulated, stored, or physically, chemically, or biologically treated prior to being discarded or recycled.

[52 FR 11429, Apr. 8, 1987, as amended at 54 FR 32973, Aug. 11, 1989; 65 FR 61756, Oct. 17, 2000; 68 FR 59333, Oct. 15, 2003]

§ 60.112b Standard for volatile organic compounds (VOC).

(a) The owner or operator of each storage vessel either with a design capacity greater than or equal to 151 m^3 containing a VOL that, as stored, has a maximum true vapor pressure equal to or greater than 5.2 kPa but less than 76.6 kPa or with a design capacity greater than or equal to 75 m^3 but less than 151 m^3 containing a VOL that, as stored, has a maximum true vapor pressure equal to or greater than 27.6 kPa but less than 76.6 kPa, shall equip each storage vessel with one of the following:

(1) A fixed roof in combination with an internal floating roof meeting the following specifications:

(i) The internal floating roof shall rest or float on the liquid surface (but not necessarily in complete contact with it) inside a storage vessel that has a fixed roof. The internal floating roof shall be floating on the liquid surface at all times, except during initial fill and during those intervals when the storage vessel is completely emptied or subsequently emptied and refilled. When the roof is resting on the leg supports, the process of filling, emptying, or refilling shall be continuous and shall be accomplished as rapidly as possible.

(ii) Each internal floating roof shall be equipped with one of the following closure devices between the wall of the storage vessel and the edge of the internal floating roof:

(A) A foam- or liquid-filled seal mounted in contact with the liquid (liquid-mounted seal). A liquid-mounted seal means a foam- or liquid-filled seal mounted in contact with the liquid between the wall of the storage vessel and the floating roof continuously around the circumference of the tank.

(B) Two seals mounted one above the other so that each forms a continuous closure that completely covers the space between the wall of the storage vessel and the edge of the internal floating roof. The lower seal may be vapor-mounted, but both must be continuous.

(C) A mechanical shoe seal. A mechanical shoe seal is a metal sheet held vertically against the wall of the storage vessel by springs or weighted levers and is connected by braces to the floating roof. A flexible coated fabric (envelope) spans the annular space between the metal sheet and the floating roof.

(iii) Each opening in a noncontact internal floating roof except for automatic bleeder vents (vacuum breaker vents) and the rim space vents is to provide a projection below the liquid surface.

(iv) Each opening in the internal floating roof except for leg sleeves, automatic bleeder vents, rim space vents, column wells, ladder wells, sample wells, and stub drains is to be equipped with a cover or lid which is to be maintained in a closed position at all times (i.e., no visible gap) except when the device is in actual use. The cover or lid shall be equipped with a gasket. Covers on each access hatch and automatic gauge float well shall be bolted except when they are in use.

(v) Automatic bleeder vents shall be equipped with a gasket and are to be closed at all times when the roof is floating except when the roof is being floated off or is being landed on the roof leg supports.

(vi) Rim space vents shall be equipped with a gasket and are to be set to open only when the internal floating roof is not floating or at the manufacturer's recommended setting.

(vii) Each penetration of the internal floating roof for the purpose of sampling shall be a sample well. The sample well shall have a slit fabric cover that covers at least 90 percent of the opening.

(viii) Each penetration of the internal floating roof that allows for passage of a column supporting the fixed roof shall have a flexible fabric sleeve seal or a gasketed sliding cover.

(ix) Each penetration of the internal floating roof that allows for passage of a ladder shall have a gasketed sliding cover.

§ 60.113b Testing and procedures.

The owner or operator of each storage vessel as specified in §60.112b(a) shall meet the requirements of paragraph (a), (b), or (c) of this section. The applicable paragraph for a particular storage vessel depends on the control equipment installed to meet the requirements of §60.112b.

(a) After installing the control equipment required to meet §60.112b(a)(1) (permanently affixed roof and internal floating roof), each owner or operator shall:

(1) Visually inspect the internal floating roof, the primary seal, and the secondary seal (if one is in service), prior to filling the storage vessel with VOL. If there are holes, tears, or other openings in the primary seal, the secondary seal, or the seal fabric or defects in the internal floating roof, or both, the owner or operator shall repair the items before filling the storage vessel.

(2) For Vessels equipped with a liquid-mounted or mechanical shoe primary seal, visually inspect the internal floating roof and the primary seal or the secondary seal (if one is in service) through manholes and roof hatches on the fixed roof at least once every 12 months after initial fill. If the internal floating roof is not resting on the surface of the VOL inside the storage vessel, or there is liquid accumulated on the roof, or the seal is detached, or there are holes or tears in the seal fabric, the owner or operator shall repair the items or empty and remove the storage vessel from service within 45 days. If a failure that is detected during inspections required in this paragraph cannot be repaired within 45 days and if the vessel cannot be emptied within 45 days, a 30-day extension may be requested from the Administrator in the inspection report required in §60.115b(a)(3). Such a request for an extension must document that alternate storage capacity is unavailable and specify a schedule of actions the company will take that will assure that the control equipment will be repaired or the vessel will be emptied as soon as possible.

(3) For vessels equipped with a double-seal system as specified in §60.112b(a)(1)(ii)(B):

(i) Visually inspect the vessel as specified in paragraph (a)(4) of this section at least every 5 years; or

(ii) Visually inspect the vessel as specified in paragraph (a)(2) of this section.

(4) Visually inspect the internal floating roof, the primary seal, the secondary seal (if one is in service), gaskets, slotted membranes and sleeve seals (if any) each time the storage vessel is emptied and degassed. If the internal floating roof has defects, the primary seal has holes, tears, or other openings in the seal or the seal fabric, or the secondary seal has holes, tears, or other openings in the seal or the seal fabric, or the gaskets no longer close off the liquid surfaces from the atmosphere, or the slotted membrane has more than 10 percent open area, the owner or operator shall repair the items as necessary so that none of the conditions specified in this paragraph exist before refilling the storage vessel with VOL. In no event shall inspections conducted in accordance with this provision occur at intervals greater than 10 years in the case of vessels conducting the annual visual inspection as specified in paragraphs (a)(2) and (a)(3)(ii) of this section and at intervals no greater than 5 years in the case of vessels specified in paragraph (a)(3)(i) of this section.

(5) Notify the Administrator in writing at least 30 days prior to the filling or refilling of each storage vessel for which an inspection is required by paragraphs (a)(1) and (a)(4) of this section to afford the Administrator the opportunity to have an observer present. If the inspection required by paragraph (a)(4) of this section is not planned and the owner or operator could not have known about the inspection 30 days in advance or refilling the tank, the owner or operator shall notify the Administrator at least 7 days prior to the refilling of the storage vessel. Notification shall be made by telephone immediately followed by written documentation demonstrating why the inspection was unplanned. Alternatively, this notification

including the written documentation may be made in writing and sent by express mail so that it is received by the Administrator at least 7 days prior to the refilling.

§ 60.115b Reporting and recordkeeping requirements.

The owner or operator of each storage vessel as specified in §60.112b(a) shall keep records and furnish reports as required by paragraphs (a), (b), or (c) of this section depending upon the control equipment installed to meet the requirements of §60.112b. The owner or operator shall keep copies of all reports and records required by this section, except for the record required by (c)(1), for at least 2 years. The record required by (c)(1) will be kept for the life of the control equipment.

(a) After installing control equipment in accordance with §60.112b(a)(1) (fixed roof and internal floating roof), the owner or operator shall meet the following requirements.

(1) Furnish the Administrator with a report that describes the control equipment and certifies that the control equipment meets the specifications of §60.112b(a)(1) and §60.113b(a)(1). This report shall be an attachment to the notification required by §60.7(a)(3).

(2) Keep a record of each inspection performed as required by §60.113b (a)(1), (a)(2), (a)(3), and (a)(4). Each record shall identify the storage vessel on which the inspection was performed and shall contain the date the vessel was inspected and the observed condition of each component of the control equipment (seals, internal floating roof, and fittings).

(3) If any of the conditions described in §60.113b(a)(2) are detected during the annual visual inspection required by §60.113b(a)(2), a report shall be furnished to the Administrator within 30 days of the inspection. Each report shall identify the storage vessel, the nature of the defects, and the date the storage vessel was emptied or the nature of and date the repair was made.

(4) After each inspection required by §60.113b(a)(3) that finds holes or tears in the seal or seal fabric, or defects in the internal floating roof, or other control equipment defects listed in §60.113b(a)(3)(ii), a report shall be furnished to the Administrator within 30 days of the inspection. The report shall identify the storage vessel and the reason it did not meet the specifications of §61.112b(a)(1) or §60.113b(a)(3) and list each repair made.

§ 60.116b Monitoring of operations.

(a) The owner or operator shall keep copies of all records required by this section, except for the record required by paragraph (b) of this section, for at least 2 years. The record required by paragraph (b) of this section will be kept for the life of the source.

(b) The owner or operator of each storage vessel as specified in §60.110b(a) shall keep readily accessible records showing the dimension of the storage vessel and an analysis showing the capacity of the storage vessel.

(c) Except as provided in paragraphs (f) and (g) of this section, the owner or operator of each storage vessel either with a design capacity greater than or equal to 151 m^3 storing a liquid with a maximum true vapor pressure greater than or equal to 3.5 kPa or with a design capacity greater than or equal to 75 m^3 but less than 151 m^3 storing a liquid with a maximum true vapor pressure greater than or equal to 15.0 kPa shall maintain a record of the VOL stored, the period of storage, and the maximum true vapor pressure of that VOL during the respective storage period.

(d) Except as provided in paragraph (g) of this section, the owner or operator of each storage vessel either with a design capacity greater than or equal to 151 m^3 storing a liquid with a maximum true vapor pressure that is normally less than 5.2 kPa or with a design capacity greater than or equal to 75 m^3 but less than 151 m^3 storing a liquid with a maximum true vapor pressure that is normally less than 27.6 kPa shall notify the Administrator within 30 days when the maximum true vapor pressure of the liquid exceeds the respective maximum true vapor vapor pressure values for each volume range.

(e) Available data on the storage temperature may be used to determine the maximum true vapor pressure as determined below.

(1) For vessels operated above or below ambient temperatures, the maximum true vapor pressure is calculated based upon the highest expected calendar-month average of the storage temperature. For vessels operated at ambient temperatures, the maximum true vapor pressure is calculated based upon the maximum local monthly average ambient temperature as reported by the National Weather Service.

(2) For crude oil or refined petroleum products the vapor pressure may be obtained by the following:

(i) Available data on the Reid vapor pressure and the maximum expected storage temperature based on the highest expected calendar-month average temperature of the stored product may be used to determine the maximum true vapor pressure from nomographs contained in API Bulletin 2517 (incorporated by reference—see §60.17), unless the Administrator specifically requests that the liquid be sampled, the actual storage temperature determined, and the Reid vapor pressure determined from the sample(s).

(ii) The true vapor pressure of each type of crude oil with a Reid vapor pressure less than 13.8 kPa or with physical properties that preclude determination by the recommended method is to be determined from available data and recorded if the estimated maximum true vapor pressure is greater than 3.5 kPa.

(3) For other liquids, the vapor pressure:

(i) May be obtained from standard reference texts, or

(ii) Determined by ASTM D2879–83, 96, or 97 (incorporated by reference—see §60.17); or

(iii) Measured by an appropriate method approved by the Administrator; or

(iv) Calculated by an appropriate method approved by the Administrator.

[52 FR 11429, Apr. 8, 1987, as amended at 65 FR 61756, Oct. 17, 2000; 65 FR 78276, Dec. 14, 2000; 68 FR 59333, Oct. 15, 2003]

§ 60.117b Delegation of authority.

(a) In delegating implementation and enforcement authority to a State under section 111(c) of the Act, the authorities contained in paragraph (b) of this section shall be retained by the Administrator and not transferred to a State.

(b) Authorities which will not be delegated to States: §§60.111b(f)(4), 60.114b, 60.116b(e)(3)(iii), 60.116b(e)(3)(iv), and 60.116b(f)(2)(iii).

[52 FR 11429, Apr. 8, 1987, as amended at 52 FR 22780, June 16, 1987]

SECTION E.4 FACILITY OPERATION CONDITIONS

Facility Description [326 IAC 2-8-4(10)]:

Insignificant Activities

(a) One (1) diesel fired stationary fire pump, identified as EP-1075, approved for construction in 2007, with a maximum power output rate of 420 horsepower, and exhausting to stack S-700. [326 IAC 2-8-4]

(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 2-7-5(1)]

E.4.1 General Provisions Relating to New Source Performance Standards [326 IAC 12-1] [40 CFR Part 60, Subpart A]

(a) The provisions of 40 CFR 60, Subpart A - General Provisions, which are incorporated by reference in 326 IAC 12-1, apply to the fire pump, identified as EP-1075 except when otherwise specified in 40 CFR 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,
Indianapolis, Indiana 46204-2251

E.4.2 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 the Standards of Performance for Stationary Compression Ignition Internal Combustion Engines, which are incorporated by reference as 326 IAC 12, for the fire pump, identified as EP-1075, as specified as follows:

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

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

§ 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.

(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.

Emission Standards for Owners and Operators

§ 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?
(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.

§ 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?
(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.

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.

Compliance Requirements

§ 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.

(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:

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

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.

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?
(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.

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).

Tables to Subpart IIII of Part 60

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[le]KW<130 (100[le]HP<175).....	2010
130[le]KW[le]560 (175[le]HP[le]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 + NOX	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[le]KW<19 (11[le]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[le]KW<37 (25[le]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[le]KW<56 (50[le]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[le]KW<75 (75[le]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[le]KW<130 (100[le]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[le]KW<225 (175[le]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[le]KW<450 (300[le]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[le]KW[le]560 (600[le]HP[le]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)

\1\ For 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.

\2\ For 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.

\3\ In 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[le]KW<56 (25[le]HP<75)	2013
56[le]KW<130 (75[le]HP<175)	2012
KW>=130 (HP>=175)	2011

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 IIII.
§ 60.12	Circumvention	Yes	
§ 60.13	Monitoring requirements	Yes	Except that § 60.13 only applies to stationary CI ICE with a displacement of (>=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

FEDERALLY ENFORCEABLE STATE OPERATING PERMIT (FESOP) CERTIFICATION

Source Name: Abengoa Bioenergy of Indiana
Source Address: West Franklin Rd and Darnell School Rd, West Franklin, Indiana 47620
Mailing Address: 1400 Elbridge Payne, Suite 212, Chesterfield, Missouri 63017
FESOP Permit No.: 129-23484-00050

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
Indianapolis, Indiana 46204-2251
Phone: 317-233-0178
Fax: 317-233-6865

FEDERALLY ENFORCEABLE STATE OPERATING PERMIT (FESOP)
EMERGENCY OCCURRENCE REPORT

Source Name: Abengoa Bioenergy of Indiana
Source Address: West Franklin Rd and Darnell School Rd, West Franklin, Indiana 47620
Mailing Address: 1400 Elbridge Payne, Suite 212, Chesterfield, Missouri 63017
FESOP Permit No.: 129-23484-00050

This form consists of 2 pages **Page 1 of 2**

☐ This is an emergency as defined in 326 IAC 2-7-1(12)
- 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

FESOP Quarterly Report

Source Name: Abengoa Bioenergy of Indiana
Source Address: West Franklin Rd and Darnell School Rd, West Franklin, Indiana 47620
Mailing Address: 1400 Elbridge Payne, Suite 212, Chesterfield, Missouri 63017
FESOP Permit No.: 129-23484-00050
Facility: Grain receiving area
Parameter: Total grain received
Limit: 1,000,000 tons per twelve (12) consecutive month period with compliance determined at the end of each month.

YEAR:_____

Month	Column 1	Column 2	Column 1 + Column 2
	This Month	Previous 11 Months	12 Month Total
Month 1			
Month 2			
Month 3			

☐ 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: Abengoa Bioenergy of Indiana
Source Address: West Franklin Rd and Darnell School Rd, West Franklin, Indiana 47620
Mailing Address: 1400 Elbridge Payne, Suite 212, Chesterfield, Missouri 63017
FESOP Permit No.: 129-23484-00050
Facility: DGS Loadout Operation
Parameter: Total DDGS produced
Limit: 325,000 tons per twelve (12) consecutive month period with compliance determined at the end of each month.

YEAR:_____

Month	Column 1	Column 2	Column 1 + Column 2
	This Month	Previous 11 Months	12 Month Total
Month 1			
Month 2			
Month 3			

☐ 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: Abengoa Bioenergy of Indiana
Source Address: West Franklin Rd and Darnell School Rd, West Franklin, Indiana 47620
Mailing Address: 1400 Elbridge Payne, Suite 212, Chesterfield, Missouri 63017
FESOP Permit No.: 129-23484-00050
Facility: Ethanol Loading Racks
Parameter: Combined total denatured ethanol and E85 load-out
Limit: 135,700,000 gallons per twelve (12) consecutive month period with compliance determined at the end of each month.

YEAR:_____

Month	Column 1	Column 2	Column 1 + Column 2
	This Month	Previous 11 Months	12 Month Total
Month 1			
Month 2			
Month 3			

☐ 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: Abengoa Bioenergy of Indiana
Source Address: West Franklin Rd and Darnell School Rd, West Franklin, Indiana 47620
Mailing Address: 1400 Elbridge Payne, Suite 212, Chesterfield, Missouri 63017
FESOP Permit No.: 129-23484-00050
Facility: Diesel fired stationary fire pump
Parameter: Operating hours
Limit: 500 hours per twelve (12) consecutive month period with compliance determined at the end of each month.

YEAR:_____

Month	Column 1	Column 2	Column 1 + Column 2
	This Month	Previous 11 Months	12 Month Total
Month 1			
Month 2			
Month 3			

☐ 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: Abengoa Bioenergy of Indiana
Source Address: West Franklin Rd and Darnell School Rd, West Franklin, Indiana 47620
Mailing Address: 1400 Elbridge Payne, Suite 212, Chesterfield, Missouri 63017
FESOP Permit No.: 129-23484-00050
Facility: Biomethanator Flare (CE-7001)
Parameter: Total amount of biogas delivered to the flare
Limit: 24.3 MMCF per twelve (12) consecutive month period, with compliance determined at the end of each month.

YEAR:_____

Month	Column 1	Column 2	Column 1 + Column 2
	This Month	Previous 11 Months	12 Month Total
Month 1			
Month 2			
Month 3			

☐ 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: Abengoa Bioenergy of Indiana
Source Address: West Franklin Rd and Darnell School Rd, West Franklin, Indiana 47620
Mailing Address: 1400 Elbridge Payne, Suite 212, Chesterfield, Missouri 63017
FESOP Permit No.: 129-23484-00050
Facility: Barge Loadout Flare (CE-2211)
Parameter: Hours of operation
Limit: 2000 operating hours per twelve (12) consecutive month period with compliance determined at the end of each month.

YEAR:_____

Month	Column 1	Column 2	Column 1 + Column 2
	This Month	Previous 11 Months	12 Month Total
Month 1			
Month 2			
Month 3			

☐ 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: Abengoa Bioenergy of Indiana
Source Address: West Franklin Rd and Darnell School Rd, West Franklin, Indiana 47620
Mailing Address: 1400 Elbridge Payne, Suite 212, Chesterfield, Missouri 63017
FESOP Permit No.: 129-23484-00050
Facility: BL5001 and BL5002
Parameter: Natural Gas Usage
Limit: 3252.4 MMCF per twelve (12) consecutive month period with compliance determined at the end of each month.

YEAR:_____

Month	Column 1	Column 2	Column 1 + Column 2
	This Month	Previous 11 Months	12 Month Total
Month 1			
Month 2			
Month 3			

☐ 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: Abengoa Bioenergy of Indiana
Source Address: West Franklin Rd and Darnell School Rd, West Franklin, Indiana 47620
Mailing Address: 1400 Elbridge Payne, Suite 212, Chesterfield, Missouri 63017
FESOP Permit No.: 129-23484-00050

Months: _____ **to** _____ **Year:** _____

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 ANo deviations occurred this reporting period@.
☐ NO DEVIATIONS OCCURRED THIS REPORTING PERIOD.
☐ 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: _____

Attach a signed certification to complete this report.

Indiana Department of Environmental Management
Office of Air Quality

Addendum to the Technical Support Document
For a New Construction Federally Enforceable State Operating Permit (FESOP)

Source Background and Description

Source Name:	Abengoa Bioenergy of Indiana
Source Location:	West Franklin Rd and Darnell School Rd, West Franklin, Indiana 47620
County:	Posey
SIC Code:	2869
Operation Permit No.:	F129-23484-00050
Permit Reviewer:	ERG/JR

On November 29, 2006, the Office of Air Quality (OAQ) had a notice published in the Mount Vernon Democrat of Mount Vernon, Indiana stating that Abengoa Bioenergy of Indiana (ABI) had applied for a Federally Enforceable State Operating Permit (FESOP) to operate an ethanol manufacturing facility with control. The notice also stated that OAQ proposed to issue a permit for this operation and provided information on how the public could review the proposed permit 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 should be issued as proposed.

Comments on the draft permit were submitted by Charles L. Berger of Berger & Berger LLP (attorneys and counselors at law on behalf of Stanley R. Atherton, David B Gooch, and Mark A. Hertel), Don Mottley (spokesperson for Save Our Rivers), Dona Bergman (Director of Evansville EPA), and Valerie West (President of Save Our Land and Environment (S.O.L.E)). Changes made as a result of these comments are shown throughout this addendum. New language is in **bold** while deleted language is in ~~strikeout~~. The Table of Contents has been updated as necessary.

<u>Berger & Berger LLP Comments</u>

On December 28, 2006, Charles L. Berger of Berger and Berger, LLP (referred to as the "Commenter") submitted comments on the proposed FESOP. The summary of the comments is as follows (bolded language has been added, the language with a line through it has been deleted):

Comment 1:

> ABI intends to produce E85, a blend of up to 30% gasoline with ethanol. Thus, the facility will import and store gasoline and blend it with ethanol. The facility will import 40.71 million gallons of gasoline per year. Neither the applicant nor the agency address VOC emissions from unloading gasoline. No mention is made in any materials provided to the public of the VOC, HAP, or any other emissions from unloading gasoline. The TSD calculates emissions from the loadout of 135,700,000 gallons of E85, but does not account for VOC and HAP emissions from unloading the 40,710,000 million gallons of gasoline necessary for that production. This point is illustrated by the fact that the TSD calculates emissions from the loading racks based on the production limit of 135,700 kgal/yr. The PM emissions from haul roads in the same document, however, are based on the export of 135,714,286 gallons of E85, and the import of 40,714,286 gallons of gasoline. Thus, the TSD and draft Permit ignore the VOC and HAP emissions from the loadout

and storage of the 40,714,286 gallons of gasoline coming into the facility. The Application, TSD, and Permit also ignore any emissions resulting from the ethanol and gasoline blending process and appear to assume that the emissions from storage of the gasoline are zero.

ABI must submit more information, including the estimated gasoline loadout losses due to disconnect spillage and other loading losses, the type of loading rack that will be used for the gasoline, the type of control, if any, that will be used for the gasoline loading rack, and estimated VOC emissions associated with storage of the gasoline and blending of the gasoline and ethanol. Until that information is provided, ABI's application is incomplete. Once it receives complete information, IDEM must analyze that information, incorporate it into the TSD and draft Permit, and provide another public comment period. At this point we also note that VOC emissions from unloading gasoline depend upon the Reid vapor pressure ("RVP") of the gasoline. What ever RVP is assumed in the PTE calculations must be required as a permit condition

Response to Comment 1:

IDEM, OAQ is aware that ABI will store more gasoline onsite than most ethanol production plants; this is because ABI plans to make E85 as part of their final product. Included in their application, ABI has requested to install one (1) 55,000 gallon tank dedicated to storing gasoline (denaturant); this tank is slightly larger than other denaturant storage tanks that IDEM, OAQ has approved for construction at ethanol production plants. Nonetheless, the emissions for loading gasoline (RVP-10) into the gasoline tank are accounted for in the calculations provided by the applicant using EPA TANKS 4.0 software. The potential to emit VOC from the one (1) 55,000 gallon denaturant storage tank is estimated to be 1.48 tons VOC per year. This emission estimate is based on 740.25 turnovers per year which is approximately 40.71 million gallons of gasoline per year. The total VOC emissions from all tanks planned for construction at ABI, including the denaturant storage tank, are estimated to be 10.6 tons per year. These VOC emission estimates are calculated based on a conservative, worse case scenario assumption that the three (3) 1,000,000 gallon ethanol storage tanks could possibly contain up to a blended composition of 30% gasoline and 70% ethanol. Therefore, ABI has estimated VOC emissions from their storage tanks approximately 7 tons per year greater than what IDEM, OAQ typically calculates for an ethanol production plant (because most facilities do not plan to make E85 as part of their final product). No changes were made as the result of this comment.

Comment 2:

The commenter stated that particulate matter emissions may exceed the major source threshold for the following reasons regarding grain receiving emissions:

(a) The PM10 emissions calculations from the grain receiving and handling baghouses must include a safety factor and can not be solely based on emission rates determined for proper functioning because baghouses frequently malfunction and/or the bags become torn, which allows excess emissions from the control device outlet. The commenter provides references[1] of industry personnel, environmental control officials, and equipment vendors that indicate there is evidence that operating problems may result in significant periods during which the control equipment is shut down or operating inefficiently. Absent a demonstration that the 99% control from the grain receiving and handling baghouses is achievable and enforceable at all times, the potential to emit calculations should be based on the maximum potential emissions, i.e., or the Permit should be appropriately restricted.

(b) The commenter believes that the PM and PM10 grain receiving fugitive emissions were

[1] D. Wallace and V. Ramananthan, Review of Compliance Monitoring Programs with Respect to Grain Elevators, U.S. Environmental Protection Agency Contract No. 68-01-4139, WA 14, US. Environmental Protection Agency, Research Triangle Park, NC, 1980, pp. 15-16; in: A. Buonicore and W. Davis (eds.), Air Pollution Control Manual, Grain Handling and Processing, Van Nostrand Reynold, New York, NY, 1992, pp. 517-528.

calculated incorrectly because IDEM assumes in the draft permit that the grain receiving fugitive PM and PM10 will be reduced by 95%. The TSD reports that ABI will use a "choked flow system during grain unloading" that will control fugitive emissions, but the draft permit does not require the use of such a system, and the TSD does not supply any support for the proposition that such a system can and will achieve a 95% reduction of fugitives from grain receiving. The TSD should support the basis for reducing fugitive PM and PM10 emissions by 95%, relative to AP-42 emission factors and include enforceable permit conditions for any control measures required to achieve this level of reduction. Absent a demonstration that the 95% control (from the use of the choked flow system and capture efficiency) is achievable and enforceable at all times, the potential to emit calculations should be based on the maximum potential emissions, i.e., or the Permit should be appropriately restricted.

Response to Comment 2:

In regards to the commenter's concern that the grain receiving and handling emission calculations must include a safety factor, IDEM, OAQ feels that the specific monitoring requirements in the permit regarding baghouses ensures that baghouse malfunctions are minimized. IDEM, OAQ believes that monitoring the pressure drop across the baghouses, is important for determining the proper operation of the control equipment. The Permittee is required to take reasonable response steps when a compliance monitoring parameter is determined to be out of range or abnormal under Condition C.15 - Response to Excursions or Exceedances. This condition ensures that the control equipment is returned to proper operation as soon as practicable, while still allowing the Permittee the flexibility to respond to situations that were not anticipated. In addition, visible emission notations are also used as a trigger that the source perform some corrective action on the facility if visible emissions are abnormal, which helps ensure continuous compliance with emission limitations (see Response to Comment 9 for further detail).

