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: September 18, 2006

RE: Premier Ethanol, LLC / 075-22858-00032

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

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NEW CONSTRUCTION FEDERALLY ENFORCEABLE STATE OPERATING PERMIT OFFICE OF AIR QUALITY

Premier Ethanol, LLC
2701 W SR 67
Portland, Indiana 47371

(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.

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 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.

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.

Operation Permit No.: 075-22858-00032	
Original signed by: Nisha Sizemore, Chief Permits Branch Office of Air Quality	Issuance Date: September 18, 2006 Expiration Date: September 18, 2011

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SECTION A SOURCE SUMMARY

This permit is based on information requested by the Indiana Department of Environmental Management (IDEM), Office of Air Quality (OAQ). The information describing the source contained in conditions A.1 and A.2 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:	Chairman
Source Address:	2701 W SR 67, Portland, Indiana 47371
Mailing Address:	2701 W SR 67, Portland, Indiana 47371 Portland, Indiana 47371
General Source Phone Number:	(605) 965-2241
SIC Code:	2869
County Location:	Jay
Source Location Status:	Attainment for all criteria pollutants
Source Status:	Federally Enforceable State Operating Permit Program Minor Source, under PSD Rules 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 and handling operation, constructed in 2006, controlled by baghouse CE001, exhausting through stack SV001, and consisting of the following:

(1) Two (2) truck dump pits, identified as EU001, constructed in 2006, with a maximum throughput rate of 840 tons of corn per hour.

(2) Two (2) grain legs and conveying system, identified as EU002, constructed in 2006, with a maximum throughput rate of 840 tons per hour.

(3) Four (4) grain bins, identified as EU003, constructed in 2006, with a maximum throughput rate of 840 tons per hour.

(b) One (1) corn scalper, identified as EU004, constructed in 2006, with a maximum throughput rate of 140 tons of corn per hour, controlled by baghouse CE002, and exhausting through stack SV002.

(c) One (1) surge bin, identified as EU005, constructed in 2006, with a maximum throughput rate of 140 tons of corn per hour, controlled by baghouse CE002, and exhausting through stack SV002.

(d) Five (5) hammermills, identified as EU006, EU007, EU008, EU009, and EU010, constructed in 2006, each with a maximum throughput rate of 20 tons of corn per hour, controlled by baghouses CE003, CE004, CE005, CE006, and CE007, respectively, and exhausting through stacks SV003, SV004, SV005, SV006, and SV007, respectively.

(e) One (1) fermentation process, constructed in 2006, with a maximum throughput rate of 55,400 gallons per hour, controlled by scrubber CE008 and thermal oxidizer CE009, with emissions exhausted through SV009. This process consists of the following:

(1) One (1) slurry tank, identified as EU011, constructed in 2006.

(2) Five (5) fermenters, identified as EU012 through EU016, constructed in 2006.

(3) One (1) yeast propagation tank, identified as EU017, constructed in 2006.

(4) One (1) beer well, identified as EU018, constructed in 2006.

(f) One (1) regenerative thermal oxidizer, identified as CE009, constructed in 2006, with a maximum heat input capacity of 30 MMBtu/hr, using natural gas as fuel, with emissions exhausted through stack SV009.

(g) One (1) distillation process, constructed in 2006, with a maximum throughput rate of 54,000 gallons of ethanol per hour, controlled by scrubber CE008 and thermal oxidizer CE009, with emissions exhausted through stack SV009. This process consists of the following:

(1) One (1) beer stripper, identified as EU019, constructed in 2006.

(2) One (1) rectifier column, identified as EU020, constructed in 2006.

(3) One (1) side stripper, identified as EU021, constructed in 2006.

(4) One (1) set of three (3) molecular sieves, identified as EU022, constructed in 2006.

(5) One (1) set of four (4) evaporators, identified as EU023, constructed in 2006.

(h) One (1) set of four (4) centrifuges, identified as EU024, constructed in 2006, controlled by thermal oxidizer CE009 during normal operation, with emissions exhausted through stack SV009. During wetcake production, emissions from EU024 are exhausted through bypass stack SV017.

(i) Two (2) natural gas fired DDGS dryers, identified as EU025 and EU026, constructed in 2006, each with a maximum heat input rate of 60 MMBtu/hr, with a total maximum throughput rate of 26 tons of DDGS per hour, controlled by multiclones CE013 and CE014, respectively, with emissions venting to thermal oxidizer CE009, and exhausting to stack SV009.

(j) Two (2) natural gas fired boilers, identified as EU027 and EU028, constructed in 2006, each with a maximum heat input rate of 143 MMBtu/hr each, with emissions exhausting to stacks SV013 and SV014, respectively.

(k) One (1) fluidized DDGS cooler, identified as EU029, constructed in 2006, with a maximum throughput rate of 26 tons/hr of DDGS, controlled by baghouse CE010, and exhausting to stack SV010.

(l) One (1) DDGS handling and storage operation, constructed in 2006, with a maximum throughput rate of 220 tons/hr of DDGS, and consisting of the following:

(1) One (1) DDGS storage silo, identified as EU030, constructed in 2006, controlled by baghouse CE011, with emissions exhausted to stack SV011.

(2) One (1) DDGS silo bypass, identified as EU031, constructed in 2006, controlled by baghouse CE012, with emissions exhausted to stack SV012.

(3) One (1) DDGS storage building, identified as EU032, constructed in 2006, controlled by baghouse CE001, with emissions exhausted to stack SV001.

(m) One (1) DDGS loadout operation, constructed in 2006, with a maximum throughput rate of 220 tons/hr of DDGS, and consisting of the following:

(1) One (1) DDGS conveyor, identified as EU033, constructed in 2006, controlled by baghouse CE001, with emissions exhausted to stack SV001.

(2) One (1) DDGS truck loadout spout, identified as EU034, constructed in 2006.

(3) One (1) DDGS rail loadout spout, identified as EU035, constructed in 2006, controlled by baghouse CE001, with emissions exhausted to stack SV001.

(n) One (1) ethanol loading system, identified as EU036, consisting of one (1) rack for trucks and two (2) racks for railcars, constructed in 2006, with a maximum throughput rate of 39,000 gallons per hour when loading trucks, and 144,000 gallons per hour when loading railcars. This unit is controlled by enclosed flare CE013, which is fueled by natural gas and has a pilot gas flare heat input capacity of 54,000 Btu/hr, and exhausts through stack SV016.

(o) One (1) diesel generator, identified as EU037, constructed in 2006, with a maximum power output rate of 2,460 HP, and exhausting to stack SV015.

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

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

(a) Solvent recycling systems with batch capacity less than or equal to 100 gallons.

(b) Forced and induced draft cooling tower system 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) Underground conveyors, including underground grain and product transfer conveyors.