IDEM, OAQ does agree that the permit should require ABI to use a choked flow system during grain unloading because the process is used as a type of control method for fugitive PM and PM10 emissions during grain receiving. Furthermore, the capture efficiency is based on manufacturer design specifications of the baghouse system. With regard to the expected emission reductions for the grain receiving fugitive PM and PM10, IDEM, OAQ believes that the permit does effectively limit fugitive PM and PM10 emissions from the grain receiving area by means of a grain throughput limit. The fugitive emissions are directly correlated to the throughput which is limited in the permit, and the Permittee is required to keep monthly records of this throughput. Provided the source compiles with the throughput limit and uses the choked flow system, it is expected that the grain receiving baghouse (CE1101) will capture 95% of the PM and PM10 emissions from the grain receiving process; therefore only 5% of the PM and PM10 emissions from the grain receiving operations are considered fugitive emissions. The limited potential to emit fugitive PM and PM10 emissions from the grain handling processes is calculated based on the capture efficiency of the choked flow process.

The following change has been made to the permit as a result of this comment:

D.1.4 PM and PM10 Emissions [326 IAC 2-2] [326 IAC 2-8-4]

...

(e) The Permittee shall use a choked flow system during grain receiving and unloading.

Comment 3:

The commenter stated that particulate matter emissions exceed the major source threshold for the following reasons regarding fugitive dust from roads:

(a) The PTE calculations assume that all of the facility roads will be paved, but in a letter dated November 1, 2006, ABI informed IDEM that not all roads at the facility will be paved. IDEM must calculate potential to emit from gravel roads, and must revise the draft Permit and TSD to reflect this new information.

(b) The silt loading value used in the emission calculations for paved roads was not appropriate and results in an underestimate of the fugitive PM10 emissions. The commenter provides the following arguments:

(1) Dust emissions from paved roads vary with the amount of silt on the road surface, referred to as "silt loading." The value used by ABI is the default silt loading for typical urban roadways. However, the paved roads of interest here are within the boundary of an industrial site and thus are industrial roadways. Silt loading values of industrial roads are much higher and are reported elsewhere in the same chapter of AP-42. These higher silt loading values for industrial roadways, which range from 7.4 to 292 g/m^2, would result in much higher PM and PM10 emissions from haul roads than assumed in the TSD (see AP-42 Sec. 13.2.1, Table 13.2.1-4).

(2) Minnesota, which has a long history with ethanol plants, has investigated this issue. Measurements made at the ADM-Marshall ethanol facility in the summer of 2001 found silt loadings ranging from 0.76 to 2.93 g/m2 with no road cleaning. Measurements made at the same facility in the summer of 2003 with road cleaning found silt loadings of 0.70 to 0.72 g/m^2. The cleaning methods used at this ADM facility include daily road sweeping, vacuuming and washing, and truck speeds limited to 5 miles per hour, none of which are required in the draft permit.[2]

In spite of these measurements, the Minnesota Pollution Control Agency (MPCA) requires the use of 10.0 g/m^2 as the default silt loading for Title V permits. MPCA also requires "good documentation for proposed silt loading values" and expects companies to do "extensive" on-site testing/cleaning or to use the silt loadings for industrial facilities in AP-42, Table 13.2.1-4, as noted above. Minnesota permits require sweeping, vacuuming or washing and testing for silt loading.

(3) Similarly, Nebraska, another state with a long history of permitting ethanol plants, requires the use of a silt loading of 3 g/m2, unless site-specific test data is provided.[3] Using the Nebraska default silt content of 3 g/m2, the controlled PM emissions from ABI haul roads increase from 12.11 tpy to 34.5 tpy and the controlled PM10 emissions increase from 2.36 tpy to 6.7 tpy. This correction plus the grain receiving fugitive corrections discussed above in Section II.A increase facility-wide PM 10 emissions from 79.9 tpy to 112.26 tpy. These corrections also increase facility-wide PM emissions from 93.1 tpy to 200.99 tpy. Thus, PM10 and PM emissions exceed the major source thresholds of 100 tpy and the facility is a major source. The increases reported here would be even greater if ABI used the MPCA Title V default of 10 g/m2. We believe this higher default is appropriate as ABI has failed to supply any documented site-specific silt loadings.

[2] Air Modeling - Training, Minnesota Air, Water, and Waste Environmental Conference, February 14, 2006.
[3] ADM Corn Processing, Columbus, Nebraska, Truck Traffic Fugitive Control Strategy and Monitoring Plan, ADM Haul Roads, January 10, 2006.

(c) The commenter states that the draft permit must be modified to include emission limits and methods to assure that the claimed emission reduction from periodic sweeping of paved roads is achieved. These should include limits on, and monitoring and reporting of all factors assumed in the emission calculations: number of trucks, weight of trucks, distance trucks travel, and silt content. The Permit also should require controls sufficient to assure that ABI achieves a 50% reduction in PM/PM10, including speed limits and daily cleaning of all roads. The commenter states that IDEM can not assume that emissions will be reduced by 50% by "periodic sweeping" because:

(1) The condition that reads: "The Permittee shall use periodic sweeping to control PM and PM10 emissions from the paved roads. The sweeping shall be performed in a manner and at a frequency sufficient to ensure compliance with 326 IAC 2-2" does not assure that sweeping will be sufficient to reduce PM and PM10 emissions by 50%. The condition only requires that "sweeping be performed in a manner and at a frequency sufficient to ensure compliance with 326 IAC 2-2." The cite to 326 IAC 2-2 is ambiguous and unenforceable because this regulation has many subparts, none of which relate to sweeping of paved roads at industrial facilities or achieving a 50% control efficiency from any type of facility.

(2) The term "periodic" is ambiguous and thus unenforceable. The plain meaning of "periodic" simply means that the event occurs at regular intervals. This draft Permit does not define the interval. Does periodic mean daily? Weekly? Monthly? Something in between? The frequency of sweeping determines the amount of control achieved. Studies done in Minnesota and elsewhere indicate that daily road sweeping, vacuuming and washing (weather permitting) plus speed limit controls (5 mph) are required to achieve 50% control of fugitive PM and PM10 emissions. Permits for ethanol plants in other states require daily sweeping and periodic silt testing to confirm emissions, unless the emissions are based on a high default silt loading, e.g., 3 to 10 g/m^2. Therefore, ABl cannot rely on this condition to reduce the potential to emit of the haul roads.

(3) In order for a permit to be enforceable as a practical matter, a permitting agency must include specific legal obligations in the permit so that sources will observe the permit constraints and compliance can be determined. National Min. Ass'n v. U.S. EPA, 59 F.3d 1351, 1363 (D.C. Cir. 1995). Conditions that are vague, contradictory, or confusing are unenforceable. Vague and subjective terms like "periodic" are unenforceable. The purpose of a permit is to individualize a regulation to site-specific conditions. The subject condition, notwithstanding the incomplete cite to 326 IAC 2-2, fails to do that. No site-specific conditions are included in the Permit to add detail to the term "periodic" or to assure 50% PM/PM10 control. This ambiguous language allows unlimited enforcement discretion in the determination of whether a violation has occurred, and thus is unenforceable. In re: Indeck-Elwood, LLC, EAB Slip Opinion, PSD Appeal No. 03-04 (Sept. 27, 2006) at 72 n. 101. A permit may not reserve agency discretion to determine whether a violation has actually occurred. A condition that only requires "periodic" sweeping, when the underlying potential to emit calculations assumes 50% control, reserves enforcement discretion to IDEM and prevents citizen enforcement of the permit without a decision by IDEM, thus allowing the source to negotiate the condition "off-permit." As a result, reserving enforcement and violation decisions as to haul roads for the agency renders the Permit unenforceable by citizens.

Response to Comment 3:

IDEM, OAQ agrees with the commenter that ABI's maintenance roads, for example the rail spur, will be gravel. These roads are not accessible to the public; nonetheless, emission calculations have been updated to reflect PM/PM10 emissions from ABI's gravel roads. See TSD Addendum Appendix A. Additionally, the emission estimates for paved roads have been increased to reflect

ABI's final site layout plan for the haul roads and the truck traffic distances. These estimates reflect the worst case scenario since the calculations assume no rail or barge loading will occur at the facility. The revised paved and unpaved road calculations reflect an increase in PM from 12.1 tons per year to 18.0 tons per year and PM10 from 2.36 tons per year to 3.56 tons per year. Based on the revised calculations, the total PM/PM10 emissions from this facility remain less than 100 tons/yr as shown in Appendix A.

IDEM, OAQ has evaluated the silt loading value used in the emission calculations and investigated the claims made by the commenter with regard to the calculations included in the permit. IDEM, OAQ agrees with the commenter that there is a range of silt loading values presented in AP-42 Chapter 13. Public paved road silt loadings are dependent upon: traffic characteristics (speed, ADT, and fraction of heavy vehicles); road characteristics (curbs, number of lanes, parking lanes); local land use (agriculture, new residential construction) and regional/seasonal factors (snow/ice controls, wind blown dust). However, based on IDEM's evaluation, the default silt loading number of 0.6 grams per square meter value is consistent with the ranges prescribed in AP-42 for paved roads at this type of industrial facility. According to AP-42, Table 13.2.1-3, the default silt loading number is 0.6 g/m^2 for sites that have average daily traffic less than 500 vehicles per day. The averaged traffic at the proposed ethanol production plant will be about 210 vehicles per day. Furthermore, the types of trucks traveling onto ABI's property are not expected to be carrying in mud and dirt from unpaved roads because these trucks are traveling onto ABI's site location from paved roads. Nevertheless, IDEM, OAQ reserves the right to collect site-specific silt loading data if IDEM determines that there is a problem with heavy silt.

IDEM, OAQ is aware that the term "periodic" bears a certain amount of discretion; however, IDEM, OAQ believes it is unnecessary to define "periodic". It is unreasonable to require sweeping at a predetermined interval because each facility has different geographical surroundings and will experience different weather patterns. To define "periodic" as daily, monthly, or weekly would present unnecessary requirements; especially, during events such as a snow storm or rain event. IDEM, OAQ believes it is more practical for facility owners to assess their fugitive dust generation and implement control measures (sweeping) as needed; therefore, IDEM, OAQ has included a requirement for the source to keep records of their sweeping (in addition to the amount of grain received and DDGS shipped); and at anytime, IDEM, OAQ reserves the right to require more frequent sweeping if IDEM identifies a problem.

The following change has been made to the permit as the result of this comment.

D.1.12 Record Keeping Requirements

...

(c) To document compliance with Condition D.1.4(d), the Permittee shall maintain records of the dates and times that sweeping is performed on the paved roads.

~~(c)~~**(d)** To document compliance with Condition D.1.9, the Permittee shall maintain records of daily visible emission notations of the baghouse stack exhausts.

~~(d)~~**(e)** To document compliance with Condition D.1.10, the Permittee shall maintain daily records of pressure drop for baghouses during normal operation.

~~(e)~~**(f)** All records shall be maintained in accordance with Section C - General Record Keeping Requirements, of this permit.

Comment 4:

The commenter stated that particulate matter emissions exceed the major source threshold for the following reasons regarding emissions from the boilers:

(1) The two natural gas fired boilers do not contain enforceable permit limits on PM and PM10 that ensure that the facility will remain below major source emission levels. The only limit on PM from the boilers limits PM emissions to 0.235 IbsIMMBtu, or 374.67 tpy. The TSD relies on an emission factor from AP-42 to show that potential to emit from the boilers will be 3.09 tpy, but 3.09 tpy is not included as a permit limit. Calculations in the TSD are not enforceable, and cannot be used to support a FESOP. In addition, the AP-42 emission factor is not an appropriate factor. In AP-42, EPA states, "[d]ata from source-specific emission tests or continuous emission monitors are usually preferred for estimating a source's emissions because those data provide the best representation of the tested source's emissions." The AP-42 factors represent only an average range of emission rates, and are limited by the data available from all facilities in a source category. In the Matter of Cargill, Inc. Petition IV-2003-7 (Amended Order) at 7 n.3 (Oct. 19, 2004). Moreover, the PM emission factors for natural gas combustion are rated D - indicating reason to suspect that the facilities tested are not representative, or that variability exists within the source category. Specifically, the AP-42 factor does not account for site specific combustion factors that influence the formation of PM in natural gas fired boilers. More importantly, the TSD calculates total PM emissions using the emission factor in AP-42 for filterable PM only - 1.9 Ibs/MMCF. The total PM emission factor is 7.6 Ibs/MMCF. If the correct PM emission factor was used, the PTE for PM would increase from 3.09 tpy to 12.36 tpy. Because the total PTE for PM is listed as 95.67 tpy, an increase of 9.27 tpy demonstrates that the facility is a major source for PM, notwithstanding the other PM emission calculation problems noted above.

(2) Due to the high amount of SO_2 (from burning digester gas), some of this, probably 5-10%, would be converted to sulfate and be measured as condensable PM. Some applications assume up to 20% is converted to Sulfuric Acid Mist ("SAM"). The AP-42 natural gas emission factors are for gas with <10 ppm S. The ABI gas has 6,000 ppm SO_2. Thus, the condensables are actually much larger than we estimated from AP-42.

Response to Comment 4:

Particulate matter is defined in 326 IAC 1-2-52 and 326 IAC 1-2-52.4 as measured by an applicable reference method in 40 CFR 50 (for PM10), or as measured by the method described in Appendix B of 40 CFR 30 (for PM/TSP). The latter does not include condensable PM. Therefore, PM should include only the filterable PM. IDEM, OAQ agrees that PM10 should include both filterable and condensable particulate matter, and that there may be some contribution to condensable PM10 from the burning of digester gas.

Although the PM and PM10 emissions estimates are based on the full PTE of the boilers as calculated using AP-42 emission factors, IDEM, OAQ has revised the permit to make PM and PM10 emissions from the boilers more practically enforceable by adding emission limits and testing requirements. Furthermore, IDEM, OAQ has removed Conditions D.3.4(d) and D. 3.4(f) because they are redundant. The following changes have been made to the permit as a result of this comment:

D.3.4 FESOP Limits [326 IAC 2-2] [326 IAC 2-8-4]

Pursuant to 326 IAC 2-8-4, and in order to render the requirements of 326 IAC 2-2 (PSD) not applicable, the following conditions shall apply:

(a) The boilers shall only burn natural gas.

(b) The input of natural gas to the boilers shall be limited to 3252.4 MMCF per twelve (12) consecutive month period, with compliance determined at the end of each month.

(c) NOx emissions shall not exceed 19.6 pounds per MMCF.

~~(d) Total NOx emissions from the boilers shall be limited to 31.9 tons per year.~~

~~(e)~~**(d)** CO emissions shall not exceed 13.7 pounds per MMCF.

~~(f) Total CO emissions from the boilers shall be limited to 22.3 tons per year.~~

(e) PM emissions shall not exceed 1.9 pounds per MMCF.

(f) PM10 emissions shall not exceed 7.6 pounds per MMCF.

Combined with the **PM, PM10,** NOx and CO emissions from other units, the **PM, PM10,** NOx and CO emissions from the entire source are limited to less than one hundred (100) tons per year. Therefore, the requirements of 326 IAC 2-7 (Part 70 Program) and 326 IAC 2-2 (PSD) are not applicable.

D.3.10 Testing Requirements [326 IAC 2-8-5(a)(1), (4)] [326 IAC 2-1.1-11]

In order to demonstrate compliance with Condition D.3.4, the Permittee shall perform **PM, PM10, and** CO testing for one of the boilers (BL5001 and BL5002) within sixty (60) days after achieving the maximum capacity, but not later than one hundred eighty (180) days after initial startup, utilizing methods as approved by the Commissioner. These tests shall be repeated on a different boiler at least once every five (5) years from the date of this valid compliance demonstration. Testing shall be conducted in accordance with Section C - Performance Testing.

Comment 5:

The commenter stated that VOC emissions exceed the major source threshold for the following reasons:

(1) The draft permit and TSD inappropriately calculate loading losses from ethanol/E85 loading. To show that VOC emissions from loading losses will remain under major source thresholds, the draft Permit depends upon the TSD calculations for trucks and railcars which are based on AP-42, Chapter 5.2. In AP-42, EPA clearly states that the formula used in the TSD, App. A, p. 9, has a probable error rate of +/- 30%. Potential to emit must be based on the maximum emissions. Thus, the TSD should account for the 30% error rate by assuming that the emission factor is 30% higher than the factor resulting from the AP-42 equation. Using an emission factor of 8.08 lbs/kgal, potential to emit VOC after the given 98% control is 10.98 tpy.

This revised calculation reduces VOC loading losses by a 98% control efficiency, consistent with the TSD calculation. EPA clearly states that this control efficiency is too high in AP-42.

> Control efficiencies for the recovery units range from 90 to over 99 percent, depending on both the nature of the vapors and the type of control equipment used. However, only 70 to 90 percent of the displaced vapors reach the control device, because of leakage from both the tank truck and collection system. The collection efficiency should be assumed to be 90 percent for tanker trucks required to pass an annual leak test. Otherwise, 70 percent should be assumed.

The draft Permit does not require the trucks that will be used at the ABI facility to pass an annual leak test so a 70% control efficiency should be used. Even if the Permit required truck testing, however, the control efficiency should be no greater than 90%. The flare itself may be able to reduce by 98% the VOCs that reach it, but 100% of VOC emissions from loading losess will not reach the flare. Using a 90% control efficiency increases controlled VOC emissions from truck loading five fold, to 54.89 tpy, and increase VOC emissions from the facility to well beyond the major source thresholds. This change in potential to emit also increases HAP emissions from the ethanol loading racks, because potential to emit HAPs is keyed to the HAP fraction of the estimated VOC emissions.

(2) The draft Permit and TSD also incorrectly calculate VOCs from equipment leaks. VOCs from equipment leaks comprise over 7% of the total VOC emissions estimated by IDEM.

TSD, p. 6. The permit limits VOC emissions from these components using the New Source Performance Standards leak detection and repair provisions in 40 CFR § 60, Subpart VV. Compliance with 40 CFR § 60, Subpart VV relies in part on measuring VOC leaks using EPA Method 21 using a portable hydrocarbon detection instrument. The most commonly used instruments, a flame ionization detector ("FID") or a photoionization detector ("PID") significantly underestimate the types of oxygenated organics that are present in VOC emissions from ethanol plants.[4] Thus the Permit does not effectively limit VOC emissions from equipment leaks.

(3) The application and TSD also completely ignore VOC emissions from evaporation of disconnection spillages from the two ethanol/E85 loading racks identified as EP-2210 and EP-2211. Other agency engineering analyses comparable to IDEM's TSD for ethanol facilities include VOC emissions during disconnection spillages in their PTE calculations. See e.g. San Joaquin Valley Air Pollution Control District, Authority to Construct - Application Review, 60,000,000 Gallon/Year Ethanol Production Facility, Pacific Ethanol Stockton, LLC, Application Nos. N-7365-1-0 through N-7365-28-0, Project No. 1054197, October 10, 2006. IDEM and the applicant have provided no justification for ignoring this source of VOCs for this Facility.

(4) The TSD claims DDGS production is likely the worst case and ignore the wet cake storage scenario. However, there is no data to support the claim that DDGS is lower emitting, especially for VOCs, and it's not obvious why it would be. The permit allows either and if there are significant differences, limits should be included in the permit for both scenarios. Wet cake, if stored on an open pad, is a major VOC emitter, from the pile itself, drop emissions into the pile, and transfer to trucks.

Response to Comment 5:

The trucks receiving ethanol from ABI are managed and owned by different companies. These trucks are conservatively assumed to have carried gasoline prior to filling with denatured ethanol; therefore, pursuant to 326 IAC 8-4-9, the trucks dispensing gasoline and being loaded with E85 are required to have an annual pressure decay or leak test. Additionally, the loadout flares are required to operate when the loading racks are in operation; as such, there is a requirement in the permit that does not allow for the use of vapor balancing services. Furthermore, according to manufacturing specifications, the flares are expected to achieve 100% capture efficiency.

IDEM, OAQ disagrees with the commenter that the VOCs from equipment leaks were calculated incorrectly. EPA has established a Leak, Detection and Repair program (LDAR) pursuant to 40 CFR 60, Subpart VV to control VOC emissions and IDEM, OAQ believes the rule provides a reasonable approach to estimate VOC emissions from leaks.

As shown in the summary of Appendix A, IDEM, OAQ provides for a safety factor of 1 ton per year of VOC emissions (listed under "other insignificant activities"). IDEM, OAQ feels it is reasonable to consider VOC emissions from evaporation of disconnection spillages from the two ethanol/E85 loading racks as part of these "other insignificant activities"; therefore, these emissions are accounted for in the sourcewide potential to emit.

ABI is capable of producing both DDGS and WDGS; however, the emissions from the DDGS production are considered to be the worst case scenario given that most of the VOC's in the WDGS are driven off in the drying process. Therefore, the PTE of the wet cake storage is not included in the PTE for the entire source. This is consistent with other similar permitted facilities that have provided emission estimates for wet cake storage.

[4] U.S. Environmental Protection Agency, Response Factors of VOC Calibrated with Methane for Selected Organic Chemicals, Report P881-13619, January .1981.

Comment 6:

The commenter stated that HAP emissions may exceed the major source threshold for the following reasons:

(a) The calculations exclude HAP estimates for tanks, the cooling tower, diesel generator, and fire pump. The TSD also does not include HAP emissions from the fermentation process in its potential to emit calculation. This appears to be a typographical error, as the total HAP emissions from fermentation and distillation are included at TSD, App. A, p. 16. This should be corrected to avoid confusion.

(b) The HAP emissions from the boilers and DDGS dryers do not include all HAPs that are emitted during natural gas firing that are listed in AP-42, Table 1.4-3 and 1.4-4.

(c) The control efficiencies assumed for the wet scrubber serving the fermentation and distillation process (99%) and the Swiss Combi "thermal oxidizer" serving the DDGS dryers and coolers (98%) are very high. The Nebraska Department of Environmental Quality, which has permitted 24 ethanol plants, has reservations about these high control efficiencies based on their experience. None of the two dozen ethanol plants in Nebraska was able to meet even a 96% removal efficiency or 20 ppmvd for acetaldehyde.[5]

(d) In response to a similar comment on Premier Ethanol, IDEM argued that HAP emissions in that case were based on lower control efficiencies, only 50% for the dryers and cooling. If only 50% control was assumed for the DDGS dryers and cooling system proposed for ABI, the acetaldehyde emissions would be 3.65 ton/yr and the total HAP emissions would be 28.63 ton/yr. If only 50% control was assumed for the wet scrubbers, the acetaldehyde emissions would be 30.71 ton/yr and the total HAP emissions would be 121.37 ton/yr.

Response to Comment 6:

The source is not proposing to construct a diesel generator; and IDEM, OAQ believes that HAP estimates for tanks, the cooling tower, and fire pump are minimal. HAP emissions from the storage tanks were calculated by the source using EPA TANKS software (version 4.09d); HAP emissions from denaturant and final product storage tanks were estimated to be 0.237 tons per year. Negligible HAP emissions are expected from the pure ethanol storage tanks and the cooling tower. The fire pump is limited to 500 hours of operation per year; and therefore HAP emissions from the fire pump will be negligible. IDEM, OAQ agrees that there was a typographical error in TSD regarding the HAP emissions for the fermentation process; however the emissions were accounted for in the permit and calculations as shown in Appendix A. No change has been made to the TSD because the OAQ prefers that the Technical Support Document reflect the permit that was on public notice.

The HAP emissions from the natural gas combustion for the boilers and DDGS dryers are based on the five highest organic and metal HAPs emission factors identified in AP-42. HAP emissions from the remaining HAPs in AP-42 are expected to be minimal. The HAP emissions for the DDGS dryers are based on specific HAPs identified by the applicant; these estimates are consistent with other similarly designed ethanol plants. Acetaldehyde emissions at this facility come primarily from the fermentation and distillation process, and from the DDGS drying process. ABI uses sodium bisulfite injection as part of their scrubbing process to control acetaldehyde emissions from the fermentation and distillation process. The source is required to tests these scrubbers to show that the scrubbers can achieve the Acetaldehyde removal efficiency used in the calculations.

The ABI facility is designed differently than the Premier facility that the commenter discusses above. The dryers and coolers located at the ABI facility will be designed with a Swiss Combi

[5] Letter from Shelley Kaderly, Air Quality Division Administrator, Nebraska Department of Environmental Quality, to U.S. EPA, May 8, 2006, Docket EPA-HQ-0-2006-0089.

system which is a direct drying process that uses a closed steam loop with process-integrated thermal oxidation. The dryers located at the Premier facility are controlled by a thermal oxidizer. Acetaldehyde emissions from the dryers at the Premier facility were conservatively assumed to be controlled at a 90% level by a thermal oxidizer (and not 50% as stated by the commenter above). IDEM, OAQ believes that the 98% level of control from the DDGS dryers and cooling system proposed for ABI is not unreasonable because of the thermal oxidation that takes place within the Swiss Combi systems. The HAP emission factors used in the calculations were provided by the source and are based on after control. The Permittee will perform stack tests to verify these HAP emission factors; therefore total acetaldehyde emissions from the DDGS dryers and cooling system after control have not been revised. The Permittee is required to test the two Swiss Combi system stacks to confirm compliance with the Acetaldehyde emission limit in the permit of 0.017 lb/hr (0.075 tons/yr) for each stack. Compliance with these limits will ensure that the source remains a minor source of HAPs. No changes have been made to the permit as a result of this comment.

Comment 7:

The commenter stated that the proposed limits in the permit should not be considered BACT for the fermentation process, the distillation and dehydration process, the DDGS drying system, and the ethanol/E85 loading rack because of the following reasons:

(a) The language in Condition D.2.5(b), following the "or", gives the source the option of achieving either 99% VOC control "or" a VOC outlet concentration of 10 ppmv. This effectively guts the 99% requirement because wet scrubbers can achieve VOC concentrations less than 10 ppmv.[6] The phrase "or the VOC outlet concentration shall not exceed 10 ppmv" should be removed or changed to read "or the lowest emission rate in ppmv based on the maximum degree of reduction that is achievable" to comply with BACT, which is an emission limit based on the maximum degree of reduction that is achievable.

(b) The TSD does not explain why the proposed wet scrubber cannot be designed to achieve 99% (or greater) control when VOC inlet concentrations are low. IDEM has claimed in other ethanol plant cases that a control efficiency of 99% may not be achievable in practice at extremely low VOC concentrations. However, no support has ever been offered for this claim. Further, the stack tests that the commenter has reviewed indicated that outlet VOC concentrations are routinely less than 10 ppmv when achieving 99% VOC control. The TSD does not explain how the 10 ppmv value was determined and whether 10 ppmv represents the lowest VOC concentration that is achievable using any wet scrubber or whether this is just the limit for one particular vendor's wet scrubber, based on the applicant's specific request in a request for proposal based on financial considerations.

(c) The VOC concentration limit is not enforceable as a practical matter because the permit does not disclose the conditions under which the VOC concentration is stipulated. The Commentor stated that the permit must be revised to state the following additional information if a concentration limit is retained: (1) oxygen content; (2) temperature and pressure; (3) averaging time; (4) test methods; and (5) molecular basis.

(d) The commenter has identified other ethanol plants that achieved higher VOC control efficiencies for DDGS dryers using thermal oxidizers. IDEM does not explain why higher VOC control efficiencies for similar sources do not establish BACT for the ABI facility. BACT is an emission limit based on the maximum degree of reduction that is achievable. Furthermore, the commenter asks IDEM to revisit stack tests specific to the EcoDry system as referred to in the responses to comments on the Iroquois Bio-Energy facility. The commenter asks that IDEM disclose the actual achieved VOC concentration in ppmv

[6] Interpoll Laboratories, Results of the March 3, 2006 Air Emission Compliance Testing at the Verasun Fort Dodge Facility in Fort Dodge, Iowa, April 13, 2006 (2.838 ppmw and 4.583 ppmd). See also other recent stack tests including the July 2006 source test at Horizon Ethanol, Jewell, Iowa (3.8 ppmvd).

and the control efficiency if a value less than 99% is proposed. These stack tests indicate that a VOC control efficiency higher than 98% is achievable, has been achieved, and thus should be required here as BACT for VOC emissions from the DDGS dryers.