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

(g) 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) off spec tank for 190-proof ethanol, identified as T001, constructed in 2006, with a maximum capacity of 250,000 gallons. [40 CFR 60, Subpart Kb]

(2) One (1) tank for 200-proof ethanol, identified as T002, constructed in 2006, with a maximum capacity of 250,000 gallons of 200-proof ethanol. [40 CFR 60, Subpart Kb]

(3) One (1) denatured ethanol tank, identified as T003, constructed in 2006, with a maximum capacity of 2,000,000 gallons of denatured ethanol. [40 CFR 60, Subpart Kb]

(4) One (1) denatured ethanol tank, identified as T004, constructed in 2006, with a maximum capacity of 2,000,000 gallons of denatured ethanol. [40 CFR 60, Subpart Kb]

(5) One (1) denaturant tank, identified as T005, constructed in 2006, with a maximum capacity of 126,900 gallons of natural gasoline. [326 IAC 8-9] [40 CFR 60, Subpart Kb]

(6) One (1) diesel storage tank, identified as T006, constructed in 2006, with a maximum storage capacity less than 2,000 gallons of diesel fuel.

(7) One (1) thin stillage tank, identified as T007, constructed in 2006, with a maximum storage capacity of 500,000 gallons of thin stillage.

(8) One (1) syrup tank, identified as T008, constructed in 2006, with a maximum storage capacity of 61,000 gallons of syrup.

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, 075-22858-00032, 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 submittal 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) prior to startup of 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, within four (4) daytime business hours after the beginning of the emergency, or after the emergency was discovered or reasonably should have been discovered;

Telephone Number: 1-800-451-6027 (ask for Office of Air Quality, Compliance Section), or
Telephone Number: 317-233-0178 (ask for Compliance Section)
Facsimile Number: 317-233-6865

(5) For each emergency lasting one (1) hour or more, the Permittee submitted the attached Emergency Occurrence Report Form or its equivalent, either by mail or facsimile to:

Indiana Department of Environmental Management
Compliance Branch, Office of Air Quality
100 North Senate Avenue
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 075-22858-00032 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).

(d) 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 in 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 2 and 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]

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 to IDEM, OAQ, within thirty (30) calendar days of receipt of a billing. Pursuant to 326 IAC 2-7-19(b), if the Permittee does not receive a bill from IDEM, OAQ, the applicable fee is due April 1 of each year.

(b) Failure to pay may result in administrative enforcement action or revocation of this permit.

(c) The Permittee may call the following telephone numbers: 1-800-451-6027 or 317-233-4230 (ask for OAQ, Billing, Licensing, and Training Section), to determine the appropriate permit fee.

B.26 Advanced Source Modification Approval [326 IAC 2-8-4(11)] [326 IAC 2-1.1-9]

(a) The requirements to obtain a permit modification under 326 IAC 2-8-11.1 are satisfied by this permit for the proposed emission units, control equipment or insignificant activities in Sections A.1 and A.2.

(b) Pursuant to 326 IAC 2-1.1-9 any permit authorizing construction may be revoked if construction of the emission unit has not commenced within eighteen (18) months from the date of issuance of the permit, or if during the construction, work is suspended for a continuous period of one (1) year or more.

B.27 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 also 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. The requirement to use an Indiana Accredited Asbestos inspector is not federally enforceable.

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

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

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

C.12 Maintenance of Continuous Emission Monitoring Equipment [326 IAC 2-7-5(3)(A)(iii)]

(a) The Permittee shall install, calibrate, maintain, and operate all necessary continuous emission monitoring systems (CEMS) and related equipment.

(b) In the event that a breakdown of a continuous emission monitoring system occurs, a record shall be made of the times and reasons of the breakdown and efforts made to correct the problem.

(c) Whenever a continuous emission monitor other than an opacity monitor is malfunctioning or will be down for calibration, maintenance, or repairs for a period of four (4) hours or more, a calibrated backup CEMS shall be brought online within four (4) hours of shutdown of the primary CEMS, and shall be operated until such time as the primary CEMS is back in operation.

(d) Nothing in this permit shall excuse the Permittee from complying with the requirements to operate a continuous emission monitoring system pursuant to 40 CFR 60, Subpart Db.

C.13 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.14 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 [326 IAC 2-8-4][326 IAC 2-8-5] 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.15 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.16 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;

(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.17 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.18 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 prior to startup of operations.

C.19 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 issuance of this permit 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.20 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 and handling operation, constructed in 2006, controlled by baghouse CE001, exhausting through stack SV001, and consisting of the following:

(1) Two (2) truck dump pits, identified as EU001, constructed in 2006, with a maximum throughput rate of 840 tons of corn per hour.

(2) Two (2) grain legs and conveying system, identified as EU002, constructed in 2006, with a maximum throughput rate of 840 tons per hour.

(3) Four (4) grain bins, identified as EU003, constructed in 2006, with a maximum throughput rate of 840 tons per hour.

(b) One (1) corn scalper, identified as EU004, constructed in 2006, with a maximum throughput rate of 140 tons of corn per hour, controlled by baghouse CE002, and exhausting through stack SV002.

(c) One (1) surge bin, identified as EU005, constructed in 2006, with a maximum throughput rate of 140 tons of corn per hour, controlled by baghouse CE002, and exhausting through stack SV002.

(d) Five (5) hammermills, identified as EU006, EU007, EU008, EU009, and EU010, constructed in 2006, each with a maximum throughput rate of 20 tons of corn per hour, controlled by baghouses CE003, CE004, CE005, CE006, and CE007, respectively, and exhausting through stacks SV003, SV004, SV005, SV006, and SV007, respectively.

(l) One (1) DDGS handling and storage operation, constructed in 2006, with a maximum throughput rate of 220 tons/hr of DDGS, and consisting of the following:

(1) One (1) DDGS storage silo, identified as EU030, constructed in 2006, controlled by baghouse CE011, with emissions exhausted to stack SV011.

(2) One (1) DDGS silo bypass, identified as EU031, constructed in 2006, controlled by baghouse CE012, with emissions exhausted to stack SV012.

(3) One (1) DDGS storage building, identified as EU032, constructed in 2006, controlled by baghouse CE001, with emissions exhausted to stack SV001.

(m) One (1) DDGS loadout operation, constructed in 2006, with a maximum throughput rate of 220 tons/hr of DDGS, and consisting of the following:

(1) One (1) DDGS conveyor, identified as EU033, constructed in 2006, controlled by baghouse CE001, with emissions exhausted to stack SV001.

(2) One (1) DDGS truck loadout spout, identified as EU034, constructed in 2006.

(3) One (1) DDGS rail loadout spout, identified as EU035, constructed in 2006, controlled by baghouse CE001, with emissions exhausted to stack SV001.

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 thereunder, 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 following units shall not exceed the emission limits listed in the table below.

Unit ID	Unit Description	Baghouse ID	PM/PM10 Emission Limit (lbs/hr)
EU001, EU002, EU003, EU032, EU033, EU035	Grain Receiving, Conveyors, and Storage Bins, and DDGS conveying, storage, and loadout	CE001	0.80
EU004, EU005	Corn Scalper, Surge Bin	CE002	0.09
EU006	Hammermill #1	CE003	0.41
EU007	Hammermill #2	CE004	0.41
EU008	Hammermill #3	CE005	0.41
EU009	Hammermill #4	CE006	0.41
EU010	Hammermill #5	CE007	0.41
EU030	DDGS Silo Loading	CE011	0.14
EU031	DDGS Silo Bypass	CE012	0.14

(b) The total grain received shall not exceed 7,358,400 tons per twelve (12) consecutive month period with compliance determined at the end of each month.