Response to Comment 7:

BACT limitations do not necessarily reflect the highest possible control efficiency achievable by the technology on which the emission limitation is based. The permitting authority has discretion to base the emission limitation on a control efficiency that is somewhat lower than the optimal level. There are several reasons why the permitting authority might choose to do this. One reason is that the control efficiency achievable through the use of the technology may fluctuate, so that it would not always achieve its optimal control efficiency. In that case, setting the emission limitation to reflect the highest control efficiency would make violations of the permit unavoidable. To account for this possibility, a permitting authority must be allowed a certain degree of discretion to set the emission limitation at a level that does not necessarily reflect the highest possible control efficiency, but will allow the Permittee to achieve compliance consistently. While we recognize that 99% may be achievable as an average during testing, IDEM allows for sources to include a safety factor, or margin of error, to allow for minor variations in the operation of the emission units and the control device. This practice has been upheld by the EPA Environmental Appeals Board. See In re Pennsauken County, New Jersey Resource Recovery Facility, PSD Appeal No. 88-8, at 5 (Adm'r, Apr. 20, 1989) (Order Denying Review). Also see In re Masonite Corporation, PSD Appeal No. 94-1, at 560 (Adm'r, Nov. 1, 1994) (Order Denying Review in Part and Remanding in Part).

The requirement to achieve an overall control efficiency of no less than 99% (98% for the DDGS dryers) or a VOC outlet concentration not to exceed 10 ppmv is consistent with BACT determinations made in Indiana and in other States. In addition, the establishment of a VOC concentration limitation in conjunction with a control efficiency requirement is consistent with the compliance requirements established by the US EPA as part of its national ethanol settlements and as part of the recently promulgated NESHAPs. The concentration requirement was established because at extremely low VOC concentrations, a control efficiency of 99% (98% for the DDGS dryers) may not be achievable in practice. Many vendors and manufactures will not guarantee their control equipment to efficiencies of 99% at extremely low VOC concentrations. BACT must be achievable on a consistent basis under normal operational conditions.

The testing requirements conditions in the permit specify that the Permittee will use test methods approved by the Commissioner. The specific test methods and testing environment will be specified in the test protocol submitted by the Permittee as required in Condition C.9 (Performance Testing) and will be evaluated by IDEM, OAQ prior to the stack test. The most up to date EPA approved test method will be required to be used; therefore, the test method is not specified in the permit.

No change has been made to the BACT determination for the fermentation and distillation processes, the DDGS drying system, and the ethanol/E85 loading rack.

Comment 8:

The commenter states that the permit does not contain practically enforceable emission restrictions, production and operating conditions, monitoring, and recordkeeping to assure that emissions remain below the major source thresholds because of the following reasons:

(a) The FESOP does not limit all sources to ensure the potential to emit remains below major source thresholds, as it is required to do by law.

(b) The permit also does not contain limits for all pollutants and sources as set out in the summary of emissions in the TSD. The permit does not contain restrictions that limit emissions to those that were assumed in the TSD nor does it require that the emissions from each emission point be continuously monitored, summed, and compared to the major source thresholds. The permit contains no emission limits for at least the following

sources that were included in the potential to emit calculations: (1) PM and PM10 emissions from boilers; (2) criteria pollutant and HAP emissions from the diesel fire pump; (3) PM, PM10, VOC and HAPs from ethanol loading racks; (4) PM emissions from grain receiving EP1101; (5) PM and PM10 fugitives from grain receiving and DDGS loadout; (6) PM and PM10 fugitives from haul and maintenance roads; (7) HAP, PM, and PM10 emissions from the cooling tower; (8) VOC and HAP emissions from leaks from valves and flanges. The Permit must be modified to include emission and other limits on these sources to verify the assumptions used to calculate potential to emit. Further, the permit should be modified to include testing, recordkeeping and reporting to ensure that these limits are achieved. The Permit should also require that the measurements of emissions from each emission point be summed and compared to major source thresholds.

(c) The draft permit does not appropriately limit CO emissions from the diesel fire pump. The draft permit contains only one operational limit on the diesel fire pump as a surrogate to control all emissions from that source. The calculations in the TSD that support the use of a 500 hour operating limit to control criteria pollutants are based on AP-42 emission factors. The AP-42 emission factors used are D-rated and D rated factors are not necessarily reliable. Thus, the draft Permit must contain sufficient support to establish the correlation between hours of operation and total emissions. Absent this, the permit must address emissions directly with short term, specific limits. Such limits are particularly significant for CO emissions. The facility wide CO PTE, based in part on the calculation of CO emissions from the diesel fire pump through AP-42 emission factors, is very near the 100 tpy major source threshold. Furthermore, the AP-42 emission factors for diesel engines are inappropriate to rely on for PTE in a FESOP because the factors are aggregations of sources across all industrial engines, rather than specific to an individual engine or model. EPA cautions that "emission factors in these tables [including Table 3.3-1], because of their aggregate nature, are most appropriately applied to a population of industrial engines rather than to an individual power plant" (AP-42, p. 3.3-5). Without a sufficient showing, beyond AP-42, that hours of operation correlate to specific CO emission levels, or short term, specific limits on CO from the diesel fire pump, the FESOP does not ensure that CO emissions will remain below the major source threshold and the Permit must be revised.

(d) Combustion of ethanol vapors in the flare will generate VOC, NOx, CO, PM, PM10, and HAP emissions. The permit restricts NOx, and CO emissions and VOC and HAP by the amount of ethanol that can be loaded, but does not limit PM or PM10 emissions. There are two major problems with the limits on the ethanol/E85 loading rack:

(1) The pollutants PM and PMI0 are combustion byproducts. The magnitude of these emissions depends upon the design of the flares. The emission calculations did not include PM and PMI0 emissions from the flares. Thus, these emissions should be calculated, included in potential to emit, and a limit included in the Permit.

(2) The operational limit that the draft Permit uses to limit VOC and HAP emissions from the loading rack to below major source thresholds is not enforceable as a practical matter because it is not short term and specific. Thus IDEM, EPA, and citizens will be unable to determine compliance at any time. The FESOP limit for the ethanol loading racks is a limitation on total ethanol and E85 load-out rate on a yearly basis. For the first 11 months of operation, compliance or non-compliance with this limit will be impossible to establish. Thereafter, compliance or non-compliance will be measurable only on a monthly basis. Additionally, compliance with this permit limit does not necessarily ensure that VOC and HAP emissions will remain below major source thresholds because VOC and HAP emissions themselves will not be monitored. Rather, the annual production limit is used as a surrogate to determine VOC and HAP emissions through calculations based on assumptions from AP-42. The only mass emission limit on a lbs/hr basis for VOC from ethanol and E85 loadout is contained in Condition

D.5.5, and that limit allows emissions of VOC from this source of 48.6 tpy. The TSD lists potential to emit VOC from this source as 8.44 tpy. The total PTE for the facility for VOC is 96.5 tpy. Thus, an increase from 8.44 tpy to 48.6 tpy from the ethanol loading racks increases facility PTE to 136.66 tpy.

(e) The TSD claims that the facility will generate 6.19 tpy of PM emissions from grain receiving, EP1101. The draft Permit's limit on PM from grain receiving is 70.3 lbs/hr, because the 1.41 lbs/hr limit applies only to PM10 (See Permit Conditions D.1.4 and D.1.5).

(f) The permit does not restrict the potential to emit fugitive PM and PM10 emissions from the grain receiving and handling fugitives, and DDGS loadout fugitives. The permit does not require any testing, recordkeeping, or reporting to assure that these assumed emission rates and corresponding control efficiencies are achieved.

Response to Comment 8:

An emission source which qualifies as a major source under Part 70 rules, and hence needs a Title V permit, may voluntarily accept federally enforceable limits on air pollutant emissions to obtain a FESOP rather than the Title V permit. The federally enforceable limits in a FESOP are derived from sourcewide emissions calculations that account for the maximum potential emissions from each emission unit at the source. Certain operations have minimal PTE; therefore, it is sometimes unnecessary to limit these operations. However, any emissions from an unlimited emission unit are still counted in their entirety towards the sourcewide emissions when determining the permitting level. Therefore, IDEM, OAQ believes it is unnecessary to limit emission units where sourcewide emissions are already below major source thresholds due to limitations imposed on other emission units at the source. When a PTE is limited, the Permittee is subject to record keeping and reporting requirements in order to demonstrate compliance with those limits. Collectively, the limited PTE of certain activities along with the unlimited PTE of the remaining activities located at the source must be below major thresholds to be considered a FESOP.

IDEM, OAQ agrees that the facility wide CO potential to emit is very near the 100 tpy major source threshold; therefore, a short term CO limit has been added to the permit to make the CO emissions from the diesel fire pump more practically enforceable.

IDEM, OAQ has determined that it is appropriate to require the flares to have smokeless designs if the applicant indicates there are no particulate emissions from the flares as these types of flares will emit negligible PM/PM10 emissions. Additionally, IDEM, OAQ has revised the permit to reflect the appropriate flare IDs. IDEM, OAQ also believes that the annual loadout limit of ethanol and E85 is an appropriate surrogate to limit VOC and HAP emissions from the loading racks. The source is required to maintain monthly records of the combined total amount of denatured ethanol and E85 loaded out from the ethanol loading racks. The VOC and HAP calculations are based a worst case assumption that all E85 is loaded to trucks. Please see Response to Comment 10 regarding the commenter's concern about showing compliance for the first 11 months of operation.

IDEM, OAQ has revised Condition D.1.4(a) to show that the emission limits apply to PM as well as PM10. The limits on the annual amount of grain received and the annual DDGS loadout are appropriate surrogates to limit PM/PM10 emissions from the grain receiving and handling fugitives, and DDGS loadout fugitives. The source is required to maintain monthly records of the amount of grain received at this plant and the amount of DDGS loadout. The PM/PM10 emissions were based on conservative calculations where it is assumed that there is 0% capture efficiency of the DDGS handling and loadout activities. See Response to Comment 2 for further information regarding grain receiving and handling fugitives.

The following changes have been made as a result of this comment:

D.1.4 PM and PM10 Emissions [326 IAC 2-2] [326 IAC 2-8-4]

(a) The **PM and** PM10 emissions from the grain receiving, handling, and load-out operations shall not exceed the emission limits listed in the table below:

Unit Description	Baghouse ID	**PM/**PM10 Emission Limit (lbs/hr)
Grain Receiving (EP1101)	CE1101	1.41
Hammermill A (EP2001)	CE2001	0.28
Hammermill B (EP2002)	CE2002	0.28
Hammermill C (EP2003)	CE2003	0.28
DDGS Loadout (EP1102)	CE1102	0.17

~~This is equivalent to 10.6 tons/yr of PM10 emissions. The source will use baghouses to ensure compliance with the PM10 limits above. With baghouse control, the source is capable of complying with these limits.~~

D.5.4 FESOP Limits [326 IAC 2-2] [326 IAC 2-8-4]

Pursuant to 326 IAC 2-8-4 (FESOP), and in order to render the requirements of 326 IAC 2-2 (PSD) not applicable, the Permittee shall comply with the following emission limits for the ethanol loading racks:

(a) The combined total denatured ethanol and E85 load-out rate shall not exceed 135,700,000 gallons per twelve (12) consecutive month period with compliance determined at the end of each month.

(b) The Permittee shall use a flare identified as ~~EP~~**CE**-2210 to control the emissions from ethanol loading to trucks and railcars.

(1) CO emissions from ~~EP~~**CE**-2210 shall not exceed 0.63 lbs/hr.

(2) NOx emissions from ~~EP~~**CE**-2210 shall not exceed 0.38 lbs/hr.

(c) The Permittee shall use a flare identified as ~~EP~~**CE**-2211 to control the emissions from ethanol loading to barges.

(1) The operation of ~~EP~~**CE**-2211 shall be limited to 2000 operating hours per twelve (12) consecutive month period with compliance determined at the end of each month.

(2) CO emissions from ~~EP~~**CE**-2211 shall not exceed 1.89 lbs/hr.

(3) NOx emissions from ~~EP~~**CE**-2211 shall not exceed 1.13 lbs/hr.

(d) The ethanol loading racks shall utilize submerged loading methods.

(e) The railcars, trucks, and barges shall not use vapor balance services.

(f) The flares (CE-2210 and CE-2211) shall be designed as smokeless flares.

D.5.11 Record Keeping Requirements

...

(b) To document compliance with Condition D.5.4(c)(1), the Permittee shall maintain records of the number of hours that the flare identified as ~~EP~~**CE**-2211 operates each month.

D.6.1 FESOP Limits [326 IAC 2-2] [326 IAC 2-8-4] [326 IAC 2-4.1]

(a) Pursuant to 326 IAC 2-8-4 (FESOP), and in order to render the requirements of 326 IAC 2-2 (PSD) not applicable, the operating hours for the diesel fired stationary fire pump, identified as EP-1075, shall not exceed 500 hours per twelve (12) consecutive month period with compliance determined at the end of each month.

(b) CO emissions from EP-1075 shall not exceed 6.68E-03 lbs/hp-hr.

~~(b)~~**(c)** The Permittee shall comply with the following requirements for the biomethanator flare, identified as CE-7001:

(1) The input of biogas to the biomethanator flare shall be limited to 24.3 MMCF per twelve (12) consecutive month period, with compliance determined at the end of each month.

(2) CO emissions shall not exceed 152 pounds per MMCF.

(3) The flare (CE-7001) shall be designed as a smokeless flare.

...

D.6.5 Record Keeping Requirements

...

(b) To document compliance with Condition ~~D.6.1(b)~~ **D.6.1(c)(1)**, the Permittee shall maintain monthly records of the total amount of biogas delivered to the flare CE-7001.

Comment 9:

The permit requires vague visible emission readings, parametric monitoring, and broken or failed bag detection. These methods also fail to assure compliance with the PM and PM10 emission limits, however, rendering the limits unenforceable for the following reasons:

(a) The opacity readings are taken only once a day, during daylight, and are only classified as to "normal" or "abnormal." "Abnormal" is defined with reference to prevailing conditions 80% of the time the process is in operation. If an exceedance of this subjective standard is observed, ABI must undertake the vague abatement procedures in Permit Condition C.15. This standard simply does not assure compliance with the mass emission limits in the permits.

(b) The proposed differential pressure monitoring of individual baghouses has been shown not to be an adequate indicator of bag leaks. The proposed method would not detect individual bag leaks, which could cause exceedances of the hourly emission limit. Further, the draft Permit does not specify where pressure would be measured, but appears to only require differential pressure measurements across the entire baghouse, rather than individual baghouse compartments. This would not help isolate bag leaks.

(c) The draft permit does not require that any specific actions be taken if the differential pressure falls outside of the range allowed. The draft permit should be revised to indicate that operation outside of the established differential pressure range constitutes a per se violation of the hourly emission limits. Further, the draft permit should be revised to require that any excursion be investigated and corrected within 24 hours of discovery.

Response to Comment 9:

The visible emission notations are used as a surrogate to ensure compliance with 326 IAC 5-1 and 326 IAC 6, without the requirement to have a person on site trained in opacity measurement. This requirement is designed as a trigger that the source perform some corrective action on the facility if visible emissions are abnormal, which helps ensure continuous compliance with

emission limitations. As the visible emissions condition states, 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. This training does not need to include the training to become a certified opacity reader, nor does the training need to be done by a certified opacity reader. The purpose of specifying that a trained employee perform the visible emissions notations is to make sure that the employee would know the difference between "normal" and "abnormal" visible emissions from the particular process.

As stated in Response to Comment 2, the Permittee is required to take reasonable response steps when a compliance monitoring parameter is determined to be out of range or abnormal under Condition C.15 - Response to Excursions or Exceedances. This condition ensures that the control equipment is returned to proper operation as soon as practicable, while still allowing the Permittee the flexibility to respond to situations that were not anticipated. No changes were made as a result of this comment.

Comment 10:

Several operational limits are expressed in terms of units of input or output measured "per twelve (12) consecutive month period with compliance determined at the end of each month." The commenter states that the supporting compliance calculation sheets indicate that the intent of this language is to add the current month's input or output to that of the previous 11 months. This does not properly limit emissions during the first 11 months of operation. A separate limit, based on a monthly average, should be set for the first 12 months of operation. The overall source limits (draft Permit p. 22) are expressed in output measured "per twelve (12) consecutive month period," without an indication of when compliance will be determined. Thus, the source-wide limits do not properly limit emissions during the first 11 months of operation, and a separate limit based on a monthly average should be set for the first 12 months of operation.

Response to Comment 10:

Since FESOP limits are based on annual limits, if the source emitted its entire allowed amount of emissions in the first six months, then the source would not be able to operate for the following six months because the source would exceed the allowable emissions based on a rolling twelve month total. Therefore, no separate limits are needed for the first year of operation. No changes were made as a result of this comment.

Comment 11:

An ethanol facility has many sources of fugitive VOC emissions. These include the wet cake storage pile, the DDGS storage pile, the mash screen vent, the boiler feedwater tank vent, the process building exhaust fan, and various tank vents. The VOC emissions from some of these sources are high and require venting to the thermal oxidizer at other facilities. The application and permit are silent as to these emission sources. The permit should be remanded to require VOC testing of all potential fugitive sources, any significant VOC sources should be controlled by venting to the thermal oxidizer, and fugitive VOC emissions should be included in the source-wide inventory to demonstrate that emission remain below major source thresholds.

Response to Comment 11:

IDEM, OAQ agrees that wet cake storage is a source of VOC emissions. However, as noted in the response to comment 5, the drying of WDGS represents worst-case emissions. Emissions from the DDGS storage pile are expected to be minimal given that VOC's in the WDGS will be driven off in the dryers. IDEM, OAQ agrees that there may be other sources of very minimal VOC emissions, and has included a one (1) ton per year emission estimate for “Insignificant Activities” in the facility-wide emission estimate in order to be conservative with respect to these types of activities.

No changes have been made to the permit as a result of this comment.

Comment 12:

The permit does not recognize startup, shutdown, and emergency bypass emissions. The TSD and application do not disclose any analysis or design to minimize the frequency of such events and to minimize such excess emissions.

The potential to emit calculations do not appear to have included startup and shutdown emissions, which by themselves could be high enough to exceed the major source threshold. For example, the TSD indicates CO emissions of 99.4 tpy, just 0.6 tpy shy of the major source thresholds of 100 tpy. Nothing in the permit indicates that the potential to emit calculation or permit limits account for excess emissions that occur during periods of startup, shutdown or malfunction, nor explains how those periods affect emissions at the plant.

For example, as with many large pieces of equipment, the ABI facility contains equipment that will produce more of certain pollutants when they are starting up or shutting down than when they are operating at a steady state. The combustion equipment, including the boilers, and the DDGS dryers with their Swiss Combi systems functioning as a thermal oxidation unit, will generate more CO and VOC emissions during startup and shutdown because CO will not be fully oxidized and the VOCs will not be completely combusted until the equipment reaches steady state of operation. This equipment operates intermittently, and the boilers, in particular, frequently operate at low loads that generate more CO and VOC emissions than at other times
.
The Permit fails to place any limits on the increased CO and VOC emission levels that may result during periods of startup and shutdown and does not appear to consider those excess emissions in calculating the potential to emit. Without limits on increased emissions during startup and shutdown, the ABI facility may emit pollutants in an amount over the major source threshold. Thus, the Permit should be revised to address the startup and shutdown emissions. Without such revision, it is likely that CO and VOC emissions will exceed both the individual unit permit limits and major source thresholds.

Response to Comment 12:

IDEM, OAQ does not feel that it is necessary to limit emissions from startup, shutdown, and emergency bypasses. The combustion equipment for ABI is much smaller than a typical large utility boiler, and the emissions during startup and shutdown are expected to be minimal. The duration of startup and shutdown are also expected to be minimal. Furthermore, the controls are required at all times the emission units are in operation and emission calculations for the boilers are based on continuous operation (8760 hours per year); therefore, the calculations do not account for times of shutdown (when the boilers are not operating) and may overestimate emissions. Nevertheless, the sourcewide emissions are still calculated to be below FESOP thresholds even with these conservative assumptions.

No changes were made as a result of this comment.

Comment 13:

The commenter states that the proposed testing is not adequate because of the following reasons:

(a) The permit does not require the demonstration of any relationship between the various parametric indicators and the subject emission limits, nor does it state that a violation of the indicator constitutes a per se violation of the pollutant of interest.

(b) The permit should be modified to require more frequent direct emission testing, instead of repeating a test only once every 5 years. Additionally, no testing at all is required for some emission sources, including grain receiving fugitives, DDGS loadout fugitives, cooling tower, diesel generator, and paved roads. This missing, or minimal and infrequent testing does not satisfy the obligation for testing sufficient to "evaluate continuous compliance" nor does it allow IDEM, U.S.EPA or the public to ensure

compliance with the permit limits. It is feasible to directly and continuously monitor CO , VOC, and NOx emissions from the boilers and thermal oxidizers. It is also feasible to conduct more frequent stack tests. Annual or more frequent testing is feasible, is commonly required for similar facilities, and should be required here. Annual fugitive emission inventories for PM/PM10 and VOCs are required elsewhere and should be required here.

(c) The permit only limits a single HAP, acetaldehyde, and the total HAP emissions from two of the sources (the fermentation/distillation process and the DDSG dryers and coolers). Acetaldehyde is not necessarily the major HAP. Further, the facility will emit other HAPs, including methanol, formaldehyde, acrolein, and propionaldehyde. There are other emission units that will emit HAPs, including the boilers, the ethanol loading rack flare, equipment leaks, and other fugitive sources. Testing for only a single HAP at only two of several emitting sources renders the total HAPs cap of 25 ton/yr in permit Conditions C.2(a)(3), D.2.4, D.4.4, and D.5.4 and the total HAP emission limits in Conditions D.2.4 and D.4.4(g) not enforceable as a practical matter and in violation of 326 IAC 2-8-4, Sec. 4(3).

(d) The permit does not identify any of the test methods that will be used to determine compliance with emission limits. Instead, such identification is deferred to a future protocol that will not be subject to public review. All test methods must be disclosed in the permit to qualify for a FESOP.

(e) The method that will be used to measure VOCs and HAPs is critical to disclose during public comments to assure that the compliance test method is consistent with the test method used to develop the VOC and HAP emission limits in the first place and to assure that the method is properly applied. Compliance, for example, would not be demonstrated if the VOC limit were developed based on testing using Method 25a reported as carbon, and compliance was determined with Method 18. The method used to scale measurements to the permit limit basis is critical in determining compliance and should be disclosed.

Response to Comment 13:

As stated in the permit, a parameter reading that is outside the determined range is not a deviation from the permit. Failure to take response steps in accordance with Section C - Response to Excursions or Exceedances would be considered a deviation from the permit. The parameter reading does not indicate a violation; however, monitoring the parameter ensures the equipment is operating normally. Please see response to comment number 2 for further details regarding parametric monitoring.

The source has provided emissions estimates consistent with other ethanol plants that show Acetaldehyde as the major HAP emitted, and IDEM, OAQ believes that Acetaldehyde is the HAP that is emitted at the highest rate at dry-mill ethanol plants. Additionally, IDEM, OAQ believes that the current required HAP testing for this source is adequate because the vast majority of Acetaldehyde is emitted from the fermentation and distillation processes, and the dryer and cooling systems, all of which require stack testing. IDEM, OAQ acknowledges that certain operations will emit other types of HAPs; yet, it is unnecessary to limit these operations because HAP emissions from an unlimited emission unit are counted in their entirety towards the sourcewide emissions when determining the permitting level. Therefore, IDEM, OAQ believes it is unnecessary to limit or test other HAPs, including methanol, formaldehyde, acrolein, and propionaldehyde at this source.

IDEM, OAQ requires testing for the major emission points located at the source. The testing conditions in the permit specify that the Permittee will use test methods approved by the Commissioner. The specific test methods and testing environment will be specified in the test protocol submitted by the Permittee as required in Condition C.9 (Performance Testing) and will be evaluated by IDEM, OAQ prior to the stack test. The most up to date EPA approved test method will be required to be used; therefore, the test method is not specified in the permit.

Under the requirements of the NSPS, Subpart Db, the source has elected to install a continuous emissions monitor on their boilers to monitor NOx emissions. There are no other State or Federal regulations that require continuous monitoring of emissions from the boilers or thermal oxidizers.

Furthermore, IDEM believes that testing every five (5) years is sufficient for this source considering the stability of the operation and control devices. There are other types of operations that are not associated with an ethanol production plant that do require more frequent testing such as municipal waste combustors, sulfuric acid plants, and secondary lead smelters. However for the types of operations this source is proposing to construct, five (5) year testing along with frequent monitoring of the control equipment (to ensure the controls are operating correctly) is sufficient. IDEM also has the authority to require additional testing at any time if monitoring or other information indicates that a change may have occurred in the operation of the process and/or control device. No changes were made as a result of this comment.

Don Mottley (Save Our River) Comments

On December 28, 2006, Don Mottley (referred to as the "Commenter") submitted comments on the proposed FESOP. The summary of the comments is as follows (bolded language has been added, the language with a line through it has been deleted):

Comment 1:

The Commenter is concerned about the amount of PM that will be released from truck, train, and barge traffic, and the unloading of the corn from ABI. The Commenter states that there is concern because of Posey County's numerous sources that emit large amounts of PM emissions year after year. The Commenter wants to know how many facilities IDEM proposes to permit without any PM monitoring in Posey County? The Commenter is worried that adjoining counties will be forced back into non-attainment because of these new facilities being permitted without any monitoring in Posey County. The commenter would also like to know how IDEM plans to monitor Indiana's ethanol plants for Hazardous Air Pollutants?

Response to Comment 1:

IDEM, OAQ conducts ambient monitoring of hazardous air pollutants as part of the toxwatch program. IDEM, OAQ conducted toxic monitoring at the Mt. Vernon Middle School from January 1, 2000 to June 1, 2000. The data collected did not indicate any threat or danger to the community. The data showed concentrations that were at low levels compared to other IDEM, OAQ monitoring locations. IDEM, OAQ currently monitors for air toxics at 10 locations across the state. The closest air toxics monitor to Posey County is at the University of Evansville site in Vanderburgh County. The monitoring data from the Mt. Vernon Middle School study in 2000, and current data, is available at IDEM, OAQ's "ToxWatch" site at http://www.in.gov/idem/programs/air/toxwatch/ on the internet.

IDEM, OAQ spends about 3.5 million dollars annually on the statewide ambient monitoring program. Depending on priorities statewide, IDEM, OAQ is considering the possibility of realigning the monitoring network, which may open the possibility of additional monitoring locations.

Information on the health effects of hazardous air pollutants can be found at http://yosemite.epa.gov/oswer/ceppoweb.nsf/content/ChemicalsInYourCommunity.htm . Information pertaining to emissions of hazardous air pollutants in the Posey County area can be found at http://www.epa.gov/tri or http://www.state.in.us/idem/oppta/tri . U.S. EPA's website http://www.epa.gov/air/urbanair/6poll.html provides more detailed information about the health effects of six common air pollutants and why they regulated.

Comment 2:

The Commenter would like to know if any VOC's will be released at the wastewater treatment facility and if so, were they included in the emission figures?

Response to Comment 2:

All of the wastewater that ABI will make is treated by the proposed methanator. A methanator is an anaerobic biological water treatment system that converts organic material to a fuel gas (mostly methane). The methane is used as supplemental fuel in the dryer. When the dryer is not in operation, the methane is routed to a flare. The water from the methanator is then recycled for reuse in the process. Emissions from the anaerobic treatment of process wastewaters are estimated on page 11 of Appendix A. SO_2 emissions are based on the estimated amount of biogas generated by the treatment process and the corresponding content of methane and H_2S in the gas. Sulfuric acid is used to adjust the pH of the cooling tower water and is the source of the sulfur. The gas will be combusted in an enclosed flare for conversion of H_2S to SO_2.