(c) The total DDGS produced shall not exceed 201,480 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 applied in a manner and at a frequency sufficient to ensure compliance with 326 IAC 2-2 and 326 IAC 2-8.

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:

Unit ID	Unit Description	Max. Throughput Rate (tons/hr)	Particulate Emission Limit (lbs/hr)
EU001, EU002, EU003	Grain Receiving, Conveyors, and Storage Bins	840	75.4
EU004, EU005	Corn Scalper, Surge Bin	140	54.7
EU006	Hammermill #1	20	30.5
EU007	Hammermill #2	20	30.5
EU008	Hammermill #3	20	30.5
EU009	Hammermill #4	20	30.5
EU010	Hammermill #5	20	30.5
EU030	DDGS Silo Loading	23	33.5
EU031	DDGS Silo Bypass	23	33.5
EU032	DDGS Storage Building	220	59.5
EU033	DDGS Conveyor	220	59.5
EU035	DDGS Rail Loadout Spout	220	59.5

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

Interpolation and extrapolation 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 ID	Unit Description	Baghouse ID
EU001, EU002, EU003, EU032, EU033, EU035	Grain Receiving, Conveyors, and Storage Bins, and DDGS conveying, storage, and loadout	CE001
EU004, EU005	Corn Scalper, Surge Bin	CE002
EU006	Hammermill #1	CE003
EU007	Hammermill #2	CE004
EU008	Hammermill #3	CE005
EU009	Hammermill #4	CE006
EU010	Hammermill #5	CE007
EU030	DDGS Silo Loading	CE011
EU031	DDGS Silo Bypass	CE012

(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, the Permittee shall perform PM and PM10 testing for one of baghouses CE001 through CE007, and one of baghouses CE011 or CE012, 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 SV001 through SV007, SV011, and SV012) 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 (EU001 through EU005), the hammermills (EU006 through EU010), and the DDGS handling and loadout operations (EU030 through EU033, and EU035), 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 produced.

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

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

(e) 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 – Fermentation/Distillation and DDGS Drying

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

(e) One (1) fermentation process, constructed in 2006, with a maximum throughput rate of 55,400 gallons per hour, controlled by scrubber CE008 and thermal oxidizer CE009, with emissions exhausted through stack SV009. This process consists of the following:

(1) One (1) slurry tank, identified as EU011, constructed in 2006.

(2) Five (5) fermenters, identified as EU012 through EU016, constructed in 2006.

(3) One (1) yeast propagation tank, identified as EU017, constructed in 2006.

(4) One (1) beer well, identified as EU018, constructed in 2006.

(f) One (1) regenerative thermal oxidizer, identified as CE009, constructed in 2006, with a maximum heat input capacity of 30 MMBtu/hr, using natural gas as fuel, with emissions exhausted through stack SV009.

(g) One (1) distillation process, constructed in 2006, with a maximum throughput rate of 54,000 gallons of ethanol per hour, controlled by scrubber CE008 and thermal oxidizer CE009, with emissions exhausted through SV009. This process consists of the following:

(1) One (1) beer stripper, identified as EU019, constructed in 2006.

(2) One (1) rectifier column, identified as EU020, constructed in 2006.

(3) One (1) side stripper, identified as EU021, constructed in 2006.

(4) One (1) set of three (3) molecular sieves, identified as EU022, constructed in 2006.

(5) One (1) set of four (4) evaporators, identified as EU023, constructed in 2006.

(h) One (1) set of four (4) centrifuges, identified as EU024, constructed in 2006, controlled by thermal oxidizer CE009 during normal operation, with emissions exhausted through stack SV009. During wetcake production, emissions from EU024 are exhausted through bypass stack SV017.

(i) Two (2) natural gas fired DDGS dryers, identified as EU025 and EU026, constructed in 2006, each with a maximum heat input rate of 60 MMBtu/hr, with a total maximum throughput rate of 26 tons of DDGS per hour, controlled by multiclones CE013 and CE014, respectively, with emissions venting to thermal oxidizer CE009, and exhausting to stack SV009.

(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 thereunder, 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), the Permittee shall comply with the following emission limits for the RTO system (CE009), which is used to control the emissions from the fermentation and distillation processes, and the DDGS dryers (EU025 and EU026):

(a) PM/PM10 emissions shall not exceed 6.86 lbs/hr.

(b) VOC emissions shall not exceed 10.5 lbs/hr.

(c) CO emissions shall not exceed 10.5 lbs/hr.

(d) NOx emissions shall not exceed 9.60 lbs/hr.

(e) Acetaldehyde emissions shall not exceed 1.19 lbs/hr.

(f) Total HAP emissions shall not exceed 1.6 lbs/hr.

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.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 and the DDGS dryers (EU025 and EU026) using Best Available Control Technology (BACT), which has been determined to be the following:

(a) The VOC emissions from the fermentation and distillation process shall be controlled by scrubber CE008 and thermal oxidizer CE009.

(b) The overall efficiency for the scrubber CE008 and thermal oxidizer CE009 (including the capture efficiency and destruction efficiency) shall be at least 99%, or the VOC outlet concentration shall not exceed 10 ppmv.

(c) The VOC emissions from the DDGS dryers (EU025 and EU026) shall be controlled by thermal oxidizer CE009.

(d) The overall efficiency for the thermal oxidizer CE009 controlling the DDGS dryers (EU025 and EU026) (including the capture efficiency and destruction efficiency) shall be at least 98%, or the VOC outlet concentration shall not exceed 10 ppmv.

(e) The total VOC emissions from the thermal oxidizer CE009 stack (SV009) shall not exceed 10.5 lbs/hr.

D.2.6 Standard 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 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 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:

Unit ID	Unit Description	Max. Throughput Rate (tons/hr)	Particulate Emission Limit (lbs/hr)
EU025	DDGS Dryer	29.4	39.5
EU026	DDGS Dryer	29.4	39.5

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.2.8 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.2.9 VOC and HAP Control

In order to comply with Conditions D.2.4 and D.2.5, thermal oxidizer CE009 shall be in operation and control emissions from the DDGS dryers (EU025 and EU026) at all times that the dryers are in operation and the scrubber CE008 and thermal oxidizer CE009 shall be in operation, and control emissions from the fermentation and distillation processes at all times that these units are in operation.

D.2.10 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, D.2.5, and D.2.7, the Permittee shall perform PM, PM10, VOC (including emission rate, destruction efficiency, and capture efficiency), NOx, CO, and Acetaldehyde testing for the RTO system stack (SV009) within 60 days after achieving 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.2.11 Visible Emissions Notations

(a) Visible emission notations of the stack exhaust from the RTO system stack (SV009) 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.2.12 Thermal Oxidizer Temperature

(a) A continuous monitoring system shall be calibrated, maintained, and operated on the RTO system (CE009) 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 startup until the approved stack test results are available, the Permittee shall operate the thermal oxidizer 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.2.4 and D.2.5, 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.2.13 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.2.4 and D.2.5, as approved by IDEM.