Comment 3:

Did ABI perform any pre-construction monitoring? With 100 tons of PM, PM_{10}, VOC's, CO, and NO_X, how does this affect the regions air standards, more specifically the mixing of VOC's with Vectren AB Brown Facility right next door? Does IDEM figure in the other announced facilities with at least two additional ethanol plants and two bio-diesel plants proposed for Posey County?

Response to Comment 3:

Pre-construction ambient monitoring can be required for a source if IDEM, OAQ determines that the source must go through Major New Source Review. However, IDEM, OAQ does not require a FESOP source, such as ABI, to perform any pre-construction monitoring. Furthermore, IDEM evaluates the proposed facility and its potential emissions for permitting purposes. The possible construction of other announced facilities near ABI have no effect on this Federally Enforceable State Operating Permit.

Comment 4:

In ABI's application and draft permit a NO_X emission factor of 0.02 lb/MMBtu for the natural gas fired boilers is used. This emission factor was provided by the manufacturer of the boilers. This factor is much lower than that of the AP-42 factor of 0.27 lb/MMBtu, while the other emission factors for the other criteria pollutants were derived from AP-42. Why is the NO_X emission factor so much lower?

Response to Comment 4:

IDEM, OAQ agrees that the NOx emission factor that was provided by the boiler manufacturer is much lower that what is derived in the Fifth Edition AP-42, Section 1.4, "Natural Gas Combustion". In fact, the CO emission factor (also provided by the manufacture of the proposed boilers) is lower than AP-42 as well. An AP-42 emission factor is an average of all available data of acceptable quality, and is generally assumed to be representative of long-term averages for all facilities in the source category (i.e., a population average). Therefore, it is likely that the specific boilers ABI proposes to operate can achieve the more stringent emission rates for NOx and CO emissions. Nevertheless, IDEM, OAQ feels that it is reasonable to allow a source to use a more stringent emission factor, as in the case with the NOx and CO factors ABI has requested, provided that the source is required to perform stack testing to demonstrate compliance with the proposed emission rates. The proposed permit contains such stack testing requirements.

In addition, the NOx and CO emission limits are necessary in the permit to ensure the source remains minor under PSD and remains a synthetic minor source (FESOP). These limits are contained in Condition D.3.4 of the proposed permit. The emission limits for both NOx and CO are significantly lower than the currently published AP-42 emission factors for large, natural-gas fired boilers using low NOx burners. No change has been made to the permit as a result of these comments.

Comment 5:

The commenter states that the Save Our Rivers organization believes that the permit came out in an inappropriate time between holidays when most people are out of town and celebrating. Then to close the comment period between Christmas and New Years is outrageous and inconsiderate of IDEM. The commenter states that it is outrageous to not give an extension of time, just so that IDEM can fast track the permitting process for Governor Daniels and maintain his pipe dream of making INDIANA the #1 ETHANOL and CAFO STATE.

Response to Comment 5:

The public notice period for this permit began December 6, 2006 and lasted for 30 days; therefore, over half of the public comment period occurred prior to the Christmas and New Year holidays. Furthermore, on December 21, 2006, IDEM, OAQ conducted a public meeting regarding ABI's permit. IDEM, OAQ prepared a three page citizen summary and distributed those documents prior to starting the meeting.

The public meeting was an opportunity for IDEM staff to discuss the permit and how it fits into Indiana's overall air regulatory programs. The meeting also provided an opportunity for every person to make comments and ask questions. There was no time limit placed on any speaker. IDEM, OAQ staff responded to many questions during the meeting. The meeting lasted until there were no further comments or questions.

IDEM encourages citizen participation and has tried to make it easier for people to get involved in the public decision making process. If you want more information on IDEM and its public participation processes, please refer to IDEM's Guide for Citizen Participation. You can order a printed copy at (317) 233-6335 or (800) 451-6027, Ext. 3-6335 (toll free) or access it on IDEM's Web site at http://www.in.gov/idem/guides/publicparticipation.

Dona Bergman (Director of Evansville EPA) Comments

On December 21, 2006, Dona Bergman (referred to as the "Commenter") submitted comments on the proposed FESOP. The summary of the comments is as follows (bolded language has been added, the language with a line through it has been deleted):

Comment 1:

The application and draft permit provide a NOx emission factor of 0.02 lb/MMBtu for the Natural Gas fired boilers. This emission factor was provided by the boiler manufacturer. This emission factor is considerably lower than the AP-42 factor of 0.27 lb/MMBtu. I understand there will be a CEMS for the boiler's NOx emissions, but am concerned that an unrealistically low emission factor was provided to IDEM, especially since the emission factors for the other criteria pollutants were derived from AP-42. How is it that only the NOx emissions are so much lower? The NOx emission factor for the ethanol dryers also seems lower than normal.

Response to Comment 1:

See IDEM's response to Don Mottley's comment 4.

Valerie West (President of S.O.L.E) Comments

On December 21, 2006, Valerie West (referred to as the "Commenter") submitted comments on the proposed FESOP. The summary of the comments is as follows (bolded language has been added, the language with a line through it has been deleted):

Comment 1:

Due to the time of the 30 day notice for public comment (occurring over the Holidays), I respectfully request an extension of the public comment period to better have time to investigate

what effects this plant will have on this community. I would ask for 30 days, but any extension would be greatly appreciated.

Response to Comment 1:

IDEM, OAQ did not extend the public comment period for the permit. See IDEM's response to Don Mottley's comment 5 for further details of the opportunities that were given to the public regarding comment on this permit. No change has been made to the permit as a result of this comment.

Upon further review, the OAQ has decided to make the following revisions to the permit (bolded language has been added, the language with a line through it has been deleted).

1. Language and a rule cite Conditions D.3.12 and D.5.12 have been updated.

D.3.12 Reporting Requirements

A quarterly summary of the information to document compliance with Conditions D.3.4 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"** ~~"responsible official"~~ as defined by **326 IAC 2-1.1-1(1)** ~~326 IAC 2-7-1(34)~~.

D.5.12 Reporting Requirements

A quarterly summary of the information to document compliance with Conditions D.5.4(a) and D.5.4(c)(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 quarter being reported. The report submitted by the Permittee does require the certification by the **"authorized individual"** ~~"responsible official"~~ as defined by **326 IAC 2-1.1-1(1)** ~~326 IAC 2-7-1(34)~~.

Indiana Department of Environmental Management
Office of Air Quality

Technical Support Document (TSD) for a New Source Review and a Federally Enforceable State Operating Permit (FESOP)

Source Background and Description

Source Name:	Abengoa Bioenergy of Indiana
Source Location:	West Franklin Rd and Darnell School Rd, West Franklin, Indiana 47620
County:	Posey
SIC Code:	2869
Operation Permit No.:	F129-23484-00050
Permit Reviewer:	ERG/JR

The Office of Air Quality (OAQ) has reviewed a New Source Review and FESOP application from Abengoa Bioenergy of Indiana relating to the construction and operation of an ethanol production plant. The plant will also have the ability to produce, store, and deliver E85.

History

Abengoa Bioenergy of Indiana submitted an application on August 9, 2006, to IDEM, OAQ applying for a Federally Enforceable State Operating Permit to construct and operate a new ethanol production plant at the corner of West Franklin Road and Darnell School Road, West Franklin, Indiana 47620.

Permitted Emission Units and Pollution Control Equipment

There are no permitted emission units operating at this source during this review process.

Unpermitted Emission Units and Pollution Control Equipment

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

New Emission Units and Pollution Control Equipment

The application includes information relating to the prior approval for the construction and operation of the following equipment pursuant to 326 IAC 2-8-4(11):

(a) One (1) grain receiving area, identified as EP1101, approved for construction in 2007, controlled by a baghouse, identified as CE1101, exhausting through stack S-1101, and consisting of the following:

(1) Two (2) truck receiving pits with a capacity of 560 tons per hour each;

(2) One (1) grain transfer drag conveyor with a capacity of 1120 tons per hour; and

(3) Two (2) grain storage silos each with a capacity of 9,520 tons.

(b) Three (3) hammermills, identified as EP2001, EP2002, and EP2003, approved for construction in 2007, each with a maximum throughput rate of 42 tons per hour of grain, controlled by baghouses CE2001, CE2002, and CE2003 and exhausting through stacks S-2001, S-2002, and S-2003 respectively.

(c) One (1) DDGS loadout operation, identified as EP1102, approved for construction in 2007, with a maximum throughput rate of 200 tons/hr, controlled by baghouse CE1102, exhausting to stack S-1102.

(d) One (1) fermentation process, approved for construction in 2007, with a maximum throughput rate of 12,000 gallons of anhydrous ethanol per hour, consisting of the following major equipment:

(1) One (1) prefermenter tank, identified as T-1400, controlled by a wet scrubber, identified as CE1400, exhausting through stack S-1400.

(2) Six (6) main fermenters and one (1) beer well, identified as T-1401 through T-1407, controlled by a wet scrubber, identified as CE1401, exhausting through stack S-1401.

(e) One (1) distillation process, approved for construction in 2007, with a maximum throughput rate of 12,000 gallons of anhydrous ethanol per hour, controlled by a wet scrubber, identified as CE1504, exhausting through stack S-1504, and consisting of the following major equipment:

(1) One (1) beer column identified as C-1510.

(2) One (1) stripping column identified as C-1520.

(3) One (1) rectifying column identified as C-1530.

(4) One (1) four-tower molecular sieve unit, with associated heat exchangers and pumps.

(f) Two (2) natural gas fired boilers, identified as BL5001 and BL5002, approved for construction in 2007, each with a maximum heat input rate of 182 MMBtu/hr, with emissions exhausting to stacks S-5001 and S-5002, respectively.

(g) Two (2) natural gas fired Swiss Combi “Eco-Dry” Dryer Systems, identified as D1801 and D1802, approved for construction in 2007, with a maximum heat input rate of 76.7 MMBtu/hr and a design throughput rate of 20 tons per hour of DDGS each, with emissions exhausting through stacks S-1801 and S-1802.

Note: The basis of the Swiss Combi Dryer System is an indirect heat drying process using a closed steam loop with thermal oxidation. The DDGS cooler is also integrated into the Eco-Dry system.

(h) One (1) ethanol and E85 loading rack for trucks and railcars, identified as EP-2210, approved for construction in 2007, with a maximum throughput rate of 600 gallons per minute for trucks and 1,200 gallons per minute for railcars, controlled by a flare, identified as CE-2210, which is fueled by natural gas and has a maximum heat input capacity of 1.26 MMBtu/hr, and exhausts through stack S-2210.

(i) One (1) ethanol and E85 loading rack for barges, identified as EP-2211, approved for construction in 2007, with a maximum throughput rate of 2,000 gallons per minute, controlled by a flare, identified as CE-2211, which is fueled by natural gas and has a maximum heat input capacity of 3.78 MMBtu/hr, and exhausts through stack S-2211.

Insignificant Activities

The source also consists of the following insignificant activities, as defined in 326 IAC 2-7-1(21):

(a) One (1) diesel fired stationary fire pump, identified as EP-1075, approved for construction in 2007, with a maximum power output rate of 420 horsepower, and exhausting to stack S-1075. [326 IAC 2-8-4]

(b) Noncontact cooling tower system with natural draft not regulated under a NESHAP.

(c) Replacement or repair of bags in baghouses and filters in other air filtration equipment.

(d) Paved roads and parking lots with public access. [326 IAC 6-4]

(e) Blowdown for any of the following: sight glass, boiler, compressors, pumps, and cooling tower.

(f) Grinding and machining operations controlled with fabric filters, scrubbers, mist collectors, wet collectors and electrostatic precipitators with a design grain loading of less than or equal to 0.03 grains per actual cubic foot and a gas flow rate less than or equal to 4000 actual cubic feet per minute, including the following: deburring, buffing, polishing, abrasive blasting, pneumatic conveying, and woodworking operations.

(g) A laboratory as defined in 326 IAC 2-7-1(21)(D).

(h) Other emission units, not regulated by a NESHAP, with PM10, NOx, and SO_2 emissions less than five (5) pounds per hour or twenty-five (25) pounds per day, CO emissions less than twenty-five (25) pounds per day, VOC emissions less than three (3) pounds per hour or fifteen (15) pounds per day, lead emissions less than six-tenths (0.6) tons per year or three and twenty-nine hundredths (3.29) pounds per day, and emitting greater than one (1) pound per day but less than five (5) pounds per day or one (1) ton per year of a single HAP, or emitting greater than one (1) pound per day but less than twelve and five tenths (12.5) pounds per day or two and five tenths (2.5) ton per year of any combination of HAPs:

(1) One (1) denaturant storage tank, identified as T2104, with a maximum capacity of 55,000 gallons equipped with an internal floating roof for VOC emissions control. [326 IAC 8-4-3] [40 CFR 60, Subpart Kb]

(2) Three (3) tanks for storage of denatured fuel ethanol and/or E-85, identified as T2102, T2103, and T2105 each with a maximum capacity of 1,000,000 gallons, and each equipped with an internal floating roof for VOC emissions control. [40 CFR 60, Subpart Kb]

(3) One (1) fixed-roof anhydrous ethanol off-spec storage tank, identified as T2101, with a maximum capacity of 39,500 gallons.

(4) Two (2) fixed-roof anhydrous ethanol storage tanks (shift tanks), identified as T2110 and T2111, each with a maximum capacity of 39,500 gallons.

(5) One (1) three unit biomethanator anaerobic wastewater treatment system followed by a single unit aerobic polishing treatment system, identified as EP-7001, approved for construction in 2007, offgasses from this unit are routed to a combustion unit within the plant or to a flare when the combustion units are offline, identified as CE-7001, which is fueled by natural gas and has a maximum heat input capacity of 3.48 MMBtu/hr, and exhausts through stack S-7001.

(6) Cook area process equipment, including: one (1) slurry tank (T-1301), one (1) mash cooker (V-1302), two (2) conversion tanks (T-1304 and T-1305), one (1) hot water tank (T-1303), one (1) saccharification flash vessel (V-1306), three (3) mash coolers (E-1311 through E-1313), and three (3) mash trim coolers (E-1515 through E-1517).

(7) Equipment for handling spent grain from the fermentation process, including: one (1) triple effect light evaporation system, one (1) final concentrator, one (1) whole stillage tank (T-1701), one (1) thin stillage tank (T-1600), one (1)

intermediate stillage tank (T-1702), one (1) syrup tank (T-1650), and Four (4) stillage decanters (SP-1701 through SP-1704).

(8) One (1) corrosion inhibitor storage tank.

(9) One (1) sulfuric acid tank (T-1911).

(10) One (1) Clean-in place (CIP) system.

(11) Compressed air and dry air systems.

Existing Approvals

The source does not have any existing approvals.

Enforcement Issue

There are no enforcement actions pending.

Recommendation

The staff recommends to the Commissioner that the FESOP 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 administratively complete FESOP application for the purposes of this review was received on August 9, 2006. Additional information was received on September 12 and September 26, 2006.

Emission Calculations

See Appendix A of this document for detailed emission calculations (pages 1 through 16). The PTE of storage tanks is 10.6 tons/yr of VOC, which was calculated using EPA TANKS 4.0 software. The emissions calculations for storage tanks were provided by the applicant and have been verified and found to be accurate and correct.

Potential to Emit

Pursuant to 326 IAC 2-1.1-1(16), Potential to Emit is defined as “the maximum capacity of a stationary source or emissions unit to emit any air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of a source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or type or amount of material combusted, stored, or processed shall be treated as part of its design if the limitation is enforceable by the U.S. EPA, the department, or the appropriate local air pollution control agency.”

This table reflects the PTE before controls for the new emission units. Control equipment is not considered federally enforceable until it has been required in a federally enforceable permit.

Pollutant	Potential to Emit (tons/yr)
PM	Greater than 100
PM-10	Greater than 100
SO_2	Less than 100
VOC	Greater than 100
CO	Greater than 100
NO_x	Greater than 100

HAPs	Potential to Emit (tons/yr)
Acetaldehyde	43.5
Acrolein	112.2
Formaldehyde	126.0
Hexane	2.93
Methanol	18.7
Other HAPs	Negligible
Total HAPs	Greater than 25

(a) The potential to emit (as defined in 326 IAC 2-7-1(29)) of PM10, VOC, CO, and NOx are equal to or greater than one hundred (100) tons per year. This source, which would otherwise be subject to the provisions of 326 IAC 2-7, will limit its emissions below the Title V levels.

(b) The 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. This source, which would otherwise be subject to the provisions of 326 IAC 2-7, will limit its HAP emissions below the Title V levels.

(c) Fugitive Emissions
Since this type of operation is in one of the twenty-eight (28) listed source categories under 326 IAC 2-2, the fugitive particulate matter (PM) and volatile organic compound (VOC) emissions are counted toward determination of Prevention of Significant Deterioration (PSD) applicability.

Potential to Emit After Issuance

Any control equipment 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. Since this source is in one of the twenty-eight (28) listed source categories under 326 IAC 2-2, fugitive emissions are counted toward determination of PSD applicability and the fugitive emission shall be included in the PTE of the entire source. The table below summarizes the potential to emit, reflecting all limits of the emission units.

	Potential To Emit (tons/year)						
Process/Emission Unit	PM	PM-10	SO_2	VOC	CO	NO_x	HAPs
Grain Receiving (EP1101)	6.19	6.19	-	-	-	-	-
Grain Receiving - Fugitive	4.50	1.48	-	-	-	-	-
Hammermill #1 (EP2001)	1.22	1.22	-	-	-	-	-
Hammermill #2 (EP2002)	1.22	1.22	-	-	-	-	-
Hammermill #3 (EP2003)	1.22	1.22	-	-	-	-	-
DDGS Loadout (EP1102)	0.75	0.75	-	-	-	-	-
DDGS Handling and Storage - Fugitive	14.51	4.84	-	-	-	-	-
Pre-Fermentation Scrubber (CE1400)	-	-	-	11.7	-	-	-
Fermentation Scrubber (CE1401)	-	-	-	24.2	-	-	-
Distillation Scrubber (CE1504)	-	-	-	5.67	-	-	-

	Potential To Emit (tons/year)						
Process/Emission Unit	PM	PM-10	SO_2	VOC	CO	NO_x	HAPs
Boilers (BL5001 and BL 5002)	3.09	12.4	0.98	8.94	22.3	31.9	3.07
Swiss-Combi dryer system (D1801 and D1802)	32.5	32.5	0.4	17.2	69.9	57.1	1.15
Ethanol loading racks (EP-2210 and EP-2211)	-	-	-	8.44	4.65	2.79	0.31
Biomethanator (Insignificant)	0.07	0.07	12.1	0.13	1.84	0.73	0.08
Paved Roads (Insignificant)	12.1	2.36	-	-	-	-	-
Cooling Tower (Insignificant)	14.4	14.4	-	-	-	-	-
Diesel Fire Pump (Insignificant)	0.23	0.23	0.22	0.26	0.70	3.26	Negligible
Storage Tanks (Insignificant)	-	-	-	10.6	-	-	-
Equipment Leaks (Insignificant)	-	-	-	7.29	-	-	0.42
Wet Cake Storage*	-	-	-	See Note	-	-	See Note
Other Insignificant Activities	1.0	1.0	-	1.0	-	-	-
Total PTE of the Entire Source	93.1	79.9	13.7	96.5	99.4	95.8	15.9
Title V Thresholds	NA	100	100	100	100	100	25 for total HAPs; 10 for single HAP

Note: "-" pollutant not emitted by the facility.
* This plant is capable of producing both DDGS and MDGS; however, emissions from DDGS production have been determined to be the worst case scenario. Therefore, the PTE of wetcake storage is not included in the PTE for the entire source.

County Attainment Status

The source is located in Posey County.

Pollutant	Status
PM-10	Attainment
PM-2.5	Attainment or Unclassifiable
SO_2	Attainment
NO_2	Attainment
8-hour Ozone	Attainment
CO	Attainment
Lead	Attainment

Note: On August 7, 2006, a temporary emergency rule took effect revoking the one-hour ozone standard in Indiana. The Indiana Air Pollution Control Board has approved a permanent rule revision to incorporate this change into 326 IAC 1-4-1. A permanent revision to 326 IAC 1-4-1 will take effect prior to the expiration of the emergency rule.

(a) 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 and NOx emissions are considered when evaluating the rule applicability relating to ozone. Posey County has been designated as attainment or unclassifiable for ozone. Therefore, VOC and NOx

emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2.

(b) Posey County has been classified as attainment for PM2.5. 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 PM2.5 emissions, it has directed states to regulate PM10 emissions as a surrogate for PM2.5 emissions. See the State Rule Applicability – Entire Source section

(c) Posey County has been classified as attainment or unclassifiable in Indiana for all other criteria pollutants. Therefore, these emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2.

Source Status

New Source PSD Definition (emissions after controls, based on 8760 hours of operation per year at rated capacity and/or as otherwise limited):

Pollutant	Emissions (tons/yr)
PM	93.1
PM-10	79.4
SO_2	13.7
VOC	96.5
CO	99.4
NO_x	95.8

This new source is not a PSD major stationary source because no attainment regulated pollutant is emitted at a rate of one hundred (100) tons per year or greater and it is in one of the twenty-eight (28) listed source categories.

Federal Rule Applicability

(a) The two (2) boilers, identified as BL5001 and BL5002, are used to produce steam and each of them has a maximum heat input capacity greater than 100 MMBtu/hr and will be constructed after June 19, 1984. Therefore, they are both subject to the New Source Performance Standards for Industrial-Commercial-Institutional Steam Generating Units (326 IAC 12, 40 CFR 60.40b-49b, Subpart Db).

Nonapplicable portions of the NSPS will not be included in the permit. The proposed natural gas-fired boilers (BL5001 and BL5002) are subject to the following portions of 40 CFR 60, Subpart Db.

1. 40 CFR 60.40b
2. 40 CFR 60.41b
3. 40 CFR 60.44b(a), (h) and (i)
4. 40 CFR 60.46b(a)
5. 40 CFR 60.46b(c)
6. 40 CFR 60.46b(e)(1)
7. 40 CFR 60.48b(b)
8. 40 CFR 60.48b(b)(1)
9. 40 CFR 60.48b(c)
10. 40 CFR 60.48b(d)
11. 40 CFR 60.48b(e)(2)
12. 40 CFR 60.48b(f)
13. 40 CFR 60.48b(g)
14. 40 CFR 60.49(a)(1) and (3)
15. 40 CFR 60.49b(b)
16. 40 CFR 60.49b(c)
17. 40 CFR 60.49b(d)
18. 40 CFR 60.49b(g)(1-10)

19. 40 CFR 60.49b(v)
20. 40 CFR 60.49b(w)

The provisions of 40 CFR 60, Subpart A – General Provisions, which are incorporated as 326 IAC 12-1, apply to the gas-fired boilers (BL5001 and BL5002), except when otherwise specified in 40 CFR 60, Subpart Db.

(b) Tanks T2102, T2103, T2104, and T2105 have capacities greater than 151 cubic meters (39,890 gallons) and the stored liquids have vapor pressures greater than 5.2 kPa and less than 76.6 kPa. Therefore, these tanks are subject to the New Source Performance Standards for Volatile Organic Liquid Storage Vessels for which construction, reconstruction, or modification commenced after July 23, 1984 (326 IAC 12, 40 CFR 60.110b - 117b, Subpart Kb).

Nonapplicable portions of the NSPS will not be included in the permit. The Permittee has elected to install internal floating roofs with the fixed roof tanks T2102, T2103, T2104, and T2105. These tanks are subject to the following portions of 40 CFR 60, Subpart Kb.

(1) 40 CFR 60.110b
(2) 40 CFR 60.111b
(3) 40 CFR 60.112b(a)(1)
(4) 40 CFR 60.113b(a)
(5) 40 CFR 60.115b(a)
(6) 40 CFR 60.116b(a – e)

The provisions of 40 CFR 60 Subpart A – General Provisions, which are incorporated as 326 IAC 12, apply to T2102, T2103, T2104, and T2105, except when otherwise specified in 40 CFR 60, Subpart Kb.

The New Source Performance Standards for Volatile Organic Liquid Storage Vessels for which construction, reconstruction, or modification commenced after July 23, 1984 (326 IAC 12, 40 CFR 60.110b - 117b, Subpart Kb) are not included for storage vessels T2101, T2110, and T2111. Tanks T2101, T2110, and T2111 have capacities greater than 75 cubic meters (19,813 gallons) but less than 151 cubic meters (39,890 gallons) and the stored liquids have vapor pressures less than 15.0 kPa.

(c) Ethanol is one of the chemicals listed in 40 CFR 60.489. Therefore, this ethanol production plant is subject to the requirements of New Source Performance Standards for Volatile Organic Liquid Storage Vessels for Equipment Leaks of VOC in the Synthetic Organic Chemicals Manufacturing Industry (326 IAC 12, 40 CFR 60.480 - 489, Subpart VV).

Nonapplicable portions of the NSPS will not be included in the permit. Pumps, compressors, pressure relief devices, sampling connection systems, and valves are subject to the following portions of 40 CFR 60, Subpart VV.

(1) 40 CFR 60.480
(2) 40 CFR 60.481
(3) 40 CFR 60.482-2
(4) 40 CFR 60.482-3
(5) 40 CFR 60.482-4
(6) 40 CFR 60.482-5
(7) 40 CFR 60.482-6
(8) 40 CFR 60.482-7
(9) 40 CFR 60.482-8
(10) 40 CFR 60.482-9
(11) 40 CFR 60.482-10
(12) 40 CFR 60.483-1
(13) 40 CFR 60.483-2
(14) 40 CFR 60.485

(15) 40 CFR 60.486
(16) 40 CFR 60.487

(d) The requirements of New Source Performance Standards for Subpart XX, Standards of Performance for Bulk Gasoline Terminals (326 IAC 12, 40 CFR 60.500 - 506, Subpart XX) are not included in this permit for the ethanol and E85 loading rack for trucks, identified as EP-2210. The loading rack is not considered a bulk gasoline terminal as defined in 40 CFR 60.501.

(e) The diesel fired stationary fire pump, identified as EP-1075, will commence construction after July 11, 2005 and was manufactured as a certified National Fire Protection Association (NFPA) fire pump engine after July 1, 2006. Therefore, the fire pump, identified as EP-1075, is subject to the New Source Performance Standards for Stationary Compression Ignition Internal Combustion Engines (326 IAC 12, 40 CFR 60.4200 - 4209, Subpart IIII).

Nonapplicable portions of the NSPS will not be included in the permit. The proposed fire pump (EP-1075) is subject to the following portions of 40 CFR 60, Subpart IIII

(1) 40 CFR 60.4200(a)(2)
(2) 40 CFR 60.4200(a)(3)
(3) 40 CFR 60.4200(b)
(4) 40 CFR 60.4205(c)
(5) 40 CFR 60.4206
(6) 40 CFR 60.4207(b)
(7) 40 CFR 60.4207(c)
(8) 40 CFR 60.4208
(9) 40 CFR 60.4209(a)
(10) 40 CFR 60.4211(a)
(11) 40 CFR 60.4211(b)
(12) 40 CFR 60.4211(e)
(13) 40 CFR 60.4212
(14) 40 CFR 60.4214(b)
(15) 40 CFR 60.4218
(16) 40 CFR 60.4219

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.

(f) Ethanol is one of the chemicals listed in 40 CFR 60.667. However, according to the EPA memo from Mr. George T. Czerniak dated December 6, 2002, creation of ethanol by fermentation process (biological synthesis) is excluded from the scope of NSPS, Subpart NNN. Therefore, the distillation unit at this new ethanol production plant is not subject to the requirements of New Source Performance Standards for Volatile Organic Liquid Storage Vessels VOC Emissions From Synthetic Organic Chemical Manufacturing Industry (SOCMI) Distillation Operations (326 IAC 12, 40 CFR 60.660 - 667, Subpart NNN).

(g) This source does not have a grain elevator with a permanent storage capacity greater than 2.5 million bushels. Therefore, the requirements of the New Source Performance Standards for Grain Elevators (326 IAC 12, 40 CFR 60.300-304, Subpart DD) are not included in this permit.

(h) There are no National Emission Standards for Hazardous Air Pollutants (NESHAPs) (326 IAC 14 and 20, and 40 CFR Part 61 and 63) applicable to this source:

(1) The requirements of the National Emission Standards for Hazardous Air Pollutants - Industrial/Commercial/Institutional Boilers and Process Heaters (40 CFR 63, Subpart DDDDD) are not included in this permit for the two (2) boilers,

identified as BL5001 and BL5002. The compliance date for this rule for a new or reconstructed boiler or process heater is November 12, 2004 or upon startup of your boiler or process heater, whichever is later. However, the source has accepted federally enforceable limits prior to constructing these three boilers such that HAP emissions from the entire source are less than ten (10) tons per year for a single HAP and less than twenty-five (25) tons per year for total combined HAPs.

(2) The requirements 40 CFR 63, Subpart F, G, and H – National Emission Standards for Organic Hazardous Air Pollutants from the Synthetic Organic Chemical Manufacturing Industry are not included in this permit for the ethanol production plant. To be subject to the requirements of these NESHAP, this source must consist of chemical manufacturing process units that meet all of the criteria in 40 CFR 63.100(b)(1), (b)(2) and (b)(3). The source does not produce synthetic organic chemicals as an intermediate or final product, as listed in Table 1 of 40 CFR 63, Subpart F or in 40 CFR 63.100(b)(1)(i) and (b)(1)(ii).

(3) The requirements of 40 CFR 63, Subpart I – National Emission Standards for Organic Hazardous Air Pollutants for Certain Processes Subject to the Negotiated Regulation for Equipment Leaks are not included in this permit for the ethanol production plant because this source does not manufacture any of the materials listed in 40 CFR 63.190(b)(1) through (b)(6).

(4) This source will limit HAP emissions from the entire source to less than 10 tons/yr for a single HAP and less than 25 tons/yr for total HAPs. Therefore, the requirements of National Emission Standards for Hazardous Air Pollutants for Reciprocating Internal Combustion Engines (40 CFR 63, Subpart ZZZZ) are not included in this permit.

(5) This source has accepted limits that make it a minor source of hazardous air pollutants. Therefore, the requirements for the NESHAP for Industrial Process Cooling Towers (40 CFR 63, Subpart Q) are not included in this permit.

(6) This source has accepted limits that make it a minor source of hazardous air pollutants. Therefore, the requirements of the NESHAP for Organic Liquids Distribution (non-gasoline) (40 CFR 63, Subpart EEEE) are not included in this permit.

(7) This source has accepted limits that make it a minor source of hazardous air pollutants. Therefore, the requirements of the NESHAP for Miscellaneous Organic Chemical Manufacturing (40 CFR 63, Subpart FFFF) are not included in this permit.

State Rule Applicability – Entire Source

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

The source will be approved for construction in 2007. The source is in one of the twenty-eight (28) source categories as defined in 326 IAC 2-2-1 and the potential to emit PM, PM10, VOC, CO, and NOx from the entire source before control is greater than one hundred (100) tons/yr.

In order to make the requirement of 326 IAC 2-2 (PSD) not applicable, the source shall comply with the following emission limitations:

(a) The PM emissions from the grain receiving, handling, and load-out operations shall not exceed the emission limits listed in the table below:

Unit Description	Baghouse ID	PM Emission Limit (lbs/hr)
Grain Receiving (EP1101)	CE1101	1.41
Hammermill A (EP2001)	CE2001	0.28
Hammermill B (EP2002)	CE2002	0.28
Hammermill C (EP2003)	CE2003	0.28
DDGS Loadout (EP1102)	CE1102	0.17

This is equivalent to 10.6 tons/yr of PM emissions. The source will use baghouses to ensure compliance with the PM limits above. With baghouse control, the source is capable of complying with these limits.

(b) The PM emissions from the Swiss Combi Dryer Systems, identified as D1801 and D1802 shall each not exceed 3.71 lbs/hr. This is equivalent to 32.5 tons/yr of PM emissions from the Swiss Combi Dryer Systems.

(c) The Permittee shall use periodic sweeping to control PM emissions from the paved roads. The sweeping shall be performed in a manner and at a frequency sufficient to ensure compliance with 326 IAC 2-2.

Combined with the PM emissions from the boilers, the flares used to control the ethanol loading racks, grain receiving/loadout fugitives, biomethanator, and other insignificant activities at this source, the PM emissions from the entire source are limited to less than one hundred (100) tons/yr.

The source also accepted limits on the throughput and on the emission rates of PM10, VOC, CO, and NOx, which limit emissions of all regulated pollutants from the entire source to less than one hundred (100) tons/yr (see the discussion of 326 IAC 2-8-4 below). Therefore, the requirements of 326 IAC 2-2 are not applicable.

326 IAC 2-4.1 (New Sources of Hazardous Air Pollutants)

The source accepted FESOP limits on the HAP emissions from the entire source, which limits the emissions from the source to less ten (10) tons per year for a single HAP and less than twenty-five (25) tons per year for any combination of HAPs (see the discussion of 326 IAC 2-8-4 below). Therefore, the requirements of 326 IAC 2-4.1 are not applicable.

326 IAC 2-8-4 (FESOP)

The potential to emit PM10, VOC, CO, and NOx, before controls, for the entire source is greater than one hundred (100) tons/yr. In addition, the potential to emit HAP before control from this source is greater than ten (10) tons per year for a single HAP (Acetaldehyde, Acrolein, Formaldehyde, and Methanol) and greater than twenty-five (25) tons per year for total HAPs. Pursuant to 326 IAC 2-8-4 (FESOP), the source shall comply with the following:

(a) The PM10 emissions from the grain receiving, handling, and load-out operations shall not exceed the emission limits listed in the table below:

Unit Description	Baghouse ID	PM10 Emission Limit (lbs/hr)
Grain Receiving (EP1101)	CE1101	1.41
Hammermill A (EP2001)	CE2001	0.28
Hammermill B (EP2002)	CE2002	0.28
Hammermill C (EP2003)	CE2003	0.28
DDGS Loadout (EP1102)	CE1102	0.17

This is equivalent to 10.6 tons/yr of PM10 emissions. The source will use baghouses to ensure compliance with the PM10 limits above. With baghouse control, the source is capable of complying with these limits.

(b) The total grain received by grain receiving (EP1101) shall not exceed 1,000,000 tons per twelve (12) consecutive month period with compliance determined at the end of each month.

(c) The total DDGS loadout shall not exceed 325,000 tons per twelve (12) consecutive month period with compliance determined at the end of each month.

(d) The Permittee shall use periodic sweeping to control PM and PM10 emissions from the paved roads. The sweeping shall be performed in a manner and at a frequency sufficient to ensure compliance with 326 IAC 2-8.

(e) The emissions from the Pre-Fermentation Scrubber (CE1400) shall not exceed the following:

(1) VOC emissions shall not exceed 2.68 lbs/hr. This is equivalent to 11.7 tons/yr of VOC emissions.

(2) Total HAP emissions shall not exceed 0.69 lbs/hr. This is equivalent to 3.01 tons/yr. Acetaldehyde emissions shall not exceed 0.59 lbs/hr, which is equivalent to 2.56 tons/yr of emissions.

(f) The emissions from the Fermentation Scrubber (CE1401) shall not exceed the following:

(1) VOC emissions shall not exceed 5.53 lbs/hr. This is equivalent to 24.2 tons/yr of VOC emissions.

(2) Total HAP emissions shall not exceed 1.09 lbs/hr. This is equivalent to 4.78 tons/yr. Acetaldehyde emissions shall not exceed 0.76 lbs/hr, which is equivalent to 3.33 tons/yr of emissions.

(g) The emissions from the Distillation Scrubber (CE1504) shall not exceed the following:

(1) VOC emissions shall not exceed 1.3 lbs/hr. This is equivalent to 5.67 tons/yr of VOC emissions.

(2) Total HAP emissions shall not exceed 0.69 lbs/hr. This is equivalent to 3.04 tons/yr. Acetaldehyde emissions shall not exceed 0.64 lbs/hr, which is equivalent to 2.81 tons/yr of emissions.

(h) The emissions from the Swiss Combi Dryer Systems (D1801 and D1802), which are used to control emissions from DDGS drying and cooling, shall not exceed the following:

(1) PM/PM10 emissions shall not exceed 3.71 lbs/hr for each stack (S-500 and S-501). This is equivalent to 32.5 tons/yr of PM emissions.

(2) VOC emissions shall not exceed 1.96 lbs/hr for each stack (S-500 and S-501). This is equivalent to 17.2 tons/yr of VOC emissions.

(3) CO emissions shall not exceed 7.97 lbs/hr for each stack (S-500 and S-501). This is equivalent to 69.9 tons/yr of CO emissions.

(4) SO_2 emissions shall not exceed 0.046 lbs/hr for each stack (S-500 and S-501). This is equivalent to 0.40 tons/yr of SO2 emissions.

(5) NO_x emissions shall not exceed 6.52 lbs/hr for each stack (S-500 and S-501). This is equivalent to 57.1 tons/yr of NOx emissions.

(6) Acetaldehyde emissions shall not exceed 0.037 lbs/hr for each stack (S-500 and S-501). This is equivalent to 0.15 tons/yr of Acetaldehyde emissions.

(7) Total HAP emissions shall not exceed 0.29 lbs/hr for each stack (S-500 and S-501). This is equivalent to 1.15 tons/yr of HAP emissions.

(g) The Permittee shall comply with the following requirements for the ethanol loading racks (EP-2210 and EP-2211):

(1) The combined total denatured ethanol and E85 load-out rate shall not exceed 135,700,000 gallons per twelve (12) consecutive month period with compliance determined at the end of each month.

(2) The Permittee shall use a flare identified as EP-2210 to control the emissions from ethanol loading to trucks and railcars.

(A) CO emissions from EP-2210 shall not exceed 0.63 lbs/hr.

(B) NOx emissions from EP-2210 shall not exceed 0.38 lbs/hr.

(3) The Permittee shall use a flare identified as EP-2211 to control the emissions from ethanol loading to barges.

(A) The operation of EP-2211 shall be limited to 2000 operating hours per twelve (12) consecutive month period with compliance determined at the end of each month.

(B) CO emissions from EP-2211 shall not exceed 0.43 lbs/hr.

(C) NOx emissions from EP-2211 shall not exceed 0.26 lbs/hr.

(4) The ethanol loading racks shall utilize submerged loading methods.

(5) The railcars, trucks, and barges shall not use vapor balance services.

(h) The Permittee shall comply with the following requirements for the boilers, identified as BL5001 and BL5002:

(1) The boilers shall only burn natural gas.

(2) The input of natural gas to the boilers shall be limited to 3252.4 MMCF per twelve (12) consecutive month period, with compliance determined at the end of each month.

(3) NOx emissions shall not exceed 19.6 pounds per MMCF.

(4) Total NOx emissions from the boilers shall be limited to 31.9 tons per year.

(5) CO emissions shall not exceed 13.7 pounds per MMCF.

(6) Total CO emissions from the boilers shall be limited to 22.3 tons per year.

(i) The operating hours for the diesel fired stationary fire pump, identified as EP-1075, shall not exceed 500 hours per twelve (12) consecutive month period with compliance determined at the end of each month.

(j) The Permittee shall comply with the following requirements for the biomethanator flare, identified as CE-7001:

(1) The input of biogas to the biomethanator flare shall be limited to 24.3 MMCF per twelve (12) consecutive month period, with compliance determined at the end of each month.

(2) CO emissions shall not exceed 152 pounds per MMCF. This is equivalent to 1.84 tons/yr of CO emissions.

Combined with the PM10, VOC, CO, NOx, and HAP emissions from insignificant emission units, the emissions from the entire source are limited to less than one hundred (100) tons/yr for PM10, VOC, CO and NOx, and less than ten (10) tons/yr for a single HAP and less than twenty-five (25) tons/yr total HAPs. Therefore, the requirements of 326 IAC 2-7 (Part 70 Program) and 326 IAC 2-2 (PSD) are not applicable.

326 IAC 2-6 (Emission Reporting)

This source is located in Posey County, is not required to operate under a Part 70 permit, and emits less than 5 tons per year of lead. Therefore, the requirements of 326 IAC 2-6 are not applicable to this source.

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 for sources 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.

326 IAC 6-4 (Fugitive Dust Emissions)

Pursuant to 326 IAC 6-4, the source shall not generate fugitive dust to the extent that some portion of the material escapes beyond the property line or boundaries of the property, right-of-way, or easement on which the source is located.

326 IAC 6-5 (Fugitive Particulate Emissions Limitations)

The potential fugitive particulate emissions, as defined in 326 IAC 6-5-2, from the paved roads at this source are less than 25 tons/yr. Therefore, the requirements of 326 IAC 6-5 are not applicable.

State Rule Applicability - Grain Receiving and Handling Operations

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

Pursuant to 326 IAC 6-3-2, particulate emissions from each of the following operations shall not exceed the pound per hour limit listed in the table below:

Emission Unit	Max. Throughput Rate (tons/hr)	Particulate Emission Limit (lbs/hr)
Grain Receiving (EP1101)	560	70.3
Hammermill A (EP2001)	42	42.9
Hammermill B (EP2002)	42	42.9
Hammermill C (EP2003)	42	42.9
DDGS Loadout (EP1102)	200	58.5

The pounds per hour limitations were calculated using the following equation:

Interpolation of the data for the process weight rate in excess of sixty thousand (60,000) pounds per hour shall be accomplished by use of the equation:

$E = 55.0\ P^{0.11} - 40$ where E = rate of emission in pounds per hour; and
P = process weight rate in tons per hour

Pursuant to 326 IAC 6-3-2(e)(3), when the process weight exceeds 200 tons per hour, the maximum allowable emission may exceed the emission limits shown in the table above, provided

the concentration of particulate matter in the gas discharged to the atmosphere is less than 0.10 pounds per 1,000 pounds of gases.

According to the emission calculations (see Appendix A), the potential to emit PM before control from the hammermills and DDGS loadout is less than the emission limit shown above; therefore these operations are in compliance with 326 IAC 6-3-2. The potential to emit PM after control from the grain receiving operation is less than the emission limit above. Therefore, the use of the baghouse EP1101 is necessary to ensure compliance with the grain receiving operation limit above.

State Rule Applicability – Boilers

326 IAC 6-2-4 (PM Emissions for Sources of Indirect Heating)

Pursuant to 326 IAC 6-2-4(a), indirect heating facilities constructed after September 12, 1983, shall be limited by the following equation:

$$Pt = \frac{1.09}{Q^{0.26}}$$

Where Pt = PM emission rate limit (lbs/MMBtu)
Q = total source heat input capacity (MMBtu/hr)

The total source heat input capacity is 182 + 182 = 364 MMBtu/hr. Therefore, the PM emission limit for each of the boilers identified as BL5001 and BL5002 is calculated as follows:

$$Pt = \frac{1.09}{364^{0.26}} = 0.235 \text{ lbs/MMBtu.}$$

A PM emission limit of 0.235 lbs/MMBtu is equivalent to 42.8 lbs/hr (0.235 lbs/MMBtu x 182 MMBtu/hr = 42.8 lbs/hr) of PM emissions from each of the boilers identified as BL5001 and BL5002. According to the emission calculations in Appendix A, the total PM emissions from BL5001 and BL5002 is 0.71 lbs/hr. Therefore, the boilers are capable of complying with the PM requirements in 326 IAC 6-2-4.

State Rule Applicability – Fermentation and Distillation Processes

326 IAC 8-1-6 (General Reduction Requirements for VOC Emissions)

The fermentation and distillation processes will be constructed after January 1, 1980 and have potential VOC emissions greater than twenty-five (25) tons per year. Therefore, these processes are subject to 326 IAC 8-1-6 and the Permittee is required to control VOC emissions through the use of Best Available Control Technology (BACT). According to the BACT analysis in Appendix B, the BACT for these processes have been determined to be the following:

(a) The VOC emissions from the fermentation and distillation processes shall be controlled by wet scrubbers, identified as CE1400, CE1401, and CE1504.

(b) The VOC control efficiency for each of the wet scrubbers, identified as CE1400, CE1401, and CE1504 shall be at least 99%, or the VOC outlet concentration shall not exceed 10 ppmv.

(c) The VOC emissions from the wet scrubber stack S-1400 shall not exceed 2.68 lbs/hr.

(d) The VOC emissions from the wet scrubber stack S-1401 shall not exceed 5.53 lbs/hr.

(e) The VOC emissions from the wet scrubber stack S-1504 shall not exceed 1.30 lbs/hr.

State Rule Applicability – DDGS Drying and Cooling Systems

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

Pursuant to 326 IAC 6-3-2, particulate emissions from each of the Swiss Combi Dryer Systems (D1801 and D1802) shall not exceed the pound per hour limits listed in the table below:

Emission Unit	Max. Throughput Rate (tons/hr)	Particulate Emission Limit (lbs/hr)
D1801	20.0	30.5
D1802	20.0	30.5

The pounds per hour limitations were calculated using the following equation:

Interpolation of the data for the process weight rate up to sixty thousand (60,000) pounds per hour shall be accomplished by use of the equation:

$E = 4.10\ P^{0.67}$ where E = rate of emission in pounds per hour and
P = process weight rate in tons per hour

The use of the closed steam loop thermal oxidation systems (D1801 and D1802) are necessary to ensure compliance with the emission limits above.

326 IAC 8-1-6 (General Reduction Requirements for VOC Emissions)

The Swiss Combi Dryer Systems (D1801 and D1802) will be constructed after January 1, 1980 and have potential VOC emissions greater than 25 tons per year. There are no other rules in 326 IAC 8 applicable to this process. Therefore, these dryer systems are subject to 326 IAC 8-1-6 and the Permittee is required to control VOC emissions from this process using the Best Available Control Technology (BACT). Based on the information in Appendix B, BACT for this process has been determined to be the following:

(a) The VOC emissions from the Swiss Combi Dryer Systems (D1801 and D1802) shall be controlled by thermal oxidation.

(b) The overall efficiency for the Swiss Combi Dryer Systems, identified as D1801 and D1802, (including the capture efficiency and destruction efficiency) shall be at least 98%, or the VOC outlet concentration shall not exceed 10 ppmv.

(c) The total VOC emissions from each of the thermal oxidation systems stacks (S-1801 and S-1802) shall not exceed 1.97 lbs/hr.

State Rule Applicability – Ethanol Loading Racks (Ethanol Truck Loadout and Ethanol Rail Loadout)

326 IAC 8-1-6 (General Reduction Requirements for VOC Emissions)

The ethanol loading racks at this source will be constructed after January 1, 1980 and have potential VOC emissions greater than 25 tons per year. There are no other rules in 326 IAC 8 applicable to these ethanol loading racks. Therefore, these ethanol loading racks are subject to 326 IAC 8-1-6 and the Permittee is required to control VOC emissions with the Best Available Control Technology (BACT). Based on the information provided in Appendix B, BACT for the ethanol loading racks has been determined to be the following:

(a) The VOC emissions from the ethanol loading racks shall be collected and controlled by the two flares identified as CE-2210 and CE-2211.

(b) The overall efficiency for each flare identified as CE-2210 and CE-2211 (including the capture efficiency and destruction efficiency) shall be at least 98%.

(c) The VOC emissions from the enclosed flare identified as CE-2210 shall not exceed 8.96 lbs/hr. This limit was calculated based on the VOC emission factor of 6.22 lbs/kgal, the

maximum loadout rate of railcars of 72 kgal/hr, and the flare control efficiency of 98% (6.22 lbs/kgal x 72 kgal/hr x (1-98%) = 8.96 lbs/hr). The VOC emission factor of 6.22 lbs/kgal was calculated using the equation in AP-42, Chapter 5.2 (see the emission calculations in Appendix A).

(d) The VOC emissions from the enclosed flare identified as CE-2211 shall not exceed 9.36 lbs/hr. This limit was calculated based on the VOC emission factor of 3.9 lbs/kgal, the maximum loadout rate of 120 kgal/hr, and the flare control efficiency of 98% (3.9 lbs/kgal x 120 kgal/hr x (1-98%) = 9.36 lbs/hr). The VOC emission factor of 3.9 lbs/kgal is calculated from AP-42, Section 5.2.2 - Loading Losses, Table 5.2-2.

State Rule Applicability - Cooling Tower (Insignificant Activity)

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

Pursuant to 326 IAC 6-3-1(b)(11), particulate emissions from the noncontact cooling tower systems are exempt from the requirements of 326 IAC 6-3.

State Rule Applicability – Storage Tanks (Insignificant Activities)

326 IAC 8-4-3 (Petroleum Liquid Storage Facilities)

The denaturant storage tank (T2104) has a maximum capacity greater than 39,000 gallons and will be used to store gasoline which has a vapor pressure greater than 1.52 psi. Therefore, this tank is subject to the requirements of 326 IAC 8-4-3. T2104 will be equipped with an internal floating roof.

(a) Pursuant to 326 IAC 8-4-3(b)(1)(B), the denaturant storage tank (T2104) shall be maintained such that there are no visible holes, tears, or other openings in the seal or any seal fabric or materials.

(b) Pursuant to 326 IAC 8-4-3(b)(1)(C), all openings, except stub drains, are equipped with covers, lids, or seals such that:

(1) The cover, lid or seal in the closed potion at all times except when in actual use;

(2) Automatic bleeder vents are closed at all times except when the roof is floated off or landed on the roof leg supports;

(3) Rim vents, if provided, are set to open when the roof is being floated off the roof leg supports or at the manufacturer's recommended setting.

(c) Pursuant to 326 IAC 8-4-3(d), the Permittee shall maintain the following records for a period of two (2) years for the denaturant storage tank (T2104):

(1) The types of volatile petroleum liquid stored;

(2) The maximum true vapor pressure of the liquids as stored; and

(3) The results of the inspections performed on the storage vessel.

The above records shall be made available to the IDEM, OAQ upon written request. All other tanks located at the source will not be used to store petroleum. Therefore, these tanks are not subject to requirements of 326 IAC 8-4-3.

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

The source is not located in Clark, Floyd, Lake, or Porter County. Therefore, the requirements of 326 IAC 8-9-1 are not applicable to the tanks at this source.

State Rule Applicability – Diesel Fire Pump (Insignificant Activity)

326 IAC 9-1-2 (Carbon Monoxide Emission Requirements)

This source is not among the listed source categories in 326 IAC 9-1-2. Therefore, the diesel fire pump (EP-1075) is not subject to the requirements of 326 IAC 9-1-2.

326 IAC 10-1 (Nitrogen Oxide Emission Requirements)

This source is not located in Clark or Floyd County. Therefore, the diesel fire pump (EP-1075) is not subject to the requirements of 326 IAC 10-1.

Testing Requirements

In order to demonstrate compliance with the FESOP, PSD minor limits, and 40 CFR 60, Subpart Db, the Permittee shall perform the following tests within 60 days after achieving the maximum capacity but not later than 180 days after initial startup of the ethanol production plant:

(a) PM and PM10 tests for baghouses CE1101 and CE1102, which are used to control the particulate emissions from emission units identified as Grain Receiving and DDGS Loadout.

(b) PM and PM10 tests for one of the baghouses CE2001, CE2002, and CE2003, which are used to control the particulate emissions from emission units identified as EP2001, EP2002, and EP2003.

(c) VOC and Acetaldehyde tests for the scrubbers identified as CE1400, CE1401, and CE1504. These scrubbers are used to control the emissions from the fermentation and distillation processes.

(d) NOx and CO emissions from one of the boilers identified as BL5001 and 5002. The boilers must be tested at worse case scenario for each pollutant. For example, the boiler supplier provided CO emission rates for natural gas combustion which vary depending upon the operating load for the unit. The anticipated emission rate is 0.04 lb/mmBtu whenever the boiler operates above 50% load and 0.11 lb/mmBtu if it is operating less than 50% load. At maximum load, hourly CO emissions are 2.18 lb/hr and at 50% load emissions are 3.00 pounds per hour. Therefore, the low load emission factor represents the worst case emission rate.

(e) PM, PM10, VOC (including emission rate, destruction efficiency, and capture efficiency), NOx, CO, and Acetaldehyde emissions from each of the thermal oxidizer stacks (S-1801 and S-1802). The thermal oxidizer system is used to control the emissions from the DDGS dryers.

(f) VOC, NOx, and CO emissions from the enclosed flares identified as CE-2210 and CE-2211, which are used to control the emissions from the ethanol loading racks.

These tests shall be repeated at least once every five (5) years from the date of the last valid compliance demonstration.

Compliance Requirements

Permits issued under 326 IAC 2-8 are required to ensure that sources can demonstrate compliance with applicable state and federal rules on a more or less continuous basis. All state and federal rules contain compliance provisions, however, these provisions do not always fulfill the requirement for a more or less 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 requirements are divided into two sections: Compliance Determination Requirements and Compliance Monitoring Requirements.

Compliance Determination Requirements in Section D of the permit are those conditions that are found more or less directly within state and federal rules and the violation of which serves as

grounds for enforcement action. If these conditions 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 approporiate corrective actions within a specific time period.

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

1. The grain receiving operations (EP1101), Hammermill (EP2001, EP2002, and EP2003) and DDGS handling and loadout operations (EP1102) have applicable compliance monitoring conditions as specified below. These units are controlled by baghouses CE1101, CE2001, CE2002, CE2003, and CE1102.

   Visible Emissions Notations

   (a) Visible emission notations of the baghouse stack exhausts (stacks S-1101, S-2001, S-2002, S-2003, and S-1102) shall be performed once per day during normal daylight operations. A trained employee or a trained contractor 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 or contractor is a person who has worked or trained 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 Excursions or Exceedances. Failure to take response steps in accordance with Section C - Response to Excursions or Exceedances shall be considered a deviation from this permit.

   Parametric Monitoring

   (f) The Permittee shall record the pressure drop across the baghouses used in conjunction with the grain receiving operations (EP1101), Hammermill (EP2001, EP2002, and EP2003) and DDGS handling and loadout operations (EP1102), at least once per day when these units are in operation. When for any one reading, the pressure drop across the baghouse is outside the normal range of 1.0 to 6.0 inches of water or a range established during the latest stack test, the Permittee shall take reasonable response steps in accordance with Section C - Response to Excursions or Exceedances. A pressure reading that is outside the above mentioned range is not a deviation from this permit. Failure to take response steps in accordance with Section C - Response to Excursions or Exceedances shall be considered a deviation from this permit.

   (g) The instrument used for determining the pressure shall comply with Section C - Instrument Specifications, of this permit, shall be subject to approval by IDEM, OAQ and shall be calibrated at least once every six (6) months.

   (h) In the event that bag failure has been observed:

      (1) For a single compartment baghouse controlling emissions from a process operated continuously, a failed unit and the associated process shall be shut down immediately until the failed unit has been repaired or

replaced. Operations may continue only if the event qualifies as an emergency and the Permittee satisfies the requirements of the emergency provisions of this permit (Section B - Emergency Provisions).

(2) For a single compartment baghouse controlling emissions from a batch process, the feed to the process shall be shut down immediately until the failed unit has been repaired or replaced. The emissions unit shall be shut down no later than the completion of the processing of the material in the line. Operations may continue only if the event qualifies as an emergency and the Permittee satisfies the requirements of the emergency provisions of this permit (Section B - Emergency Provisions).

Bag failure can be indicated by a significant drop in the baghouse's pressure reading with abnormal visible emissions, by an opacity violation, or by other means such as gas temperature, flow rate, air infiltration, leaks, dust traces or triboflows.

These monitoring conditions are necessary because the baghouses controlling grain receiving operations (EP1101), Hammermill (EP2001, EP2002, and EP2003) and DDGS handling and loadout operations (EP1102), must operate properly to ensure compliance with 326 IAC 2-2 (PSD), 326 IAC 2-8 (FESOP), and 326 IAC 6-3-2 (Particulate Emission Limitations for Manufacturing Processes).