(b) 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.

D.2.14 Scrubber Pressure Drop and Flow Rate

The Permittee shall monitor and record the pressure drop and the flow rate of the scrubber CE008 at least once per day when the fermentation and/or the distillation process is in operation. When for any one reading, the pressure drop across the scrubber is outside the normal range of 2.0 and 8.0 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 35 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.2.15 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.

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

D.2.16 Record Keeping Requirements

(a) To document compliance with Condition D.2.11, the Permittee shall maintain records of once per day visible emission notations of the stack SV009.

(b) To document compliance with Condition D.2.12, the Permittee shall maintain continuous temperature records for the thermal oxidizer and the 3-hour average temperature used to demonstrate compliance during the most recent compliant stack test.

(c) To document compliance with Condition D.2.13, the Permittee shall maintain daily records of the duct pressure or fan amperage for the RTO system (CE009).

(d) To document compliance with Condition D.2.14, the Permittee shall maintain daily records of pressure drop and flow rate for scrubber CE008 during normal operation.

(e) 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)]:

(j) Two (2) natural gas fired boilers, identified as EU027 and EU028, constructed in 2006, each with a maximum heat input rate of 143 MMBtu/hr, with emissions exhausting to stacks SV013 and SV014, 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 thereunder, 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 Nitrogen Oxides (NOx) [326 IAC 2-8-4] [326 IAC 2-2]

Pursuant to 326 IAC 2-8-4 (FESOP), 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 the natural gas to the boilers shall be limited to less than 2,505.4 MMCF per 12 consecutive month period, with compliance determined at the end of each month.

(c) NOx emissions shall not exceed 40 pounds per MMCF.

(d) Total NOx emissions from the boilers shall be limited to 50.1 tons per year.

Combined with the NOx emissions from other units, the NOx 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 CO Emissions [326 IAC 2-8-4] [326 IAC 2-2]

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 less than 2,505.4 MMCF per 12 consecutive month period, with compliance determined at the end of each month.

(c) CO emissions from the boilers shall not exceed 40 pounds per MMCF.

(d) Total CO emissions from fuel combustion shall be limited to 50.1 tons per year.

Combined with the CO emissions from other units, the 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.3.6 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 0.250 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 = 286 MMBtu/hr.

D.3.7 Standard of Performance for Boilers [40 CFR Part 60, Subpart Db] [326 IAC 12]

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

D.3.8 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.3.9 Testing Requirements [326 IAC 2-8-5(a) (1), (4)] [326 IAC 2-1.1-11]

In order to demonstrate compliance with Conditions D.3.4 and D.3.5, the Permittee shall perform NOx and CO testing for the boilers, 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 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.3.10 Record Keeping Requirements

(a) To document compliance with Conditions D.3.4 and D.3.5, the Permittee shall maintain daily records of the amount of fuel combusted in the boilers.

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

D.3.11 Reporting Requirements

A quarterly summary of the information to document compliance with Conditions D.3.4 and D.3.5 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 “responsible official” as defined by 326 IAC 2-7-1(34).

SECTION D.4 FACILITY OPERATION CONDITIONS – DDGS Cooler

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

(k) One (1) fluidized DDGS cooler, identified as EU029, constructed in 2006, with a maximum throughput rate of 26 tons/hr of DDGS, controlled by baghouse CE010, and exhausting to stack SV010.

(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 PM and PM10 Emissions [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:

(a) The PM/PM10 emissions from the DDGS cooler, which is controlled by baghouse CE010, shall not exceed the 0.82 lbs/hr.

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.4.5 VOC Emissions [326 IAC 2-2] [326 IAC 2-8-4] [326 IAC 8-1-6]

Pursuant to 326 IAC 2-8-4 (FESOP), and in order to render the requirements of 326 IAC 2-2 (PSD) and 326 IAC 8-1-6 (BACT) not applicable, the Permittee shall comply with the following:

(a) VOC emissions shall not exceed 5.7 lbs/hr.

Combined with the VOC emissions from other emission units, the VOC 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. Compliance with this limitation limits VOC emissions from this facility to less that 25 tons/year, therefore 326 IAC 8-1-6 (BACT) is not applicable.

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

Pursuant to 326 IAC 6-3-2, particulate emissions from the DDGS cooler (EU029) shall not exceed 33.5 pounds per hour when operating at the maximum process throughput rate of 23 tons per hour.

The pounds per hour limitation was 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

(a) In order to comply with Conditions D.4.4(a) and D.4.6, Baghouse CE010 shall be in operation and control emissions from the DDGS cooler (EU029) at all times that this unit is in operation.

(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.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, and VOC testing for the DDGS cooler (EU029) 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.

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 baghouse stack exhaust (stack SV010) 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 Parametric Monitoring

(a) The Permittee shall record the pressure drop across the baghouse used in conjunction with the DDGS cooler (EU029) at least once per day when this unit is 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.4.12 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.4.13 Record Keeping Requirements

(a) To document compliance with Condition D.4.10, the Permittee shall maintain records of daily visible emission notations of the baghouse stack exhaust.

(b) To document compliance with Condition D.4.11, the Permittee shall maintain daily records of pressure drop for the baghouse during normal operation.

(c) 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)]:

(n) One (1) ethanol loading system, identified as EU036, consisting of one (1) rack for trucks and two (2) racks for railcars, constructed in 2006, with a maximum throughput rate of 39,000 gallons per hour when loading trucks, and 144,000 gallons per hour when loading railcars. This unit is controlled by enclosed flare CE013, which is fueled by natural gas and has a pilot gas flare heat input capacity of 54,000 Btu/hr, and exhausting through stack SV016.

(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), the Permittee shall comply with the following emission limits for the ethanol loading racks:

(a) The total denatured ethanol load-out from loading rack EU036 shall not exceed 69,000,000 gallons per twelve (12) consecutive month period with compliance determined at the end of each month.

(b) The Permittee shall use flare CE013 to control the emissions from the ethanol loading rack (EU036).

(c) CO emissions from flare CE013 shall not exceed 0.084 lbs/kgal.

(d) NOx emissions from flare CE013 shall not exceed 0.0334 lbs/kgal.

(e) The ethanol loading rack shall utilize submerged loading method when loading trucks and railcars.

(f) The railcars and trucks shall not use vapor balance services.

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 rack (EU036) with a Best Available Control Technology (BACT). The BACT for this unit has been determined to be the following:

(a) The VOC emissions from the ethanol loading rack (EU036) shall be collected and controlled by enclosed flare CE013.

(b) The overall control efficiency for the vapor collection system and enclosed flare CE013 (including the capture efficiency and destruction efficiency) shall be at least 98%.

(c) The VOC emissions from enclosed flare CE013 shall not exceed 2.81 lbs/hr.

D.5.6 Standard 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 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.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 flare CE013 shall be in operation and control emissions from the ethanol loading rack (EU036) at all times when this unit is 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 enclosed flare CE013, 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 flare CE013 using a thermocouple or any other equivalent device to detect the presence of a flame when ethanol loading rack EU036 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 total amount of denatured ethanol loaded out from loading rack EU036.

(b) 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 loading rack EU036 is in operation.