2. The fermentation and distillation processes, which are controlled by wet scrubbers, identified as CE1400, CE1401, and CE1504 have applicable compliance monitoring conditions as specified below:

<u>Visible Emissions Notations</u>

(a) Visible emission notations of the stack exhaust from the wet scrubber stacks (S-1400, S-1401, and S-1504) shall be performed once per day during normal daylight operations when exhausting to the atmosphere. 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 Excursions or Exceedances. Failure to take response steps in accordance with Section C - Response to Excursions or Exceedances shall be considered a deviation from this permit.

<u>Parametric Monitoring</u>

(f) The Permittee shall monitor and record the pressure drop and the flow rate of the scrubbers CE1400, and CE1401 when the fermentation process is in operation, and CE1504 when the distillation process is in operation, at least once per day. When for any one reading, the pressure drop across the scrubber is outside the normal range of 1.0 and 6.0 inches of water, or a range established during the latest stack test, the Permittee shall take reasonable response steps in accordance with Section C - Response to Excursions or Exceedances. When for any one reading, the flow rate of the scrubber is less than the normal minimum of

10.7 gallons per minute, or a minimum established during the latest stack test, the Permittee shall take reasonable response steps in accordance with Section C - Response to Excursions or Exceedances. A pressure reading that is outside the above mentioned range or a flow rate that is below the above mentioned minimum is not a deviation from this permit. Failure to take response steps in accordance with Section C - Response to Excursions or Exceedances shall be considered a deviation from this permit. The instruments used for determining the pressure drop and flow rate shall comply with Section C - Instrument Specifications, of this permit, shall be subject to approval by IDEM, OAQ, and shall be calibrated at least once every six (6) months.

(g) In the event that a scrubber malfunction has been observed:

Failed units and the associated process will be shut down immediately until the failed units have been repaired or replaced. Operations may continue only if the event qualifies as an emergency and the Permittee satisfies the requirements of the emergency provisions of this permit (Section B - Emergency Provisions). Failure to take response steps in accordance with Section C - Response to Excursions or Exceedances shall be considered a deviation from this permit.

These monitoring conditions are necessary because the wet scrubbers (CE1400, CE1401, and CE1504) must operate properly at all times the fermentation and distillation processes are in operation to ensure compliance with 326 IAC 2-2 (PSD), 326 IAC 2-8-4 (FESOP), 326 IAC 8-1-6 (BACT), and 326 IAC 6-3-2 (Particulate Emission Limitations for Manufacturing Processes).

3. The DDGS dryer and cooling processes, which are controlled by two thermal oxidizer systems (D1801 and D1802), have applicable compliance monitoring conditions as specified below:

<u>Visible Emissions Notations</u>

(a) Visible emission notations of the stack exhaust from the thermal oxidizers (stacks S-1801 and S-1802) shall be performed once per day during normal daylight operations when exhausting to the atmosphere. 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 Excursions or Exceedances. Failure to take response steps in accordance with Section C - Response to Excursions or Exceedances shall be considered a deviation from this permit.

<u>Parametric Monitoring</u>

(f) A continuous monitoring system shall be calibrated, maintained, and operated on the thermal oxidizers (D1801 and D1802) for measuring operating temperature. For the purpose of this condition, continuous means no less than once per minute. The output of this system shall be recorded as a 3-hour average. From the date of issuance of this permit until the approved stack test results are

available, the Permittee shall operate the thermal oxidizers at or above the 3-hour average temperature of 1,400°F.

(g) The Permittee shall determine the 3-hour average temperature from the most recent valid stack test that demonstrates compliance with limits in this permit, as approved by IDEM.

(h) On and after the date the approved stack test results are available, the Permittee shall operate the thermal oxidizers at or above the 3-hour average temperature as observed during the compliant stack test.

(i) The Permittee shall determine fan amperage or duct pressure from the most recent valid stack test that demonstrates compliance with limits in this permit, as approved by IDEM, OAQ.

(j) The duct pressure or fan amperage shall be observed at least once per day when the thermal oxidizer is in operation. On and after the date the approved stack test results are available, the duct pressure or fan amperage shall be maintained within the normal range as established in most recent compliant stack test.

These monitoring conditions are necessary because the thermal oxidizers (D1801 and D1802) must operate properly at all times the fermentation and distillation processes are in operation to ensure compliance with 326 IAC 2-2 (PSD), 326 IAC 2-8-4 (FESOP), 326 IAC 8-1-6 (BACT), and 326 IAC 6-3-2 (Particulate Emission Limitations for Manufacturing Processes).

4. The ethanol loading racks, which are controlled by the enclosed flares identified as EP-2210 and EP-2211, has applicable compliance monitoring conditions as specified below:

The presence of a flare flame shall be monitored using a thermocouple or any other equivalent device to detect the presence of a flame.

These monitoring conditions are necessary because the enclosed flares identified as EP-2210 and EP-2211 must operate properly at all times that the ethanol loading system is in operation to ensure compliance with 326 IAC 2-2 (PSD), 326 IAC 2-8-4 (FESOP), and 326 IAC 8-1-6 (BACT).

Conclusion

The construction and operation of this ethanol production plant shall be subject to the conditions of FESOP 129-23484-00050.

Mail to: Permit Administration & Development Section
Office of Air Quality
100 North Senate Avenue
Indianapolis, Indiana 46204-2251

Abengoa Bioenergy of Indiana
1400 Elbridge Payne, Suite 212
Chesterfield, Missouri 63017

Affidavit of Construction

I, _____, being duly sworn upon my oath, depose and say:
(Name of the Authorized Representative)

1. I live in _____ County, Indiana and being of sound mind and over twenty-one (21) years of age, I am competent to give this affidavit.

2. I hold the position of _____ for _____.
(Title) (Company Name)

3. By virtue of my position with _____, I have personal
(Company Name)

knowledge of the representations contained in this affidavit and am authorized to make

these representations on behalf of _____ .
(Company Name)

4. I hereby certify that Abengoa Bioenergy of Indiana, West Franklin Road and Darnell School Road, West Franklin, Indiana 47620, completed construction of the ethanol production plant on _____in conformity with the requirements and intent of the construction permit application received by the Office of Air Quality on August 9, 2006 and as permitted pursuant to New Source Construction Federally Enforceable State Operating Permit No. 129-23484-00050, Plant ID No. 129-00050 issued on _____.

Further Affiant said not.
I affirm under penalties of perjury that the representations contained in this affidavit are true, to the best of my information and belief.

Signature_____

Date_____

STATE OF INDIANA)
)SS

COUNTY OF _____)

Subscribed and sworn to me, a notary public in and for _____ County and State of

Indiana on this _____ day of _____, 20 _____ .

My Commission expires:

Signature_____

_____
Name (typed or printed)

Appendix A: Emission Calculations
Natural Gas Combustion Only
MMBTU/HR>100
(BL5001 and BL5002)
(182 MMBtu/hr each)

Company Name: Abengoa Bioenergy of Indiana, LLC
Address: West Franklin Rd and Darnell School Rd, West Franklin, Indiana
FESOP: F129-23484-00050
Reviewer: ERG/JR
Date: August 29, 2006

Heat Input Capacity MMBtu/hr		Potential Throughput MMCF/yr
364.0	(182 MMBtu/hr each)	3252.4

	Pollutant					
	PM*	PM10*	SO2*	NO_x**	VOC*	CO**
Emission Factor	1.9	7.6	0.6	0.02	5.5	0.014
Units	lb/MMCF	lb/MMCF	lb/MMCF	lb/MMBtu	lb/MMCF	lb/MMBtu
Potential Emission in tons/yr	3.09	12.4	0.98	31.9	8.94	22.3

* Emission factors from Fifth Edition AP-42, Section 1.4, "Natural Gas Combustion", 7/98.
** Emission factors are based on data from the manufacturer/vendor of the boilers.

Methodology
For PM, PM10, SO2, and VOC
Potential Throughput (MMCF) = Heat Input Capacity (MMBtu/hr) x 8,760 hrs/yr x 1 MMCF/1,020 MMBtu
Potential Emission in tons/yr = Potential Throughput (MMCF/yr) x Emission Factor (lb/MMCF) * 1 ton/2000lbs

For NOx and CO
Potential Emission in tons/yr = Heat Input Capacity (MMBtu/hr) x Emission Factor (lb/MMBtu) x 8760 hr/yr x 1 ton/2000lbs

See next page for HAPs emissions calculations.

Appendix A: Emission Calculations
Natural Gas Combustion Only
HAPs Emissions
(BL5001 and BL5002)
(182 MMBtu/hr each)

Company Name: Abengoa Bioenergy of Indiana, LLC
Address: West Franklin Rd and Darnell School Rd, West Franklin, Indiana
FESOP: F129-23484-00050
Reviewer: ERG/JR
Date: August 29, 2006

Potential Throughput
MMCF/yr

3252.4

HAPs - Organics

	Benzene	Dichlorobenzene	Formaldehyde	Hexane	Toluene
Emission Factor in lb/MMCF	2.1E-03	1.2E-03	7.5E-02	1.8E+00	3.4E-03
Potential Emission in tons/yr	3.42E-03	1.95E-03	0.12	2.93	5.53E-03

HAPs - Metals

	Lead	Cadmuim	Chromium	Manganese	Nickel
Emission Factor in lb/MMCF	5.0E-04	1.1E-03	1.4E-03	3.8E-04	2.1E-03
Potential Emission in tons/yr	8.13E-04	1.79E-03	2.28E-03	6.18E-04	3.42E-03

Emission Factors from AP-42, Chapter 1.4, Tables 1.4-1, 1.4-2, and 1.4-3, SCC #1-02-006-02, 1-01-006-02, 1-03-006-02, and 1-03-006-03
(AP-42 Supplement D 3/98)
The five highest organic and metal HAPs emission factors are provided above.
Additional HAPs emission factors are available in AP-42, Chapter 1.4.

Methodology
All Emission factors are based on normal firing.

Potential Throughput (MMCF) = Heat Input Capacity (MMBtu/hr) x 8,760 hrs/yr x 1 MMCF/1,020 MMBtu
Potential Emission in tons/yr = Throughput (MMCF/yr) x Emission Factor (lb/MMCF)/2,000 lb/ton

Appendix A: Emission Calculations
PM and PM10 Emissions
From the Grain Receiving and Handling Operations

Company Name: Abengoa Bioenergy of Indiana, LLC
Address: West Franklin Rd and Darnell School Rd, West Franklin, Indiana
FESOP: F129-23484-00050
Reviewer: ERG/JR
Date: August 29, 2006

1. Potential to Emit PM/PM10 - Captured Emissions:

Baghouse ID	Process Description	Control Device	Outlet Grain Loading (gr/dscf)	Maximum Air Flow Rate (scfm)	PTE of PM/PM10 after Control (lbs/hr)	PTE of PM/PM10 after Control (tons/yr)	Control Efficiency (%)	PTE of PM/PM10 before Control (tons/yr)
CE1101	Grain Receiving (EP1101)	Baghouse	0.005	33,000	1.41	6.19	99%	619
CE2001	Hammermill A	Baghouse	0.005	6,500	0.28	1.22	99%	122
CE2002	Hammermill B	Baghouse	0.005	6,500	0.28	1.22	99%	122
CE2003	Hammermill C	Baghouse	0.005	6,500	0.28	1.22	99%	122
Total						9.86		985

Assume all PM emissions equal PM10 emissions.

Methodology

PTE of PM/PM10 after Control (lbs/hr) = Grain Loading (gr/dscf) x Max. Air Flow Rate (scfm) x 60 mins/hr x 1/7000 lb/gr
PTE of PM/PM10 after Control (tons/yr) = Grain Loading (gr/dscf) x Max. Air Flow Rate (scfm) x 60 mins/hr x 1/7000 lb/gr x 8760 hr/yr x 1 ton/2000 lbs
PTE of PM/PM10 before Control (tons/yr) = PTE of PM/PM10 after Control (tons/yr) / (1-Control Efficiency)

2. Potential to Emit PM/PM10 - Fugitive Emissions:

Unit ID	Unit Description	Maximum Throughput (tons/yr)	Uncontrolled PM Emission Factor (lbs/ton)	Uncontrolled PM10 Emission Factor (lbs/ton)	Baghouse ID	Capture Efficiency* (%)	Fugitive PM Emissions (tons/yr)	Fugitive PM10 Emissions (tons/yr)
N/A	Grain Receiving (EP1101)	1,000,000	0.180	0.0590	F1101	95%	4.50	1.48
Total							**4.50**	**1.48**

Note: Emission factors are from AP-42, Chapter 9.9.1 - Grain Elevators, Table 9.9.1-1 (04/03).
*Reduction in fugitive emissions is 95% - based on use of choked flow system during grain unloading and capture of most emission by the baghouse system.
The Permittee stated that there are no fugitive emissions from the grain handling operations because the emissions from these units are 100% captured

Methodology

Fugitive PM/PM10 (tons/yr) = Annual Throughput (tons/yr) x Uncontrolled Emission Factor (lbs/ton) x (1-Capture Efficiency%) x 1 ton/2000 lbs

Appendix A: Emission Calculations
PM and PM10 Emissions
From the DDGS Handling, Loadout, and Storage Operations

Company Name: Abengoa Bioenergy of Indiana, LLC
Address: West Franklin Rd and Darnell School Rd, West Franklin, Indiana
FESOP: F129-23484-00050
Reviewer: ERG/JR
Date: August 29, 2006

1. Potential to Emit PM/PM10 - Captured Emissions:

Baghouse ID	Process Description	Control Device	Outlet Grain Loading (gr/dscf)	Maximum Air Flow Rate (scfm)	PTE of PM/PM10 after Control (lbs/hr)	PTE of PM/PM10 after Control (tons/yr)	Control Efficiency (%)	PTE of PM/PM10 before Control (tons/yr)
F1102	DDGS Loadout	Baghouse	0.005	4,000	0.17	0.75	99.0%	75.1
Total						0.75		75.1

Assume all PM emissions equal PM10 emissions.

Methodology

PTE of PM/PM10 after Control (lbs/hr) = Grain Loading (gr/dscf) x Max. Air Flow Rate (scfm) x 60 mins/hr x 1/7000 lb/gr
PTE of PM/PM10 after Control (tons/yr) = Grain Loading (gr/dscf) x Max. Air Flow Rate (scfm) x 60 mins/hr x 1/7000 lb/gr x 8760 hr/yr x 1 ton/2000 lbs
PTE of PM/PM10 before Control (tons/yr) = PTE of PM/PM10 after Control (tons/yr) / (1-Control Efficiency)

2. Potential to Emit PM/PM10 - Fugitive Emissions:

Unit ID	Unit Description	Annual Throughput Limit (tons/yr)	Uncontrolled PM Emission Factor (lbs/ton)	Uncontrolled PM10 Emission Factor (lbs/ton)	Capture Efficiency (%)	Fugitive PM Emissions (tons/yr)	Fugitive PM10 Emissions (tons/yr)
DDGS Handling	DDGS Handling Operations	325,000	0.0860	0.0290	0%	13.98	4.71
DDGS Storage	Animal Feed Loading	325,000	0.0033	0.0008	0%	0.54	0.13
Total						**14.51**	**4.84**

Note: Emission factors are from AP-42, Chapter 9.9.1 - Grain Elevators, Table 9.9.1-2 (03/03).

Methodology

Fugitive PM/PM10 (tons/yr) = Annual Throughput Limit (tons/yr) x Uncontrolled Emission Factor (lbs/ton) x (1-Capture Efficiency%) x 1 ton/2000 lbs

Appendix A: Emission Calculations
VOC and HAP Emissions
From the Fermentation and Distillation Processes
(The fermentation and distillation processes will use three (3) scrubbers for controls)

Company Name: Abengoa Bioenergy of Indiana, LLC
Address: West Franklin Rd and Darnell School Rd, West Franklin, Indiana
FESOP: F129-23484-00050
Reviewer: ERG/JR
Date: August 29, 2006

Potential to Emit (PTE) of VOC and HAP:

VOCs

Emission Unit	*Emission Rate before Control (lbs/hr)	*Scrubber Control Efficiency (%)	Emission Rate after Control (lbs/hr)	PTE after Control (tons/yr)	PTE before Control (tons/yr)
Pre-Fermentation Scrubber (EP-1400)	315	99.15%	2.68	**11.7**	1379.7
Fermentation Scrubber (EP-1401)	1105	99.5%	5.53	**24.2**	4839.9
Distillation Scrubber (EP-1504)	185	99.3%	1.30	**5.67**	810.3
Total VOCs				**41.6**	**7029.9**

*VOC emission rates and control efficiencies are based on vendor provided engineering estimates.
The Permittee will perform stack testing to demonstrate compliance with the above emission rates.

HAPs

Emission Unit	Pollutant	*Emission Rate before Control (lbs/hr)	*Scrubber Control Efficiency (%)	Emission Rate after Control (lbs/hr)	PTE after Control (tons/yr)	PTE before Control (tons/yr)
Pre-Fermentation Scrubber (EP-1400)	Acetaldehyde	2.25	74%	0.59	**2.56**	9.86
	Acrolein	4.57	99%	0.05	**0.20**	20.02
	Formaldehyde	4.57	99%	0.05	**0.20**	20.02
	Methanol	0.34	96.5%	0.01	**0.05**	1.49
Fermentation Scrubber (EP-1401)	Acetaldehyde	3.5	78.3%	0.76	**3.33**	15.33
	Acrolein	15.75	99%	0.16	**0.69**	68.99
	Formaldehyde	15.75	99%	0.16	**0.69**	68.99
	Methanol	0.95	98.5%	0.01	**0.06**	4.16
Distillation Scrubber (EP-1504)	Acetaldehyde	2.52	74.5%	0.64	**2.81**	11.04
	Acrolein	2.51	99%	0.03	**0.11**	10.99
	Formaldehyde	2.51	99%	0.03	**0.11**	10.99
	Methanol	0.2	99%	0.002	**0.01**	0.88
Total HAPs					**10.83**	**242.74**

*HAP emission rates and control efficiencies are based on testing of a CO2 scrubber at a similar facility (same process design).
The Permittee will perform stack testing to demonstrate compliance with the above emission rates.

Methodology

Emission Rate after Control (lbs/hr) = Emission Rate before Control (lbs/hr) * (1- Scrubber Control Efficiency)
PTE after Control (tons/yr) = Emission Rate after Control (lbs/hr) x 8760 hr/yr x 1 ton/2000 lbs
PTE before Control (tons/yr) = Emission Rate before Control (lbs/hr) x 8760 hr/yr x 1 ton/2000 lbs

Appendix A: Emission Calculations
VOC Emissions
From the Heat Recovery Evaporators (EP-1601 and EP-1651)

Company Name: Abengoa Bioenergy of Indiana, LLC
Address: West Franklin Rd and Darnell School Rd, West Franklin, Indiana
FESOP: F129-23484-00050
Reviewer: ERG/JR
Date: August 29, 2006

Evaporator EP-1601		
VOC volatilized in vacuum:	5.75	lbs VOC/hr
Efficiency of Vacuum Pump:	98	%
VOC emitted (tpy)	**0.504**	
Evaporator EP-1651		
VOC volatilized in vacuum:	5.75	lbs VOC/hr
Efficiency of Vacuum Pump:	98	%
VOC emitted (tpy)	**0.504**	

Note: VOC emission rates and control efficiencies are based on vendor provided engineering estimates.

TOTAL VOC	**1.01**	**tpy**

Methodology

Total VOC (tpy) = VOC volatilized in vacuum (lbs VOC/hr) * (1- Efficiency of Vacuum Pump)

Appendix A: Emission Calculations
Criteria Pollutants
From Two (2) 76.7 MMBtu/hr Natural Gas DDGS Dryers and Cooling Systems Consisting of Two (2) Swiss Combi Systems

Company Name: **Abengoa Bioenergy of Indiana, LLC**
Address: **West Franklin Rd and Darnell School Rd, West Franklin, Indiana**
FESOP: **F129-23484-00050**
Reviewer: **ERG/JR**
Date: **August 29, 2006**

Maximum Capacity **325,000 tons/yr** **Control** **(VOC)** **98%**
153.4 MMBtu/hr **Efficiency*** **(PM/PM10)** **95%**

	Pollutant					
	PM	PM10	SO_2	NOx	VOC	CO
Emission Factor**	0.2000 (lbs/ton)	0.2000 (lbs/ton)	0.0006 (lbs/MMBtu)	0.0850 (lbs/MMBtu)	0.1060 (lbs/ton)	0.4300 (lbs/ton)
Potential to Emit Before Control in tons/yr	650	650	0.40	57.1	861.2	69.9
Potential to Emit After Control in tons/yr	**32.5**	**32.5**	**0.40**	**57.1**	**17.2**	**69.9**

* The control efficiencies for the Swiss Combi systems were not provided by the source. However, it is assumed that the Swiss Combi systems will get 95% PM/PM10 control. BACT is 98% control efficiency for VOC. All other pollutants are uncontrolled.
**Emission factors are based on after control and are estimated by the manufacturer/vendor of Swiss Combi systems.
The Permittee will perform stack testing to demonstrate compliance with the above emission rates.

Methodology

Potential to Emit Before Control in tons/yr = Potential to Emit After Control (tons/yr) / (1-Control Efficiency)

For SO2 and NOx:
Potential to Emit After Control in tons/yr = Emission Factor (lbs/MMBtu) x Maximum Capacity (MMBtu/hr) x 1 ton/2000 lbs x 8,760 hrs/yr
For all other pollutants:
Potential to Emit After Control in tons/yr = Emission Factor (lbs/ton) x Maximum Capacity (tons/yr) x 1 ton/2000 lbs

Appendix A: Emission Calculations
HAP Emissions
From Two (2) 76.7 MMBtu/hr Natural Gas DDGS Dryers and Cooling Systems Consisting of Two (2) Swiss Combi Systems

Company Name: **Abengoa Bioenergy of Indiana, LLC**
Address: **West Franklin Rd and Darnell School Rd, West Franklin, Indiana**
FESOP: **F129-23484-00050**
Reviewer: **ERG/JR**
Date: **August 29, 2006**

Maximum Capacity **325,000 tons/yr**
Control Efficiency **98%**

	Pollutant				
	Acetaldehyde	Acrolein	Formaldehyde	Methanol	Total
Emission Rate after Control (lb/ton DDGS)*	0.0009	0.0015	0.0032	0.0015	0.26
PTE before Control in tons/yr	**7.31**	**12.19**	**26.00**	**12.19**	**57.69**
PTE after Control in tons/yr	**0.15**	**0.24**	**0.52**	**0.24**	**1.15**

*HAP emission factors were provided by the source and are based on after control. The Permittee will perform stack tests to verify the HAP emissions from these units.

Methodology

PTE before Control in tons/yr = (PTE after Control in tons/yr) / (1-Control Efficiency)
PTE after Control in tons/yr = Emission Rate after Control (lbs/ton) x Maximum Capacity (tons/yr) x 1 ton/2000 lbs

Appendix A: Emission Calculations
VOC and HAP Emissions from Ethanol Loading Racks

Company Name: Abengoa Bioenergy of Indiana, LLC
Address: West Franklin Rd and Darnell School Rd, West Franklin, Indiana
FESOP: F129-23484-00050
Reviewer: ERG/JR
Date: August 29, 2006

1. Emission Factors: AP-42

Denatured ethanol and E85 will be shipped by either truck, railcar, or river barge. The plant capacity will be approximately 100 Mmgal/yr as denatured fuel ethanol or 135.7 Mmgal/yr as E85. In order to provide a worst-case emission estimate, the calculations are based on 100% of plant production being shipped as E85. Railcars will be dedicated fleets, but the trucks and barges may be used to carry gasoline prior to filling with denatured ethanol and E85. Railcars, trucks, and barges will be filled by submerged loading process.Both truck and railcar loadout racks will be controlled by a flare (EP-2210) which has a control efficiency of 98% for VOC and HAPs.The Barge loadout rack will be controlled by a flare (EP-2211) which has a control efficiency of 98% for VOC and HAPs.

According to AP-42, Chapter 5.2 - Transportation and Marketing of Petroleum Liquids (01/95), the VOC emission factors for the truck and rail loading racks can be estimated from the following equation:

$$L = 12.46 \times (SPM)/T$$

where:

L = loading loss (lbs/kgal)
S = a saturation factor (see AP-42, Table 5.2-1)
P = true vapor pressure of the liquid loaded (psia)
M = molecular weight of vapors
T = temperature of the bulk liquid loaded (degree R)

Railcars and Trucks

Previous Stored Liquid	S	P (psia)	M (lbs/mole lbs)	T (degree R)	L (lbs/kgal)
Gasoline (normal)	1.0	4.942	92	530	10.69
Gasoline (clean cargo)	0.5	4.942	92	530	5.34
E85 (normal)	0.6	1.37	54.19	530	1.05
E85 (clean cargo)	0.5	1.37	54.19	530	0.87

Therefore, the emission factor for loading denatured ethanol to the trucks which stored gasoline previously
= L (gasoline, normal) - L (gasoline, clean cargo) + L (denatured ethanol, clean cargo) = 6.22 (lbs/kgal)

Barge

The AP-42 Emission Factor is calculated from AP-42, Section 5.2.2 - Loading Losses, Table 5.2-2. The emission factor is 3.9 (lbs/kgal)

2. Potential to Emit VOC Before Control:

Max. Loading Rate for Truck Loadout: 36 kgal/hr (for truck loading)

PTE of VOC before Control (tons/yr) = 36 kgal/hr x 6.22 lbs/kgal x 8760 hr/yr x 1 ton/2000 lbs = **980 tons/yr**

Max. Loading Rate Rail Loadout: 72 kgal/hr (for railcar loading)

PTE of VOC before Control (tons/yr) = 72 kgal/hr x 1.05 lbs/kgal x 8760 hr/yr x 1 ton/2000 lbs = **330 tons/yr**

Max. Loading Rate Barge Loadout: 120 kgal/hr (for barge loading)

PTE of VOC before Control (tons/yr) = 120 kgal/hr x 3.9 lbs/kgal x 8760 hr/yr x 1 ton/2000 lbs = **2,050 tons/yr**

3. Limited Potential to Emit (for Trucks, Railcars, and Barge Loading):

Annual Production Limit: 135,700 kgal/yr (for all railcar, truck, and barge loading)
Flare Control Efficiency: 98% (for truck, railcar, and barge loading)

(1) Assume all E85 is loaded to trucks (controlled by EP-2210):
PTE of VOC (tons/yr) = 6.22 lbs/kgal x 135,700 kgal/yr x (1-98%) x 1 ton/2000 lbs = **8.44 tons/yr**

(2) Assume all E85 is loaded to railcars (controlled by EP-2210):
PTE of VOC (tons/yr) = 1.05 lbs/kgal x 135,700 kgal/yr x (1-98%)x 1 ton/2000 lbs = **1.42 tons/yr**

(3) Assume all E85 is loaded to barges (controlled by EP-2211):
PTE of VOC (tons/yr) = 3.9 lbs/kgal x 135,700 kgal/yr x (1-98%)x 1 ton/2000 lbs = **5.29 tons/yr**

Worst case scenario is when loading denatured ethanol to barges and the worst case VOC emissions = 8.44 tons/yr

4. Potential to Emit HAPs:

HAP emissions are mainly from the unloading process for trucks and barges, which may have been used to ship gasoline previously.

HAP	HAP Fraction*	PTE of HAP before Control (tons/yr)	Limited PTE of HAP after Control (tons/yr)
Benzene	2.50E-03	5.12	1.32E-02
Carbon Disulfide	2.00E-05	0.04	1.06E-04
Cumene	1.00E-04	0.20	5.29E-04
Ethyl benzene	5.00E-05	0.10	2.65E-04
n-Hexane	5.00E-02	102.49	2.65E-01
Toluene	5.00E-03	10.25	2.65E-02
Xylene	5.00E-04	1.02	2.65E-03
Total	**0.06**	**119.2**	**0.31**

* This is the HAP fraction for gasoline vapors.