(c) 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 Condition D.5.4(a) 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 "responsible official" as defined by 326 IAC 2-7-1(34).

SECTION D.6 FACILITY OPERATION CONDITIONS – Diesel Generator

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

(o) One (1) diesel Generator, identified as EU037, constructed in 2006, with a maximum power output rate of 2,460 horsepower, and exhausting to stack SV015.

(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]

Pursuant to 326 IAC 2-8-4 (FESOP), the operating hours for the diesel generator (EU037) shall not exceed 500 hours per twelve (12) consecutive month period with compliance determined at the end of each month.

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.

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

D.6.2 Record Keeping Requirements

(a) To document compliance with Condition D.6.1(a), the Permittee shall maintain monthly records of the operating hours for the diesel generator (EU036).

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

D.6.3 Reporting Requirements

A quarterly summary of the information to document compliance with Condition D.6.1(a) 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

(g) 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) off spec tank for 190-proof ethanol, identified as T001, constructed in 2006, with a maximum capacity of 250,000 gallons. [40 CFR 60, Subpart Kb]

(2) One (1) tank for 200-proof ethanol, identified as T002, constructed in 2006, with a maximum capacity of 250,000 gallons of 200-proof ethanol. [40 CFR 60, Subpart Kb]

(3) One (1) denatured ethanol tank, identified as T003, constructed in 2006, with a maximum capacity of 2,000,000 gallons of denatured ethanol. [40 CFR 60, Subpart Kb]

(4) One (1) denatured ethanol tank, identified as T004, constructed in 2006, with a maximum capacity of 2,000,000 gallons of denatured ethanol. [40 CFR 60, Subpart Kb]

(5) One (1) denaturant tank, identified as T005, constructed in 2006, with a maximum capacity of 126,900 gallons of natural gasoline. [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), storage tank T005 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) (Petroleum Liquid Storage Facilities), the Permittee shall maintain the following records for a period of two (2) years for tank T005:

(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.

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 requirement of - Section E.3 for Tanks T001 through T005.

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 these facilities and any control devices.

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 tank T005:

(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)]:

(e) One (1) fermentation process, constructed in 2006, with a maximum throughput rate of 55,400 gallons per hour, controlled by scrubber CE008 and thermal oxidizer CE009, with emissions exhausted through stack SV009. This process consists of the following:

(1) One (1) slurry tank, identified as EU011, constructed in 2006.

(2) Five (5) fermenters, identified as EU012 through EU016, constructed in 2006.

(3) One (1) yeast propagation tank, identified as EU017, constructed in 2006.

(4) One (1) beer well, identified as EU018, constructed in 2006.

(g) One (1) distillation process, constructed in 2006, with a maximum throughput rate of 54,000 gallons of ethanol per hour, controlled by scrubber CE008 and thermal oxidizer CE009, with emissions exhausted through stack SV009. This process consists of the following:

(1) One (1) beer stripper, identified as EU019, constructed in 2006.

(2) One (1) rectifier column, identified as EU020, constructed in 2006.

(3) One (1) side stripper, identified as EU021, constructed in 2006.

(4) One (1) set of three (3) molecular sieves, identified as EU022, constructed in 2006.

(5) One (1) set of four (4) evaporators, identified as EU023, constructed in 2006.

(h) One (1) set of four (4) centrifuges, identified as EU024, constructed in 2006, controlled by thermal oxidizer CE009 during normal operation, with emissions exhausted through tack SV009. During wetcake production, emissions from EU024 are exhausted through bypass stack SV017.

(n) One (1) ethanol loading system, identified as EU036, consisting of one (1) rack for trucks and two (2) racks for railcars, constructed in 2006, with a maximum throughput rate of 39,000 gallons per hour when loading trucks, and 144,000 gallons per hour when loading railcars. This unit is controlled by enclosed flare CE013, which is fueled by natural gas and has a pilot gas flare heat input capacity of 54,000 Btu/hr, and exhausts through stack SV016.

(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) 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, except as otherwise specified in 40 CFR Part 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 Standard 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 Standard 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)]:

(j) Two (2) natural gas fired boilers, identified as EU027 and EU028, constructed in 2006, each with a maximum heat input rate of 143 MMBtu/hr, with emissions exhausting to stacks SV013 and SV014, 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 EU027 and EU028, 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 EU027 and EU028 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)]:

(g) 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) off spec tank for 190-proof ethanol, identified as T001, constructed in 2006, with a maximum capacity of 250,000 gallons. [40 CFR 60, Subpart Kb]

(2) One (1) tank for 200-proof ethanol, identified as T002, constructed in 2006, with a maximum capacity of 250,000 gallons of 200-proof ethanol. [40 CFR 60, Subpart Kb]

(3) One (1) denatured ethanol tank, identified as T003, constructed in 2006, with a maximum capacity of 2,000,000 gallons of denatured ethanol. [40 CFR 60, Subpart Kb]

(4) One (1) denatured ethanol tank, identified as T004, constructed in 2006, with a maximum capacity of 2,000,000 gallons of denatured ethanol. [40 CFR 60, Subpart Kb]

(5) One (1) denaturant tank, identified as T005, constructed in 2006, with a maximum capacity of 126,900 gallons of natural gasoline. [326 IAC 8-9] [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 T001, T002, T003, T004, and T005, 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 T001, T002, T003, T004, and T005 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]

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

FEDERALLY ENFORCEABLE STATE OPERATING PERMIT (FESOP) CERTIFICATION

Source Name: Premier Ethanol, LLC
Source Address: 2701 W SR 67, Portland, Indiana 47371
Mailing Address: 2701 W SR 67, Portland, Indiana 47371
FESOP Permit No.: 075-22858-00032

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: Premier Ethanol, LLC
Source Address: 2701 W SR 67, Portland, Indiana 47371
Mailing Address: 2701 W SR 67, Portland, Indiana 47371
FESOP Permit No.: 075-22858-00032

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: Premier Ethanol, LLC
Source Address: 2701 W SR 67, Portland, Indiana 47371
Mailing Address: 2701 W SR 67, Portland, Indiana 47371
FESOP Permit No.: 075-22858-00032
Facility: Truck dump pits EU001
Parameter: The amount of corn received
Limit: Less than 7,358,400 tons per twelve (12) consecutive month period with compliance determined at the end of each month.

QUARTER:_____ YEAR:_____

Month	Column 1 This Month	Column 2 Previous 11 Months	Column 1 + Column 2 12 Month Total
Month 1			
Month 2			
Month 3			

9 No deviation occurred in this quarter.

9 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: Premier Ethanol, LLC
Source Address: 2701 W SR 67, Portland, Indiana 47371
Mailing Address: 2701 W SR 67, Portland, Indiana 47371
FESOP Permit No.: 075-22858-00032
Facility: Boilers EU027 and EU028
Parameter: Natural Gas Usage
Limit: Less than 2,504.4 MMCF per twelve (12) consecutive month period with compliance determined at the end of each month.