Methodology

PTE of HAP before Control (tons/yr) = PTE of VOC before Control (tons/yr) x HAP %
Limited PTE of HAP after Control (tons/yr) = Limited PTE of VOC by Barge (tons/yr) x HAP %

Appendix A: Emission Calculations
Combustion Emissions
From Flares for Ethanol Loading Racks

Company Name: Abengoa Bioenergy of Indiana, LLC
Address: West Franklin Rd and Darnell School Rd, West Franklin, Indiana
FESOP: F129-23484-00050
Reviewer: ERG/JR
Date: August 29, 2006

Truck and Rail:

Heat Input Capacity (MMBtu/hr)					Maximum Operating Hours (hr/yr)	
1.26					8,760	
	Pollutant					
	*PM	*PM10	*SO_2	**NO_x	***VOC	**CO
Emission Factor	NA	NA	NA	0.3 (lb/MMBtu)	-	0.5 (lb/MMBtu)
Potential to Emit in tons/yr	**NA**	**NA**	**NA**	**1.66**	**-**	**2.76**

River Barge:

Heat Input Capacity (MMBtu/hr)					Maximum Operating Hours (hr/yr)	
3.78					2,000	
	Pollutant					
	*PM	*PM10	*SO_2	**NO_x	***VOC	**CO
Emission Factor	NA	NA	NA	0.3 (lb/MMBtu)	-	0.5 (lb/MMBtu)
Potential to Emit in tons/yr	**NA**	**NA**	**NA**	**4.97**	**-**	**8.28**
Limited Potential to Emit in tons/yr	**NA**	**NA**	**NA**	**1.13**	**-**	**1.89**

*PM, PM10, and SO_2 emission factors are negligible due to the smokeless design and minimal H_2S levels.
**Emission factors for NO_x and CO are based on the information provided by the flare manufacturer.
*** VOC emission calculations can be found in page 9 of this appendix.

Methodology

Potential to Emit (tons/yr) = Heat Input Capacity (MMBtu/hr) x Emission Factor (lb/MMBtu) x 8760 hr/yr x 1 ton/2000 lbs
Potential to Emit (tons/yr) = Heat Input Capacity (MMBtu/hr) x Emission Factor (lb/MMBtu) x Maximum Operating Hours (hr/yr) x 1 ton/2000 lbs

Appendix A: Emission Calculations
Combustion Emissions
From Biomethanator Flare (CE-7001)

Company Name: Abengoa Bioenergy of Indiana, LLC
Address: West Franklin Rd and Darnell School Rd, West Franklin, Indiana
FESOP: F129-23484-00050
Reviewer: ERG/JR
Date: August 29, 2006

Projected biogas production rate	77	dscfm
Limited hours of operation	5256	hr/yr
Max. Heat Input	3.48	MMBtu/hr
Percent methane in the biogas	75%	
Estimated methane flow	58	dscfm
H2S content in biogas	0.612	%

	Pollutant							
	PM	PM10	SO_2*	NOx	CO	VOC	H2S*	HAP
Emission Factor	7.8	7.8	6000	0.080	0.20	5.500	120	-
Units	lb/MMdscf	lb/MMdscf	ppm	lb/MMBtu	lb/MMBtu	lb/MMdscf	ppm	
Potential to Emit (tons/yr)	**0.12**	**0.12**	**15.2**	**1.22**	**3.06**	**0.08**	**0.13**	Negligible
Limited Potential to Emit (tons/yr)	**0.07**	**0.07**	**12.1**	**0.73**	**1.84**	**0.05**	**0.08**	

Note:
Emissions from the anaerobic treatment of process wastewaters are estimated based on the estimated amount of biogas generated by the treatment process and the corresponding content of methane and H2S in the gas. Sulfuric acid is used to adjust the pH of the cooling tower water and is the source of the sulfur. The gas will be combusted in an enclosed flare for conversion of H2S to SO2.

Methodology

*Emissions of SO2 and H2S from the flare use a conversion from ppm to lb/scf, based on the ideal gas law:
lb/scf = (14.696 x ppm x MW)/(10.73 x 527.67 x 10^6)

SO2 and H2S:
Potential to Emit (tons/yr) = Projected biogas production rate (scfm) x H2S content in biogas (%) x (lb/scf) x 60 min/hr x 8760 hrs/yr x 1 ton/2000 lbs
Limited Potential to Emit (tons/yr) = Projected biogas production rate (scfm) x H2S content in biogas (%) x (lb/scf) x 60 min/hr x 5256 hrs/yr x 1 ton/2000 lbs

PM/PM10 and VOC:
Potential to Emit (tons/yr) = Estimated methane flow (scf/min) x Emission Factor (lbs/MMdscf) x 60 min/hr x 8760 hrs/yr x 1 ton/2000 lbs
Limited Potential to Emit (tons/yr) = Estimated methane flow (scf/min) x Emission Factor (lbs/MMdscf) x 60 min/hr x 5256 hrs/yr x 1 ton/2000 lbs

NOx and CO:
Potential to Emit (tons/yr) = Max. Heat Input (MMBtu/hr) x Emission Factor (lbs/MMBtu) x 8760 hrs/yr x 1 ton/2000 lbs
Limited Potential to Emit (tons/yr) = Max. Heat Input (MMBtu/hr) x Emission Factor (lbs/MMBtu) x 5256 hrs/yr x 1 ton/2000 lbs

Appendix A: Emission Calculations
Fugitive Emissions From Paved Roads

Company Name: Abengoa Bioenergy of Indiana, LLC
Address: West Franklin Rd and Darnell School Rd, West Franklin, Indiana
FESOP: F129-23484-00050
Reviewer: ERG/JR
Date: August 29, 2006

1. Emission Factors: AP-42

According to AP-42, Chapter 13.2.1 - Paved Roads (12/03), the PM/PM10 emission factors for paved roads can be estimated from the following equation:

$$E = (k \times (sL/2)^a \times (w/3)^b - C) \times (1 - p/(4 \times 365))$$

where:

E =	emission factor (lb/vehicle mile traveled)	
sL =	road surface silt loading (g/m^2) =	0.6 (g/m^2) (AP-42, Table 13.2.1-3)
w =	mean vehicle weight (tons) =	27.75 tons
k =	empirical constant =	0.082 for PM and 0.016 for PM10
a =	empirical constant =	0.65
b =	empirical constant =	1.5
C =	emission factor for exhaust, brake and tire wear	0.00047 for PM and PM10
p =	number of days per year with 0.01 inches precipitation	120

PM Emission Factor = $(0.082 \times (0.6/2)^{0.65} \times (27.5/3)^{1.5} - 0.00047) \times (1 - 120/1460)$ = **0.97** lbs/mile

PM10 Emission Factor = $(0.016 \times (0.6/2)^{0.65} \times (27.5/3)^{1.5} - 0.00047) \times (1 - 120/1460)$ = **0.19** lbs/mile

2. Potential to Emit (PTE) of PM/PM10 Before Control from Paved Roads:

Vehicle Type	*Ave Weight of Vehicles (tons)	Vehicle Mile Traveled (VMT)* (miles/yr)	Traffic Component (%)	Component Vehicle Weight (tons)	PTE of PM before Control (tons/yr)	PTE of PM10 before Control (tons/yr)
Denaturant Delivery	27.75	16,782	23.9%	6.65	8.1	1.58
Ethanol (denatured)	27.75	5,034	7.2%	1.99	2.44	0.47
Grain	27.75	39,393	56.2%	15.60	19.06	3.71
DDGS	27.75	8,863	12.65%	3.51	4.29	0.84
Total		**70,072**	**100%**	**27.8**	**33.9**	**6.60**

* This information is provided by the source.

Methodology

Traffic Component (%) = VMT / Total VMT
Component Vehicle Weight = Ave. Weight of Vehicles (ton) x Traffic Component (%)
PTE of PM/PM10 before Control (tons/yr) = VMT (miles/yr) x PM/PM10 Emission Factors x 1 ton/2000 lbs

3. Potential to Emit (PTE) of PM/PM10 after Control from Paved Roads:

The source will use periodic sweeping to control the fugitive dust emissions.
The control efficiency from sweeping is assumed to be 50%.

PTE of PM after Control = 33.9 tons/yr x (1-50%) = **16.95 tons/yr**

PTE of PM10 after Control = 6.60 tons/yr x (1-50%) = **3.30 tons/yr**

Appendix A: Emission Calculations
Fugitive Emissions From Unpaved Roads

Company Name: Abengoa Bioenergy of Indiana, LLC
Address: West Franklin Rd and Darnell School Rd, West Franklin, Indiana
FESOP: F129-23484-00050
Reviewer: ERG/JR
Date: January 9, 2007

1. Emission Factors: AP-42

According to AP-42, Section 13.2.2 Unpaved Roads, November 2006, the PM/PM10 emission factors for unpaved roads can be estimated from the following equation:

lbs/VMT Equation: $E= k (s/12)^a (W/3)^b$

Where:

Particle size multiplier	k	4.9	dimensionless (PM-30 or TSP)	1.5	dimensionless PM-10
surface material silt content (%)	s	4.8	Table 13.2.2-1		
mean vehicle weight, 25 ton capacity	W	5.00	tons		
Equation constants	a	0.7	PM-30 or TSP Table 13.2.2-2	0.9	PM-10 Table 13.2.2-2
	b	0.45	PM-30 or TSP Table 13.2.2-2	0.45	PM-10 Table 13.2.2-2

PM Emission Factor = $(4.9) \times (4/12)^{0.7} \times (5/3)^{0.45}$ = **3.25** lbs/mile

PM10 Emission Factor = $(1.5) \times (4/12)^{0.9} \times (5/3)^{0.45}$ = **0.83** lbs/mile

2. Potential to Emit (PTE) of PM/PM10 from unpaved Roads:

Emission Area	Vehicle Weight (tons)	Unpaved Total VMT	Total Vehicle Emissions (lb/yr)	Total Vehicle Emissions (tpy)
Maintenance Roads (TSP)	5.00	740	2,401	**1.20**
Maintenance Roads (PM10)	5.00	740	612	**0.31**

3. Information is provided by the source:

Maintenance road next to barge loadout	4800	feet	daily	1,752,000 feet
Maintenance road next to rail spur	4200	feet	daily	1,533,000 feet
Maintenance road around holding pond	1100	feet	daily	401,500 feet
Maintenance road around Elec. Substation	1200	feet	weekly	62,400 feet
Maintenance road to each well (2) by river	2000	feet	weekly	104,000 feet
Misc. maintenance roads at facility	1000	feet	weekly	52,000 feet
				3,904,900 total feet traveled per year unpaved
				739.56 total miles traveled per year unpaved

Methodology

Total Vehicle Emissions (tons/yr) = Unpaved Total VMT (miles/yr) x PM/PM10 Emission Factors x 1 ton/2000 lbs

Appendix A: Emission Calculations
PM/PM10 Emissions
From the the Cooling Tower (Insignificant Activity CT-4001)

Company Name: Abengoa Bioenergy of Indiana, LLC
Address: West Franklin Rd and Darnell School Rd, West Franklin, Indiana
FESOP: F129-23484-00050
Reviewer: ERG/JR
Date: August 29, 2006

1. Process Description:

Type of Cooling Tower:	Induced Draft	
Circulation Flow Rate:	33,000	gal/min
Total Drift:	0.005%	of the circulating flow
Total Dissolved Solids:	4,000	ppm
Density:	8.330	lbs/gal

Note: The information above was provided by the cooling tower manufacturer for the same units located at a similar source.

2. Potential to Emit PM/PM10:

Assume all the dissolved solids become PM10 emissions and assume PM emissions are equal to PM10 emissions.

PTE of PM/PM10 (lbs/hr) = 33,000 gal/min x 60 min/hr x 0.005% x 8.33 lbs/gal x 4,000 ppm x 1/1,000,000 ppm = **3.30 lbs/hr**

PTE of PM/PM10 (tons/yr) = 3.3 lbs/hr x 8760 hr/yr x 1 ton/2000 lbs = **14.4 tons/yr**

Appendix A: Emission Calculations
Criteria Pollutants
From the Diesel Fire Pump (EP-1075)

Company Name: Abengoa Bioenergy of Indiana, LLC
Address: West Franklin Rd and Darnell School Rd, West Franklin, Indiana
FESOP: F129-23484-00050
Reviewer: ERG/JR
Date: August 29, 2006

Power Output Horse Power (HP)	Operation Limit hr/yr
420	500

	Pollutant					
	PM*	PM10*	SO_2	NO_x	**VOC	CO
Emission Factor in lb/HP-hr	2.20E-03	2.20E-03	2.05E-03	3.10E-02	2.47E-03	6.68E-03
Limited Potential to Emit in tons/yr	**0.23**	**0.23**	**0.22**	**3.26**	**0.26**	**0.70**

*Assume PM10 emissions are equal to PM emissions.
** Assume TOC (total organic compounds) emissions are equal to VOC emissions.
Emission factors are from AP-42, Chapter 3.3, Table 3.3-1, SCC #2-02-001-02 and 2-03-001-01 (AP-42 Supplement B, 10/96).

Methodology

Limited Potential to Emit in tons/yr = Power Output (HP) x Emission Factor (lb/HP-hr) x Operation Limit (hr/yr) x 1 ton/2000 lbs

Appendix A: Emission Calculations
VOC and HAP Emissions
From Equipment Leaks

Company Name: Abengoa Bioenergy of Indiana, LLC
Address: West Franklin Rd and Darnell School Rd, West Franklin, Indiana
FESOP: F129-23484-00050
Reviewer: ERG/JR
Date: August 29, 2006

1. Fugitive VOC Emissions:

Alcohol Concentration (% wt)* 49.7%

Equipment Component Source	Product	Component Count**	Emission Factor*** (lbs/comp-hr)	Subpart VV Control Effectiveness**** (%)	Fugitive VOC Emissions (tons/yr)
Valves	Gas/Vapor	97	0.013134	87%	0.36
Valves	Light Liquid	113	0.008866	84%	0.35
Valves	Heavy Liquid	148	0.008866	84%	0.46
Pumps	Light Liquid	14	0.04378	69%	0.41
Pumps	Heavy Liquid	18	0.04378	69%	0.53
Pressure-Relief Valves	Gas/Vapor	25	0.2288	87%	1.62
Sampling Connections	All	24	0.033	84%	0.28
Connectors	All	1073	0.004026	65%	3.29
Total					**7.29**

*This is the weighted average alchohol concentration for all processes and components at the source.
((Process Specifc Alcohol Conc.)*(Number of Components in Process)) / (Total Number of Components at Source)
** Component count for entire source estimated by the source.
*** Emission factors are from Protocol for Equipment leak Emission Estimates, EPA-453/R-95-017.
**** Control Effectiveness is from Protocol for Equipment leak Emission Estimates, EPA-453/R-95-017, Table 5-2.

Methodology

Fugitive VOC Emissions (tons/yr) = Component Count x Emission Factor (lbs/hr) x 8760 hr/yr x 1 ton/2000 lbs x (1-Control Effectiveness) x Alcohol Conc

2. Fugitive HAP Emissions:

HAP	HAP Fraction*	Fugitive HAP Emissions (tons/yr)
Acetaldehyde	2.00E-04	1.46E-03
Methanol	2.00E-04	1.46E-03
Benzene	2.50E-03	1.82E-02
Carbon Disulfide	2.00E-05	1.46E-04
Cumene	1.00E-04	7.29E-04
Ethylbenzene	5.00E-05	3.65E-04
n-Hexane	5.00E-02	3.65E-01
Toluene	5.00E-03	3.65E-02
Xylenes	5.00E-04	3.65E-03
Total		**0.42**

* The HAP fractions for Acetaldehyde, Methanol, Formaldehyde, and Acrolein ware derived from similar plant stack testing and the remaining HAP fractions are for gasoline vapors.

Methodology

Fugitive HAP Emissions (tons/yr) = Fugitive VOC Emissions (tons/yr) x HAP Fraction

Appendix A: Emission Calculations
PTE Summary

Company Name: Abengoa Bioenergy of Indiana, LLC
Address: West Franklin Rd and Darnell School Rd, West Franklin, Indiana
FESOP: F129-23484-00050
Reviewer: ERG/JR
Date: August 29, 2006

Potential To Emit before Control

Emission Units	PM	PM10	SO_2	NO_x	VOC	CO	Total HAPs
Boilers - Natural Gas	3.09	12.4	0.98	31.9	8.94	22.3	3.07
Grain Handling	985	985	-	-	-	-	-
Grain Handling - Fugitive	90.00	29.50	-	-	-	-	-
Fermentation & Distillation	-	-	-	-	7029.9	-	242.7
Heat Recovery Evaporators	-	-	-	-	1.01	-	-
Dryers/Swiss Combi Systems*	650	650	0.4	57.1	861.2	69.9	57.7
DDGS Handling and Loadout	75.1	75.1	-	-	-	-	-
DDGS Loadout - Fugitive	14.5	4.84	-	-	-	-	-
Ethanol Loadout and Flares	-	-	-	6.62	2049.84	11.04	119.24
Biomethanator	0.12	0.12	15.19	1.22	0.21	3.06	
Paved and Unpaved Roads (Fugitive)	35.1	6.60	-	-	-	-	-
Cooling Tower	14.4	14.8	-	-	-	-	-
Diesel Fire Pump	0.23	0.23	0.22	3.26	0.26	0.70	Negligible
Storage Tanks**	-	-	-	-	10.6	-	Negligible
Leaks	-	-	-	-	26.9	-	0.42
Wet Cake Storage***	-	-	-	-	See Note	-	See Note
Other Insignificant Activities	1.00	1.00	-	-	1.00	-	-
Total PTE	**1869.1**	**1780.0**	**16.8**	**100.1**	**9989.9**	**107.0**	**423.2**

Limited Potential To Emit after Control

Emission Units	PM	PM10	SO_2	NO_x	VOC	CO	Total HAPs
Boilers - Natural Gas	3.09	12.4	0.98	31.9	8.94	22.3	3.07
Grain Handling	9.9	9.9	-	-	-	-	-
Grain Handling - Fugitive	4.50	1.48	-	-	-	-	-
Fermentation & Distillation	-	-	-	-	41.6	-	10.8
Heat Recovery Evaporators	-	-	-	-	1.01	-	-
Dryers/Swiss Combi Systems	32.5	32.5	0.4	57.1	17.2	69.9	1.15
DDGS Handling and Loadout	0.75	0.75	-	-	-	-	-
DDGS Loadout - Fugitive	14.5	4.84	-	-	-	-	-
Ethanol Loadout and Flares	-	-	-	2.79	8.44	4.65	0.31
Biomethanator	0.07	0.07	12.1	0.73	0.13	1.84	0.08
Paved and Unpaved Roads (Fugitive)	18.2	3.61	-	-	-	-	-
Cooling Tower	14.4	14.4	-	-	-	-	-
Diesel Fire Pump	0.23	0.23	0.22	3.26	0.26	0.70	Negligible
Storage Tanks**	-	-	-	-	10.6	-	Negligible
Leaks	-	-	-	-	7.29	-	0.42
Wet Cake Storage***	-	-	-	-	See Note	-	See Note
Other Insignificant Activities	1.00	1.00	-	-	1.00	-	-
Total PTE	**99.1**	**81.1**	**13.7**	**95.8**	**96.5**	**99.4**	**15.9**

*Control efficiencies for the Swiss Combi systems were not provided by the source; therefore, the emission estimates are based on after control. However, it is assumed that the Swiss Combi systems will get 95% PM/PM10 control. BACT is 98% control efficiency for VOC. PM/PM10 and VOC potential is estimated based on these control efficiencies.
** Emissions from the storage tanks were calculated by the Permittee using EPA TANKS software (version 4.09d) and have been verified.
*** This plant is capable of producing both DDGS and MDGS; however, the emissions from the DDGS production is likely the worst case scenario. Therefore, the PTE of the wet cake storage is not included in the PTE for the entire source.

Appendix B
Best Available Control Technology (BACT) Determinations

Source Background and Description

Source Name:	Abengoa Bioenergy of Indiana
Source Address:	West Franklin Rd and Darnell School Rd, West Franklin, Indiana 47620
Mailing Address:	1400 Elbridge Payne, Suite 212, Chesterfield, Missouri 63017
FESOP Permit No.:	129-23484-00050
County:	Posey
SIC Code:	2869
Operating Permit No.:	F129-23484-00050
Permit Reviewer:	ERG/JR

The Indiana Department of Environmental Management (IDEM), Office of Air Quality (OAQ) has performed the following Best Available Control Technology (BACT) reviews for a new ethanol production plant. Pursuant to 326 IAC 8-1-6 (New Facilities; General Reduction Requirements), BACT is required for all facilities constructed after January 1, 1980 that have potential VOC emissions of equal to or greater than twenty-five (25) tons per year and are not regulated by other rules in 326 IAC 8. Based on the calculations (see Appendix A) and the analysis of applicable state regulations (see State Rule Applicability section of TSD), the following facilities are subject to the requirements of 326 IAC 8-1-6:

- Fermentation Process;
- Distillation and Dehydration Process;
- DDGS Dryers (Swiss-Combi "Eco-Dry" Dryer Systems); and
- Ethanol Loadout.

IDEM, OAQ conducts BACT analyses in accordance with the *"Top-Down" Best Available Control Technology Guidance Document* outlined in the 1990 draft US EPA *New Source Review Workshop Manual*, which outlines the steps for conducting a top-down BACT analysis. Those steps are listed below:

(a) Identify all potentially available control options;
(b) Eliminate technically infeasible control options;
(c) Rank remaining control technologies by control effectiveness;
(d) Evaluate the most effective controls and document the results as necessary; and
(e) Select BACT.

In accordance with EPA guidance, the BACT analysis should take into account the energy, environmental, and economic impacts. Emission reductions may be achieved through the application of available control techniques, changes in process design, and/or operational limitations.

A summary of the BACT review for the fermentation process is provided in Section B.1, the BACT review for the distillation and dehydration process is provided in Section B.2, the BACT review for the DDGS dryers is provided in Section B.3, and the BACT review for the ethanol loadout is provided in Section B.4. These BACT determinations are based on the following information:

(a) The EPA RACT/BACT/LAER (RBLC) Clearinghouse; and
(b) State and local air quality permits.

Appendix B.1
Best Available Control Technology (BACT) Determination
For the Fermentation Process

Introduction:

Abengoa Bioenergy of Indiana will use a fermentation process to produce ethanol from grain. The fermentation process will consist of a prefermentation tank, six (6) main fermenters, and one (1) beer tank. The potential VOC emissions from these activities are estimated to be greater than 25 tons per year. Since this facility will be constructed after the January 1, 1980 applicability date and there are no other 326 IAC 8 rules applicable to this process, Abengoa Bioenergy of Indiana is required to control the VOC emissions from the fermentation process with BACT, pursuant to 326 IAC 8-1-6.

Step 1 – Identify Control Options

The following available technologies were identified and evaluated to control VOC emissions from the fermentation process at ethanol production plants:

(a) IDEM, OAQ reviewed the following six control technologies:

1. Carbon Adsorption:

   Carbon adsorption is a process by which VOC is retained on a granular carbon surface, which is highly porous and has a very large surface-to-volume ratio. Organic vapors retained on the adsorbent are thereafter desorbed and both the adsorbate and absorbent are recovered.

   Carbon adsorption systems operate in two phases: adsorption and desorption. Adsorption is rapid and removes most of the VOCs in the stream. Eventually, the adsorbent becomes saturated with the vapors and the system's efficiency drops. The adsorbent must be regenerated or replaced soon after efficiency begins to decline. In regenerative systems, the adsorbent is reactivated with steam or hot air and the absorbate (solvent) is recovered for reuse or disposal. Non-regenerative systems require the removal of the adsorbent and replacement with fresh or previously regenerated carbon.

2. Wet Scrubbers:

   A wet scrubber is an absorption system in which the waste stream is dissolved in a solvent by passing it through a medium containing the solvent. Water is the most commonly used solvent. Other solvents may be used depending on the components of the waste stream.

3. Thermal Oxidation:

   An efficient thermal oxidizer design must provide adequate residence time for complete combustion, sufficiently high temperatures for VOC destruction, and adequate velocities to ensure proper mixing without quenching combustion. The type of burners and their arrangement affect combustion rates and residence time. The more thorough the contact between the flame and VOC, the shorter the time required for complete combustion. Natural gas is required to ignite the flue gas mixtures and maintain combustion temperatures. Typically, a heat exchanger upstream of the oxidizer uses the heat content of the oxidizer flue gas to preheat the incoming VOC-laden stream to improve the efficiency of the oxidizer.

   Of all the VOC control technologies evaluated, thermal oxidization is least affected by waste stream characteristics. A properly designed thermal oxidizer can handle almost all solvent mixtures (except for fluorinated or chlorinated solvents) and concentrations, and

therefore meet all regulatory standards. In addition to the energy penalty associated with thermal oxidization, NOx emissions will be generated from the combustion of natural gas used to fuel the oxidizer. A thermal oxidizer normally provides a VOC destruction efficiency of at least 98%.

4. Catalytic Oxidation:

In a catalytic oxidizer, a catalyst is used to lower the activation energy for oxidation. When a preheated gas stream is passed through a catalytic oxidizer, the catalyst bed initiates and promotes the oxidation of VOCs without being permanently altered itself. In catalytic oxidization, combustion occurs at significantly lower temperatures than that of direct flame units and can also achieve a destruction efficiency of 95%. However, steps must be taken to ensure complete combustion. The types of catalysts used include platinum, platinum alloys, copper chromate, copper oxide, chromium, manganese, and nickel. These catalysts are deposited in thin layers on an inert substrate, usually a honeycomb shaped ceramic.

5. Flare:

Flares can be used to control almost any VOC stream and can handle fluctuations in VOC concentration, flow rate, heat content, and inert content. Flaring is appropriate for continuous, batch, and variable flow vent stream application. Some streams, such as those containing halogenated or sulfur-containing compounds, are usually not flared because they corrode the flare tip or cause formation of secondary pollutants (such as acid gases or sulfur dioxide). A flare normally provides a VOC destruction efficiency greater than 98%.

6. Refrigeration Condenser:

Condensation is the process by which the temperature of the waste stream is lowered to below the boiling points of the waste constituents. A refrigeration condenser normally provides VOC control efficiency greater than 90%.

(b) The search for the fermentation process in EPA's RACT/BACT/LAER Clearinghouse (RBLC) and Indiana Air Permits identified the following:

Plant	PBLD ID or Permit #	Date Issued and State	Facility	Control Technology and Permit Date	Stack Test Results and Dates
DRS Ventures, LLC	F139-22981-00020	11/13/06 (IN)	Fermentation	Wet scrubber combined with a thermal oxidizer with an overall control efficiency of 98% or VOC < 10 ppmv. VOC emissions < 6.12 lbs/hr.	Under Construction.
Central Indiana Ethanol, LLC	SPR 053-22564-00062	07/20/06 (IN)	Fermentation	Wet scrubber with a control efficiency of 98% or VOC < 20 ppmv. VOC emissions < 7.62 lbs/hr.	Under Construction.
Premier Ethanol, LLC	F075-22858-00032	9/18/06(IN)	Fermentation	Wet scrubber combined with a thermal oxidizer with an overall control efficiency of 99% or VOC < 10 ppmv. VOC emissions < 10.5 lbs/hr.	Under Construction.
Putnam Ethanol, LLC	SPM 133-22480-00003	3/23/06 (IN)	Fermentation	Wet scrubber with a control efficiency of 98% or VOC < 20 ppmv. VOC emissions < 5.85 lbs/hr.	Under Construction.
The Andersons Clymers Ethanol, LLC	F017-21536-00023	2/15/06 (IN)	Fermentation	Wet scrubber with a control efficiency of 98% or VOC < 20 ppmv. VOC emissions < 7.5 lbs/hr.	Under Construction.
ASA Linden, LLC	F017-21453-00061	2/8/06 (IN)	Fermentation	Wet scrubber with a control efficiency of 98% or VOC < 20 ppmv. VOC emissions < 10.2 lbs/hr.	Under Construction.
Hartford Energy, LLC	F009-21592-00024	1/31/06 (IN)	Fermentation	Wet scrubber with a control efficiency of 98%. VOC emissions < 2.22 lbs/hr.	Under Construction.