QUARTER:_____ YEAR:_____

Month	Column 1	Column 2	Column 1 + Column 2
	This Month	Previous 11 Months	12 Month Total
Month 1			
Month 2			
Month 3			

9 No deviation occurred in this quarter.

9 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: Premier Ethanol, LLC
Source Address: 2701 W SR 67, Portland, Indiana 47371
Mailing Address: 2701 W SR 67, Portland, Indiana 47371
FESOP Permit No.: 075-22858-00032
Facility: Ethanol Loading Rack EU036
Parameter: Denatured Ethanol Loadout
Limit: Less than 69 MMgal per twelve (12) consecutive month period with compliance determined at the end of each month.

QUARTER:_____ YEAR:_____

Month	Column 1	Column 2	Column 1 + Column 2
	This Month	Previous 11 Months	12 Month Total
Month 1			
Month 2			
Month 3			

9 No deviation occurred in this quarter.

9 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: Premier Ethanol, LLC
Source Address: 2701 W SR 67, Portland, Indiana 47371
Mailing Address: 2701 W SR 67, Portland, Indiana 47371
FESOP Permit No.: 075-22858-00032
Facility: Diesel Generator EU037
Parameter: Operating Hours
Limit: Less than 500 hours per twelve (12) consecutive month period with compliance determined at the end of each month.

QUARTER:_____ YEAR:_____

Month	Column 1	Column 2	Column 1 + Column 2
	This Month	Previous 11 Months	12 Month Total
Month 1			
Month 2			
Month 3			

9 No deviation occurred in this quarter.

9 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: Premier Ethanol, LLC
Source Address: 2701 W SR 67, Portland, Indiana 47371
Mailing Address: 2701 W SR 67, Portland, Indiana 47371
FESOP Permit No.: 075-22858-00032

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 "No 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:	Premier Ethanol, LLC
Source Location:	2701 W SR 67, Portland, Indiana 47371
County:	Jay
SIC Code:	2869
Operation Permit No.:	F075-22858-00032
Permit Reviewer:	ERG/MP

On August 1, 2006, the Office of Air Quality (OAQ) had a notice published in the Commercial Review, Portland, Indiana, stating that Premier Ethanol, LLC 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 Premier Ethanol, June Domingo, and John Williams. 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.

Premier Ethanol Comments

On August 31, 2006, Premier Ethanol (Premier) submitted comments on the proposed FESOP. The summary of the comments is as follows:

Comment 1:

Premier commented that they have received more recent testing data on VOC emissions from their DDGS cooler. Testing was done at the Horizon Ethanol, LLC ethanol plant near Jewell, Iowa in July of 2006 that indicates VOC emissions are 5.7 lb/hr. As this facility is the same design and rated capacity as the proposed facility, this estimate is more appropriate.

Response to Comment 1:

The VOC emissions estimate from the DDGS cooler has been revised (see Appendix A). As the potential to emit from the DDGS cooler is now less than 25 tons/yr, 326 IAC 8-1-6 (BACT) is no longer applicable. However, the VOC testing requirement remains in the permit in order to confirm that VOC emissions from this facility remain below 100 tons/yr.

The following changes have been made to the permit as a result of this comment:

D.4.5 VOC Emissions [326 IAC 2-2] [326 IAC 2-8-4] [326 IAC 8-1-6]

Pursuant to 326 IAC 2-8-4 (FESOP), **and** in order to render the requirements of 326 IAC 2-2 (PSD) ~~not applicable, and pursuant to~~ **and** 326 IAC 8-1-6 (BACT) **not applicable**, the Permittee shall comply with the following:

(a) VOC emissions shall not exceed ~~7.3~~ **5.7** lbs/hr.

Combined with the VOC emissions from other emission units, the VOC 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. **Compliance with this limitation limits VOC emissions from this facility to less that 25 tons/year, therefore 326 IAC 8-1-6 (BACT) is not applicable.**

Comment 2:

The throughput rate of the ethanol truck loading rack is correctly identified as 39,000 gallons per hour in the process description. In determining the short-term BACT limit, an incorrect loading rate of 20,000 gallons per hour was used.

Response to Comment 2:

The VOC BACT limit for the ethanol truck loading rack has been corrected to 2.81 lb/hr (3.6 lbs/kgal X 39 kgal/hr x (1-98%) = 2.81 lbs/hr). The following changes have been made to the permit as a result of this comment:

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

. . .

(c) The VOC emissions from enclosed flare CE013 shall not exceed ~~1.44~~ **2.81** lbs/hr.

June Domingo Comments

On August 17, 2006, June Domingo submitted comments on the proposed FESOP. The summary of the comments is as follows:

Comment 1:

I know that IDEM will check the emissions, and will want to be sure that the emissions are not hazardous for the entire community, however the prevailing winds are from the Southwest across the entire town, and while IDEM will check for KNOWN hazards, I am concerned about unknown hazards (Remember Santa Monica, CA. and MTBE?).

Response to Comment 1:

OAQ has established rules and regulations to protect air quality and the health of Indiana citizens based on current knowledge of air pollution impacts. If additional hazardous pollutants are identified in the future, OAQ will address those at that time.

No change has been made as a result of this comment.

Comment 2:

The commenter expressed concerns regarding the following issues:

1. The affect of locating a new plant so near the quarry where they conduct blasting.
2. The fact that there are large propane tanks near the proposed plant site.
3. The risk of fire given the close proximity of the high school.
4. The traffic and safety of the students driving on Highway 67 and those coming from the southern and western part of the county.
5. The increased rail traffic and the possibility that the rails can not handle the weight of the tanker cars.
6. The increased demand on the water supply and aquifers.

7. The affect of pollution to the rivers.

Response to Comment 2:

This permitting action is being undertaken to allow construction and operation of the proposed Premier Ethanol, LLC facility. Any nearby sources are required to independently comply with all air pollution rules and regulations under Title 326 Air Pollution Control Board. This permit is not intended to address nearby sources.

Fire and traffic safety concerns are not addressed as part of IDEM's permitting process. The local fire department and the State Fire Marshall can better address these concerns, and the Indiana Department of Transportation and local County Transportation Division are responsible for ensuring that the roads near this proposed facility are safe and capable of accommodating the additional truck traffic. In addition, the US Department of Transportation is responsible for ensuring that rail lines are safe and utilized properly.

With regard to the commenter's concerns for water pollution and water supply, IDEM's Office of Water Quality and the Department of Natural Resources coordinate to ensure that the waters of the State are protected. This facility will be required to evaluate the need for Water discharge permits and if required, obtain those from IDEM's Office of Water Management. For questions regarding these permits, you can contact Beth Tallon in IDEM's Office of Water Management at (317) 232-8706.

Comment 3:

A Continuous Emissions Monitoring Device has not been mandated.

Response to Comment 3:

IDEM has included compliance monitoring requirements in the permit as determined necessary to ensure continuous compliance with all permit terms and conditions. While no continuous emissions monitoring devices are required, there are monitoring provisions included in the permit. For example, a continuous temperature monitoring system is required on the RTO CE009 to ensure the control device is operating correctly at all times.

No change has been made as a result of this comment.

John Williams (LASER) Comments

On August 31, 2006, John Williams of Legal and Safety Employer Research (LASER) (referred to as the "Commentor") 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 stated that the proposed limits in the permit should not be considered BACT for the fermentation process, the distillation process, and the DDGS dryers because of the following reasons:

(a) The TSD did not evaluate combinations of controls in its BACT analysis. The commenter has identified the following permits which require combinations of controls:

(1) The permit issued to Calgren Renewable Fuels, CA requires the fermentation process be controlled by a scrubber and a thermal oxidizer with a combined control efficiency of 99.5%.

(2) The permit issued to Phoenix Bio Industries LLC, CA requires two (2) wet scrubbers in series with a combined control efficiency of 99.5%.

(3) The permit issued to Pacific Ethanol Madera, CA requires that the scrubber gases be routed to a thermal oxidizer with a combined control efficiency of 99.9%.

(4) The permit issued to Agri-Energy, MN requires that scrubber gases be routed to the thermal oxidizer.

(b) The commenter stated that higher scrubber and RTO control efficiencies have been required in other permits and guaranteed by vendors.

(c) The stack test results summarized in the Appendix B of the TSD (BACT Analysis) also indicated higher scrubber and RTO control efficiencies are achievable.

(d) The commenter stated that the VOC concentration limit contained in the BACT requirements should be removed because it does not represent the maximum degree of reduction that is achievable as required by BACT.

(e) 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. The Commentor also expressed concerns about VOC test methods mentioned in the application.

(f) The commenter stated that the VOC (lb/hr) limit is too high and cited several existing permits with lower VOC (lb/hr) limits. Cited permits included Agri-Energy (0.57 lb/hr) and Verasun/Fort Dodge (3.53 lb/hr).

Response to Comment 1:

The BACT (326 IAC 8-1-6) requirements identified in the draft permit for the fermentation and distillation processes specify that the source will control VOCs through the use of a thermal oxidizer, which must operate at a control efficiency of no less than ninety-eight percent (98%) or a VOC outlet concentration less than 10 ppmv. The BACT requirement identified in the draft permit for the DDGS dryers specifies that the source will use a thermal oxidizer, which must achieve either a 98% control efficiency or a VOC outlet concentration less than 10 ppmv.

IDEM has re-evaluated BACT for the fermentation and distillation processes, and has determined that the use of a scrubber and thermal oxidizer with a combined overall control efficiency of no less than ninety-nine percent (99%) is BACT for these operations. See ATSD Appendix B for a revised BACT analysis for these units.

No change has been made to the BACT determination for the DDGS dryers. As documented in the original BACT analysis for the dryers, there are technical considerations that make wet scrubbing a less appropriate control technology than thermal oxidation for DDGS dryers. 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.

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. 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 used; therefore, the test method is not specified in the permit.

The following changes have been made to the permit as a result of these comments:

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 and the DDGS dryers (EU025 and EU026) using Best Available Control Technology (BACT), which has been determined to be the following:

(a) The VOC emissions from the fermentation and distillation process ~~and the DDGS dryers (EU025 and EU026)~~ shall be controlled by **scrubber CE008 and thermal oxidizer** ~~RTO system~~ CE009.

(b) The overall efficiency for the scrubber CE008 and thermal oxidizer CE009 (including the capture efficiency and destruction efficiency) shall be at least 99%, or the VOC outlet concentration shall not exceed 10 ppmv.

(c) The VOC emissions from the DDGS dryers (EU025 and EU026) shall be controlled by thermal oxidizer CE009.

~~(b)~~**(d)** The overall efficiency for the ~~RTO system~~ **thermal oxidizer** CE009 **controlling the DDGS dryers (EU025 and EU026)** (including the capture efficiency and destruction efficiency) shall be at least 98%, or the VOC outlet concentration shall not exceed 10 ppmv.

~~(c)~~**(e)** The total VOC emissions from the ~~RTO systems~~ **thermal oxidizer CE009** stack (SV009) shall not exceed 10.5 lbs/hr.

D.2.9 VOC and HAP Control

In order to comply with Conditions D.2.4 and D.2.5, ~~the RTO system~~ **thermal oxidizer** ~~(~~CE009~~)~~ shall be in operation and control emissions from the ~~fermentation and distillation processes and the~~ DDGS dryers (EU025 and EU026) at all times that the~~se units~~ **dryers** are in operation**, and the scrubber CE008 and thermal oxidizer CE009 shall be in operation and control emissions from the fermentation and distillation processes at all times that these units are in operation**.

D.2.14 Scrubber Pressure Drop and Flow Rate

The Permittee shall monitor and record the pressure drop and the flow rate of the scrubber CE008 at least once per day when the fermentation and/or the distillation process is in operation. When for any one reading, the pressure drop across the scrubber is outside the normal range of 2.0 and 8.0 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 35 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.2.15 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.2.14~~**D.2.16** Record Keeping Requirements

. . .

(d) To document compliance with Condition D.2.14, the Permittee shall maintain daily records of pressure drop and flow rate for scrubber CE008 during normal operation.

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

Comment 2:

The commenter stated that the proposed limits in the permit should not be considered BACT for the ethanol loading rack for the following reasons:

(a) The permit should be revised to require the use of submerged loading for tanker trucks, and/or recordkeeping added to the permit to report the type of loading used such that emissions can be recalculated.

(b) The proposed VOC emission limit of 1.25 lbs/hr does not correspond to 98% VOC control unless the hours of operation are limited.

(c) The proposed VOC emission limit of 1.25 lbs/hr also depends on 42% (29/69) of the fuel being loaded onto train railcars, according to the emission calculations. There is no permit limit or recordkeeping to establish that percent of railcar loading took place.

(d) The commenter indicated concerns that there may not be sufficient railcars to accommodate shipping of ethanol by rail.

Response to Comment 2:

IDEM agrees that the use of submerged loading should be a requirement of the permit when loading both railcars and trucks and has revised condition D.5.4 to reflect this requirement.

There are no limits on the number of operating hours in the draft permit for the ethanol loading rack (EU036). However, Condition D.5.4(a) (FESOP Limits) limits the amount of denatured ethanol loaded at the ethanol loading rack to 69 million gal/yr. Since the ethanol loading rack (EU036) has a maximum design capacity of 39,000 gallons per hour, the throughput limitation on

the ethanol loading rack limits the operating hours for this unit indirectly. IDEM does not believe an additional operating hour limit for the ethanol loading rack is necessary.

The calculations have been revised to reflect no limits on the amount of ethanol that may be loaded to trucks, and the BACT limit has been revised to reflect the actual maximum loading rate of the truck loading rack (see Premier Ethanol Comment 2 above, and the revised emission estimates in TSD Addendum Appendix A).

The following changes have been made to the permit as a result of this comment:

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

. . .

(e) The ethanol loading rack shall utilize submerged loading method when loading **trucks and** railcars.

. . .

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

. . .

(c) The VOC emissions from enclosed flare CE013 shall not exceed ~~1.44~~ **2.81** lbs/hr.