Plant	PBLD ID or Permit #	Date Issued and State	Facility	Control Technology and Permit Date	Stack Test Results and Dates
Central Indiana Ethanol, LLC	F053-21057-00062	08/04/05 (IN)	Fermentation	Wet scrubber with a control efficiency of 98% or VOC < 20 ppmv. VOC emissions < 6.0 lbs/hr.	Under Construction
United Wisconsin Grain Producers	WI-0204	8/14/03 (WI)	Fermentation	Wet scrubber (packed tower). VOC Emissions < 7.4 lbs/hr	Not Available
Michigan Ethanol	MI-0359	11/04/02 (MI)	Fermentation	BACT determined to be a scrubber with 97% control efficiency and VOC emissions < 6.0 lbs/hr	97.4% (03/19/03)
Grain Processing Corporation	IN-0075	06/10/97 (IN)	Fermentation	Scrubber with 95% control efficiency	Not Available
Cargill, Inc.	NE-0016	04/25/96 (NE)	Fermentation	BACT determined to be a wet scrubber with a VOC emission limit of 11.8 lbs/hr	Not Available

In addition to the RBLC data, IDEM obtained the following information for the fermentation processes at other ethanol production plants from ICM (an ethanol plant manufacturer):

Source, State	Max. Ethanol Production Rate (MMgal/yr)	Control Technology	Emission Limits	Stack Test Results and Dates
Agri-Energy*, MN	22	Wet scrubber and thermal oxidizer	95% removal or 10 ppm	0.58 lbs/hr (01/30/03)
Al-Corn*, MN	34.5	Wet scrubber	95% removal or 20 ppm for less than 200 ppm inlet	99.2%; 6.65 lbs/hr (01/21/03)
Central MN Ethanol*, MN	22	Wet scrubber	95% removal or 20 ppm for less than 200 ppm inlet	99.0%; 2.04 lbs/hr (11/27/02)
Corn Plus, MN	44	Wet scrubber	95% removal or 20 ppm for less than 200 ppm inlet	Not Available
CVEC, MN	49.5	Wet scrubber	95% removal or 20 ppm for less than 200 ppm inlet	Not Available
Diversified Energy Co.**, MN	20	Wet scrubber	95% removal or 20 ppm for less than 200 ppm inlet	2.74 lbs/hr (01/04)
Ethanol 2000**, MN	35	Wet scrubber	95% removal or 20 ppm for less than 200 ppm inlet	98.28%; 5.40 lbs/hr (12/04/02)
Agra Resources Coop. (dba EXOL), MN	50	Wet scrubber	95% removal or 20 ppm for less than 200 ppm inlet	Not Available
Pro-Corn, MN	50	Wet scrubber	95% removal or 20 ppm for less than 200 ppm inlet	5.11 lbs/hr (04/01/03)
ACE Ethanol*, WI	20	Wet scrubber	95% removal or 20 ppm for less than 200 ppm inlet	1.07 lbs/hr (11/20/02)
CMEC, MN	22	Wet scrubber	4.3 lbs/hr	98.98%; 2.88 lbs/hr (11/26/02)
MN Energy, MN	19	Wet scrubber	NA	23 lbs/hr (04/07/03)
Gopher State, MN	NA	2 wet scrubbers in series	98% collection efficiency	99.5%; 0.81 lbs/hr (07/09/03)

* lbs/hr as ethanol
** lbs/hr as carbon multiplied by the Midwest Scaling Factor of 2.0

Step 2 – Eliminate Technically Infeasible Control Options

After reviewing the above technologies, IDEM, OAQ eliminated carbon adsorption as not technically feasible for fermentation processes. The reasons for eliminating carbon adsorption are as follows:

Carbon Adsorption: Carbon adsorption uses intermolecular forces to accumulate organic material at the surface of an adsorbent (typically activated carbon). These intermolecular forces include the small momentary dipoles that result from the movement of electrons within molecular bonds (van der Waals interactions). The incidence of van der Waals interactions increases with larger molecules because there are more bonds within each molecule. For this reason, carbon adsorption is most effective for larger molecules. The VOC compounds emitted from the fermentation system include several small molecules, such as ethanol (MW = 46), acetaldehyde (MW = 44), and formaldehyde (MW = 30). Due to the small size of these molecules, the van der Waals interactions are weak. Since carbon adsorption typically requires a VOC concentration of at least 200 to 1,000 ppmv and average VOC molecular weights of at

least 50 to 60 atomic units, this technology is considered infeasible for controlling the VOC emissions from the fermentation system.

Step 3 – Rank Remaining Control Technologies by Control Effectiveness

Using the control efficiencies reported for similar sources, IDEM, OAQ has ranked the remaining control technologies as follows:

Control Technology	Control Efficiency
Wet Scrubber and Thermal Oxidizer	99% or <10 ppmv
Wet Scrubber	99% or <10 ppmv
Thermal Oxidizer	99% or <10 ppmv
Catalytic Oxidizer	98%
Flare	98%
Refrigeration Condenser	90%

Step 4 – Evaluate the Most Effective Controls and Document Results

IDEM is aware that other vendors have guaranteed control efficiencies of 99% to control similar processes for other proposed ethanol plants. However, BACT limitations do not necessarily need to reflect the highest possible control efficiency achievable by the technology on which the emission limitation is based. The permitting authority has discretion to base the emission limitation on a control efficiency that is somewhat lower than the optimal level. A wet scrubber, a thermal oxidizer, and the combination of a wet scrubber and thermal oxidizer are each capable of achieving the same level of control.

Step 5 – Select BACT

The Permittee believes it can achieve 99% control efficiency or a concentration of less than 10 ppmv using sodium bisulfite in their wet scrubbers. Therefore, the Permittee proposes to use wet scrubbers as the BACT for the fermentation process. Pursuant to 326 IAC 8-1-6, IDEM, OAQ has determined that the following requirements represent BACT for the fermentation process at this source:

(a) The VOC emissions from the fermentation process shall be controlled using two (2) wet scrubbers and sodium bisulfite injection.

(b) The overall average VOC control efficiency for each wet scrubber shall be at least 99%, or the VOC outlet concentration shall not exceed 10 ppmv.

(c) The VOC emissions from the Pre-Fermentation Scrubber (CE1400) shall not exceed 2.68 lbs/hr.

(d) The VOC emissions from the Fermentation Scrubber (CE1401) shall not exceed 5.53 lbs/hr.

Appendix B.2
Best Available Control Technology (BACT) Determination
For Distillation and Dehydration Process

Introduction:

Abengoa Bioenergy of Indiana will use distillation to concentrate the ethanol produced in the fermentation process. The potential VOC emissions from the distillation process are estimated to be greater than 25 tons per year. Since this facility will be constructed after the January 1, 1980 applicability date and there are no other 326 IAC 8 rules applicable to this process, Abengoa Bioenergy of Indiana is required to implement BACT to comply with 326 IAC 8-1-6.

Step 1 – Identify Control Options

The following available technologies were identified and evaluated to control VOC emissions from the distillation and dehydration process at ethanol production plants:

(a) IDEM, OAQ reviewed the following six (6) control technologies. The detailed description of each control technology can be found in Step 1 of Appendix B.1.

1. Carbon Adsorption;
2. Wet Scrubbers (packed tower);
3. Thermal Oxidation;
4. Catalytic Oxidation;
5. Flare; and
6. Refrigeration Condenser.

(b) The search for the distillation process in EPA's RACT/BACT/LAER Clearinghouse (RBLC) and Indiana Air Permits identified the following:

Plant	PBLD ID or Permit #	Date Issued and State	Facility	Control Technology and Permit Date	Stack Test Results and Dates
DRS Ventures, LLC	F139-22981-00020	11/13/06 (IN)	Distillation	Wet scrubber combined with a thermal oxidizer with an overall control efficiency of 98% or VOC < 10 ppmv. VOC emissions < 6.12 lbs/hr.	Under Construction
Central Indiana Ethanol, LLC	SPR 053-22564-00062	07/20/06 (IN)	Distillation/Dryers	RTOs with a control efficiency of 98% or VOC < 10 ppmv. VOC emissions < 7.5 lbs/hr.	Under Construction.
Premier Ethanol, LLC	F075-22858-00032	9/18/06 (IN)	Distillation	Wet scrubber combined with a thermal oxidizer with an overall control efficiency of 99% or VOC < 10 ppmv. VOC emissions < 10.5 lbs/hr.	Under Construction
Putnam Ethanol, LLC	SPM 133-22480-00003	3/23/06 (IN)	Distillation	TO/HRSG system with a control efficiency of 98% or VOC < 10ppmv. VOC emissions < 10.5 lbs/hr	Under Construction
The Andersons Clymers Ethanol, LLC	F017-21536-00023	2/15/06 (IN)	Distillation and Evaporation processes	Two TO/HRSG systems with a control efficiency of 98% or VOC < 10ppmv. VOC emissions < 8.15 lbs/hr	Under Construction

Plant	PBLD ID or Permit #	Date Issued and State	Facility	Control Technology and Permit Date	Stack Test Results and Dates
ASA Linden, LLC	F017-21453-00061	2/8/06 (IN)	Distillation	Two TO/HRSG systems with a control efficiency of 98% or VOC < 10ppmv. VOC emissions < 8.5 lbs/hr	Under Construction
Hartford Energy, LLC	F009-21592-00024	1/31/06 (IN)	Distillation	TO/HRSG system with a control efficiency of 98%. VOC emissions < 10.56 lbs/hr	Under Construction
Central Indiana Ethanol, LLC	F053-21057-00062	08/04/05 (IN)	Fermentation/ Distillation	Wet scrubber with a control efficiency of 98% or VOC < 20 ppmv. VOC emissions < 6.0 lbs/hr.	Under Construction
United Wisconsin Grain Producers	WI-0204	8/14/03 (WI)	Distillation/Dryers	RTO with a control efficiency of 98% or VOC emissions < 5 ppm	Not Available
Michigan Ethanol	MI-0359	11/04/02 (MI)	Distillation	Wet scrubber with a control efficiency of 98%. VOC emissions < 0.46 lbs/hr	94.0% (03/19/03)
Grain Processing Corp.	IN-0075	06/10/97 (IN)	Distillation	Wet scrubber with a control efficiency of 95%	Not Available
Cargill, Inc.	NE-0016	04/25/96 (NE)	Distillation	Wet scrubber and a VOC emission limit of 2.22 lbs/hr	Not Available

Step 2 – Eliminate Technically Infeasible Control Options

IDEM, OAQ believes that carbon adsorption is not technically feasible for the control of VOC emissions from the distillation process. The primary VOC constituents emitted from this process are ethanol and acetaldehyde. Carbon adsorption is only technically feasible for VOC concentrations of 200 to 1,000 ppmv and an average VOC molecular weight of 50 to 60 atomic units.

Step 3 – Rank Remaining Control Technologies by Control Effectiveness

Using the control efficiencies reported for similar sources, IDEM, OAQ has ranked the remaining control technologies as follows:

Control Technology	Control Efficiency
Wet Scrubber and Thermal Oxidizer	99% or <10 ppmv
Wet Scrubber	99% or <10 ppmv
Thermal Oxidizer	99% or <10 ppmv
Catalytic Oxidizer	98%
Flare	98%
Refrigeration Condenser	90%

Step 4 – Evaluate the Most Effective Controls and Document Results

IDEM is aware that other vendors have guaranteed control efficiencies of 99% to control similar processes for other proposed ethanol plants. However, BACT limitations do not necessarily need to reflect the highest possible control efficiency achievable by the technology on which the emission limitation is based. The permitting authority has discretion to base the emission limitation on a control efficiency that is somewhat lower than the optimal level. A wet scrubber, a thermal oxidizer, and the combination of a wet scrubber and thermal oxidizer are each capable of achieving the same level of control.

Step 5 – Select BACT

The Permittee believes it can achieve 99% control efficiency or a concentration of less than 10 ppmv using sodium bisulfite in their wet scrubbers. Therefore, the Permittee proposes to use a wet scrubber as BACT for the distillation process. Therefore, pursuant to 326 IAC 8-1-6, IDEM, OAQ has determined that the following requirements represent BACT for the distillation process at this source:

(a) The VOC emissions from the distillation process shall be controlled using a wet scrubber and sodium bisulfite injection.

(b) The overall average VOC control efficiency for the wet scrubber (including the capture efficiency and control efficiency) shall be at least 99%, or the VOC outlet concentration shall not exceed 10 ppmv.

(c) The VOC emissions from the Distillation Scrubber (CE1504) shall not exceed 1.3 lbs/hr.

Appendix B.3
Best Available Control Technology (BACT) Determination
For the DDGS Swiss Combi Dryer and Cooling Systems (D1801 and D1802)

Introduction:

VOCs will be emitted from the DDGS drying process as trace quantities of alcohol from the fermentation process are evaporated. Other sources of VOC emissions result from the combustion of fuel in the dryer and the partial oxidation of organic material during the drying process. The potential VOC emissions from the DDGS dryers are greater than 25 tons per year and there are no other rules in 326 IAC 8 applicable to DDGS dryers; therefore, the Permittee is required to control the VOC emissions from the DDGS dryers with BACT.

Step 1 – Identify Control Options

The following available technologies were identified and evaluated to control VOC emissions from the dryers at ethanol production plants:

(a) IDEM, OAQ reviewed the following six (6) control technologies. The detailed description of each control technology can be found in Step 1 of Appendix B.1.

1. Carbon Adsorption;
2. Wet Scrubbers;
3. Thermal Oxidation;
4. Catalytic Oxidation;
5. Flare; and
6. Refrigeration Condenser.

(b) The search for DDGS dryers in EPA's RACT/BACT/LAER Clearinghouse (RBLC) and Indiana Air Permits identified the following:

Plant	PBLD ID or Permit #	Date Issued and State	Facility	Control Technology and Permit Date	Stack Test Results and Dates
DRS Ventures, LLC	F139-22981-00020	11/13/06 (IN)	Dryers	Thermal Oxidation with an overall control efficiency of 98% or VOC < 10 ppmv. VOC emissions < 2.0 lbs/hr.	Under Construction
Central Indiana Ethanol, LLC	SPR 053-22564-00062	07/20/06 (IN)	Distillation/Dryers	RTOs with a control efficiency of 98% or VOC < 10 ppmv. VOC emissions < 7.5 lbs/hr.	Under Construction.
Premier Ethanol, LLC	F075-22858-00032	9/18/06 (IN)	Dryers	Thermal oxidizer with an overall control efficiency of 98% or VOC < 10 ppmv. VOC emissions < 10.5 lbs/hr.	Under Construction
Putnam Ethanol, LLC	SPM 133-22480-00003	3/23/06 (IN)	Dryers	TO/HRSG system with a control efficiency of 98% or VOC < 10 ppmv. VOC emissions < 10.5 lbs/hr	Under Construction
The Andersons Clymers Ethanol, LLC	F017-21536-00023	2/15/06 (IN)	Dryers	Two TO/HRSG systems with a control efficiency of 98% or VOC < 10 ppmv. VOC emissions < 8.15 lbs/hr	Under Construction
ASA Linden, LLC	F017-21453-00061	2/8/06 (IN)	Dryers	Two TO/HRSG systems with a control efficiency of 98% or VOC < 10 ppmv. VOC emissions < 8.5 lbs/hr	Under Construction
Hartford Energy, LLC	F009-21592-00024	1/31/06 (IN)	Dryers	TO/HRSG system with a control efficiency of 98%. VOC emissions < 10.56 lbs/hr	Under Construction
Central Indiana Ethanol, LLC	F053-21057-00062	08/04/05 (IN)	Dryers	RTO with a control efficiency of 98%. VOC emissions < 6.0 lbs/hr	Under Construction
United Wisconsin Grain Producers	WI-0204	8/14/03 (WI)	Distillation/Dryers	RTO with a control efficiency of 98% or VOC emissions < 5 ppm	Not Available

Plant	PBLD ID or Permit #	Date Issued and State	Facility	Control Technology and Permit Date	Stack Test Results and Dates
Michigan Ethanol	MI-0359	11/04/02 (MI)	Dryer	RTO with a control efficiency of 95%	99.6% (03/19/03)
Archer Daniels Midland Co.	IL-0087	12/27/02 (IL)	Feed Dryer	RTO with a control efficiency of 95% and VOC < 10 ppm	Not Available
New Energy Corp.	T141-6956-00033	Draft (IN)	DDGS Dryers	RTO with a control efficiency of 95%	98.8% (RTO1) 99.2% (RTO2) (06/30/04)

Step 2 – Eliminate Technically Infeasible Control Options

After reviewing the above technologies, IDEM, OAQ eliminated carbon adsorption, catalytic oxidation, flares, and refrigeration condensers as not technically feasible for DDGS drying processes. The reasons for eliminating these control technologies are as follows:

Carbon adsorption: Carbon adsorption typically requires a VOC concentration of at least 200 to 1,000 ppm and an average VOC molecular weight of at least 50 to 60 atomic units. Therefore, IDEM, OAQ concludes that carbon adsorption is not an effective control for the DDGS dryers due to the characteristics of the dryer exhaust gases.

Catalytic Oxidizer: Catalytic oxidizers use a catalyst to lower the operating temperature of the oxidation unit. The catalyst must remain effective during operation in order for the control efficiency of the device be maintained. Fouling of the catalyst will rapidly decrease the control efficiency. The catalyst material used for catalytic oxidation has small channels for the waste gas stream to flow. As a result, particulate matter in the dryer exhaust streams is likely to accumulate in the catalyst material, thereby fouling the catalyst and reducing the control efficiency. For this reason, IDEM, OAQ has concluded that catalytic oxidation is an unreliable control technology for the dryers because of the presence of particulates in the exhaust gases.

Flares: Since flares do not maintain a constant combustion zone temperature, they require supplemental natural gas to enrich the waste gas stream if the VOC concentration is low. In order to increase the heat value of the DDGS dryers, natural gas must be added to the exhaust gases prior to the flare.

Refrigeration Condensers: IDEM, OAQ believes that condensers would be technically infeasible because the dryer exhaust characteristics of low VOC concentration and high volumetric flow rate would make them ineffective.

Step 3 – Rank Remaining Control Technologies by Control Effectiveness

IDEM, OAQ has ranked the remaining control technologies by control efficiency as follows:

Control Technology	Control Efficiency
Thermal Oxidation	99% or < 10 ppmv
Wet Scrubber	Less than 96%*

* A wet scrubber applied to this type of operation will not achieve the level of control that a thermal oxidizer will because of the large flow rate and dilute VOC concentration. Mass transfer in a contact scrubber is driven by concentration. Elevated temperature and particulate matter are also negative properties of this gas stream that make wet scrubbing a less appropriate control technology than the alternatives. The control efficiency is based on a wet scrubber that was applied to a spent grain dryer at an ethanol plant in Luverne, MN.

Step 4 – Evaluate the Most Effective Controls and Document Results

According to the analysis above, the most effective control is a thermal oxidizer with a control efficiency of 99%. IDEM is aware that other vendors have guaranteed control efficiencies of 99% to control similar processes for other proposed ethanol plants. However, BACT limitations do not necessarily need to

reflect the highest possible control efficiency achievable by the technology on which the emission limitation is based. The permitting authority has discretion to base the emission limitation on a control efficiency that is somewhat lower than the optimal level.

Step 5 – Select BACT

The Abengoa Bioenergy facility proposed to use two thermal oxidizers, each with control efficiencies of 98%, to control the VOC emissions from the two DDGS drying and cooling systems. The two thermal oxidizers (D1801 and D1802) are unique in that they control exhaust from the DDGS dryers as well as the exhaust from the DDGS cooler/cyclone operation. The two thermal oxidizers will vent to stacks S-1801 and S-1802, respectively. Pursuant to 326 IAC 8-1-6, IDEM, OAQ has determined that the following requirements represent BACT for the DDGS drying and cooling systems at this source:

(a) The VOC emissions from the DDGS dryer and cooling systems shall be controlled by thermal oxidation.

(b) The overall efficiency for the thermal oxidation systems (including the capture efficiency and destruction efficiency) shall be at least 98%, or the VOC outlet concentration shall not exceed 10 ppmv.

(c) The total VOC emissions from each of the thermal oxidation system stacks (S-1801 and S-1802) shall each not exceed 1.97 lbs/hr.

Appendix B.4
Best Available Control Technology (BACT) Determination
For the Ethanol Loading Racks (EP-2210 and EP-2211)

Introduction:

Abengoa Bioenergy of Indiana will ship denatured ethanol using either tank trucks, railcars, or by barge. During loading, VOCs will be emitted as ethanol vapors and gases present in the tanks from previous cargos are displaced by liquid ethanol. The railcars are dedicated tanks, but the trucks and barges may carry gasoline or be unclean before filling with ethanol. The potential VOC emissions from this activity were calculated using the methodology in AP-42, Section 5.2, Transportation and Loading of Petroleum Liquids (1/95) and are estimated to be greater than 25 tons per year from the denatured ethanol loading operations (see calculations in Appendix A).

The potential VOC emissions from the ethanol loading racks are greater than 25 tons per year. Since these units will be constructed after the January 1, 1980 applicability date and there are no other rules in 326 IAC 8 applicable to these units, the Permittee is required to control the VOC emissions from the ethanol loading racks with BACT.

Step 1 – Identify Control Options

(a) IDEM, OAQ reviewed the following six (6) control technologies. The detailed description of each control technology can be found in Step 1 of Appendix B.1.

1. Carbon Adsorption;
2. Wet Scrubbers;
3. Thermal Oxidation;
4. Flare; and
5. Refrigeration Condenser.

(b) The search for ethanol loading process in EPA's RACT/BACT/LAER Clearinghouse (RBLC) and Indiana Air Permits identified the following

Plant	PBLD ID or Permit #	Date Issued and State	Facility	Control Technology and Permit Date	Stack Test Results and Dates
DRS Ventures, LLC	F139-22981-00020	11/13/05 (IN)	Ethanol Loading Rack	Flare with a control efficiency of 98%. VOC emissions < 0.26 lbs/hr.	Under Construction.
Central Indiana Ethanol, LLC	SPR 053-22564-00062	07/20/06 (IN)	Ethanol Loading Rack	Flare with a control efficiency of 98%. VOC < 0.92 lbs/hr.	Under Construction.
Premier Ethanol, LLC	F075-22858-00032	9/18/06 (IN)	Ethanol Loading Rack	Flare with a control efficiency of 98%. VOC emissions < 0.92 lbs/hr.	Under Construction.
Putnam Ethanol, LLC	SPM 133-22480-00003	3/23/06 (IN)	Ethanol Loading Rack	Flare with a control efficiency of 98%. VOC emissions < 0.92 lbs/hr.	Under Construction.
The Andersons Clymers Ethanol, LLC	F017-21536-00023	2/15/06 (IN)	Ethanol Loading Rack	Flare with a control efficiency of 98%. VOC emissions < 2.03 lbs/hr.	Under Construction.
ASA Linden, LLC	F017-21453-00061	2/8/06 (IN)	Ethanol Loading Rack	Flare with a control efficiency of 98%. VOC emissions < 1.25 lbs/hr.	Under Construction.
Hartford Energy, LLC	F009-21592-00024	1/31/06 (IN)	Ethanol Loading Rack	Flare with a control efficiency of 98%. VOC emissions < 0.0224 lbs per 1000 gallons of denatured ethanol, and < 0.70 tpy. Submerged fill loading that uses normal service.	Under Construction.

Plant	PBLD ID or Permit #	Date Issued and State	Facility	Control Technology and Permit Date	Stack Test Results and Dates
Central Indiana Ethanol, LLC	F053-21057-00062	08/04/05 (IN)	Ethanol Loading Rack	Flare with a control efficiency of 98%	Under Construction.
Motiva Enterprises, L.L.C.	CT-0149	10/22/03 (CT)	Fuel Loading Rack	Vapor recovery unit with carbon absorption unit	Not Available
United Wisconsin Grain Producers	WI-0204	8/14/03 (WI)	Ethanol Loading Rack	Flare with a control efficiency of 94%	Not Available
Archer Daniels Midland Co.	IL-0090	03/28/03 (IL)	Ethanol Loading Rack	Flare with a control efficiency of 95%	Not Available
Van Waters & Rogers	CA-0894	09/01/99 (CA)	Truck Loading Stations	Thermal oxidizer with a control efficiency of 95%	Not Available

Step 2 – Eliminate Technically Infeasible Control Options

After reviewing the above technologies, IDEM, OAQ eliminated carbon adsorption and wet scrubbers as not technically feasible for ethanol loadout processes. The reasons for eliminating these technologies are as follows:

Carbon Adsorption: Carbon adsorption is effective when there is sufficient VOC concentration and adequate van der Waals interactions. Because the primary VOC being emitted is ethanol, the van der Waals interactions would be minimal. Therefore, carbon adsorption is not typically used in this type of application. According to Calgon Carbon Industries, carbon adsorption is actually used in some applications to purify ethanol. This means that carbon adsorption is so ineffective at capturing ethanol that it is used to remove contaminants from ethanol. Therefore, carbon adsorption is considered technologically infeasible for controlling the VOC emissions from the ethanol loadout facility.

Wet Scrubbers: Wet scrubbers are reasonably effective for controlling VOC emissions when the VOCs are easily absorbed in water. Several characteristics control the effectiveness of wet scrubbers for VOC removal. The one parameter that can be easily analyzed to determine if wet scrubbing is effective is the solubility of the pollutants in the absorbent (water). The constituents in gasoline include many different organic compounds. Some of these compounds have limited solubility in water and, therefore, potentially affect the control efficiency of the scrubber. A significant amount of VOC emissions emitted during loadout arises from the displacement of petroleum or gasoline vapors present in the tank from the previous cargo. While the emissions from the ethanol would be effectively controlled by a wet scrubber, the VOC emissions resulting from the displacement of gasoline or petroleum vapors would not be effectively controlled by a wet scrubber.

Step 3 – Rank Remaining Control Technologies by Control Effectiveness

A condenser, thermal oxidizer, and flare are the only technically feasible control options for the ethanol loadout. IDEM, OAQ reviewed industry data to determine the VOC control efficiency of each of the remaining control technologies. The results of this review are summarized in the following table:

Control Technology	VOC Control Efficiency
Flare	98%
Thermal Oxidizer	99%
Refrigeration Condenser	Greater than 90%

Step 4 – Evaluate the Most Effective Controls and Document Results

According to the analysis above, the most effective control is a thermal oxidizer with a control efficiency of 99%. IDEM is aware that other vendors have guaranteed control efficiencies of 99% to control similar processes for other proposed ethanol plants. However, BACT limitations do not necessarily need to reflect the highest possible control efficiency achievable by the technology on which the emission limitation is based. The permitting authority has discretion to base the emission limitation on a control efficiency that is somewhat lower than the optimal level.

Step 5 – Select BACT

Abengoa Bioenergy proposed to use a flare, identified as CE-2210, with a destruction efficiency of 98% to control the VOC emissions from the truck and railcar ethanol loading rack. Abengoa Bioenergy also proposed to use a flare, identified as CE-2211, with a destruction efficiency of 98% to control VOC emissions from the barge ethanol loading rack. Pursuant to 326 IAC 8-1-6, IDEM, OAQ has determined that the following requirements represent BACT for the ethanol loading racks at this source:

(a) The VOC emissions from the ethanol loading racks shall be collected and controlled by the enclosed flares identified as CE-2210 and CE-2211.

(b) The overall efficiency for each of the enclosed flares identified as CE-2210 and CE-2211 (including the capture efficiency and destruction efficiency) shall be at least 98%.

(c) The VOC emissions from the enclosed flare identified as CE-2210 shall not exceed 8.96 lbs/hr.

(d) The VOC emissions from the enclosed flare identified as CE-2211 shall not exceed 9.36 lbs/hr.