Comment 3:

The commenter expressed concern that acetaldehyde emissions may be underestimated and that the 97% control value identified in the application may not be achievable. If acetaldehyde emissions are underestimated, Premier may have Hazardous Air Pollutant (HAP) emissions greater than 10 tons/yr, making them a major HAP source. This concern was based on comments from the Nebraska Department of Environmental Quality (NDEQ) in a 2006 letter to the federal EPA (Docket EPA-HQ-OAR-2006-0089) that none of the ethanol plants in Nebraska were able to meet a 96% removal rate for acetaldehyde.

Response to Comment 3:

Acetaldehyde emissions at this facility come primarily from the fermentation and distillation process, and from the DDGS drying process. A small amount of acetaldehyde is emitted from the DDGS cooler (less than one ton per year). The controlled emissions of acetaldehyde from the fermentation/distillation process (0.3 tons/yr) are based on 50% removal efficiency for the fermentation/distillation scrubber, followed by 98% removal efficiency for the thermal oxidizer. Acetaldehyde emissions from the DDGS drying process are conservatively assumed to be controlled at a 90% level by the thermal oxidizer. At this level of control, total acetaldehyde emissions from the thermal oxidizer stack are 5.2 tons/yr. The Permittee is required to test the thermal oxidizer stack to confirm compliance with the emission limit in the permit of 1.19 lb/hr (5.2 tons/yr). Compliance with these limits will ensure that the source remains a minor source of HAPs.

As a result of this comment, OAQ has revised the footnote for the emission calculations for the RTO to reflect the HAP control efficiencies noted above (see TSD Addendum Appendix A).

Comment 4:

The commenter stated that particulate matter emissions exceed the major source threshold for the following reasons:

(a) 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.

(b) There are insufficient requirements for controls (road sweeping, application of dust suppressants, etc.) to reflect the PM/PM10 control efficiencies used in the permit application.

(c) There are no requirements in the permit limiting the shipment of raw materials or final product by truck as indicated in the permit application.

The commenter also expressed concerns that this facility, and several similar facilities planned for the area, will consume vast portions of the Class II PM10 increments.

Response to Comment 4:

IDEM has evaluated the emission calculations included in the application and investigated the claims made by the commenter with regard to the calculations included in the permit. Based on IDEM's evaluation, the 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 120 vehicles per day.

Comments referring to the emission calculations are based on the permit application received on March 24, 2006. Subsequent to receipt of the application, the source agreed to pave all roads. As such, the emission estimates in Appendix A of the TSD reflect paved roads, with no emissions reduction credit taken for controls. While no control credits are taken for paved road estimates, permit Condition D.1.4(d) does require periodic sweeping of plant roads.

The calculations incorrectly retained the limits proposed on shipment of materials in and out of the facility. Since the roads are now going to be paved, these limits are no longer necessary to keep the source below 100 tons/yr for PM/PM10. As such, the emission estimates for paved roads have been corrected to reflect the full PTE of the facility based on no limits on material receiving or product shipment. See TSD Addendum Appendix A.

As a minor PSD source, Premier Ethanol is not required to evaluate Class II PM10 increment consumption as part of the permitting process. Increment consumption will need to be evaluated as part of the permitting process for any future major PSD sources or major PSD modification by Premier or other sources.

Based on the revised calculations, the total PM/PM10 emissions from this facility remain less than 100 tons/yr. Therefore, no changes were made as the result of this comment.

Comment 5:

The commenter stated:

"**BAT SHOULD BE REQUIRED FOR THE COOLING TOWER**

The project includes a 18,500 gallon per minute ("gpm") cooling tower that is permitted to emit 1.16lb/hr and 5.1 ton/yr of particulate emissions ("PE"), assuming 2,500 mg/L of total dissolved solids ("TDS") in the circulating water. These emissions would be controlled using a drift eliminator with a drift loss of 0.005%. (Appendix A) A drift loss of 0.005% does not constitute

Best Available Technolgy ("BAT"). High efficiency drift eliminators achieving 0.0005% drift loss are routinely used in similar applications.

The major cooling tower vendors (*e.g.*, Hamon, Psychrometric, Marley) indicate that single layers of drift eliminators typically achieve drift rates of 0.001% and 0.005% for cellular and blade type designs, respectively. Lower drift rates can be achieved with in-series installation of two layers of drift eliminators, usually of the cellular type. These vendors are willing to guarantee drift rates as low as 0.0005% using two layers of cellular drift eliminators. The CalGren Renewable Energy Project, CA, for example, was permitted with a 0.0005% efficient drift eliminator. The permit should be revised to include this condition."

Response to Comment 5:

This permitting action is being undertaken to allow construction and operation of the proposed Premier Ethanol, LLC facility and to ensure that this facility will comply with all OAQ rules and regulations. Best Available Technology (BAT) is a term applicable to water pollution regulations, and the Indiana Department of Natural Resources, Water Division has jurisdiction over water concerns. This facility is not subject to Best Available Control Technologies (BACT) for PM or PM10.

Comment 6:

The commenter stated:

"**The Permit Does Not Require Appropriate CO and NOX Controls for the Boilers**

The Project will operate two 143 million Btu per hour ("MMBtu/hr") natural gas-fired boilers (Sources EU027 and 028). The boilers are used to produce process steam that is used for cooking the corn/water slurry, distillation, evaporation, etc.

The Permit application states that nitrogen oxides ("NOx") emissions for these boilers will be 0.04 pounds per million Btu ("lb/MMBtu") actual heat input (equivalent to about 33 parts per million ("ppm") @ 3% oxygen ("O_2")), 11.4 lb/hr, and 50.1 tons/yr. Carbon monoxide ("CO") emission limits were set at 0.04 lb/MMBtu actual heat input and 11.4 lb/hr, and 50.1 tons/yr.

These limits are very high. However, the initial application indicates that the boilers are uncontrolled and equipped with low NOx burners. Numerous boilers have been permitted in Ohio and other states with considerably lower emissions limits than those proposed for the Project and have been demonstrated to operate successfully. Our search of the U.S. EPA's RBLC and CARB, BAAQMD, and SCAQMD BACT clearinghouses produced a long list of boilers with emissions limits considerably lower than those proposed for the Project.

NOx FOR BOILERS
The Permit sets a NOx limit of 0.04 lb/MMBtu and 40 lb/MMCF (equivalent to about 33 ppm @ 3% O_2) without providing a BACT analysis and without providing any justification for its choice. (Permit condition D.3.4 a-d) This is about 15% higher than the NOx limit on the recently permitted ethanol plant boilers at Iroquois Bio-Energy; two 73.3 MMBtu/hr Johnston boilers at a 40 MMGY ethanol plant in 2004 at 0.035 lb/MMBtu. (Iroquois Bio-Energy Company, LLC, Indiana, Permit #073-16720-00037.)

Much Lower NOx Emission Limits Have Been Permitted and Achieved

Numerous boilers have been permitted with lower emission limits than those required by the Permit for the Project. The U.S. EPA's RBLC, for example, lists scores of boilers with standardized emissions limits of less than 0.04 lb NOx/MMBtu. The SCAQMD and CARB clearinghouses list additional facilities.

Three facilities located in Ohio, and permitted by OEPA, are operating natural gas-fired boilers with similar boiler capacities and lower permitted emission limits than the Project; *i.e.* the Central Soya Company, Inc. in Huron County, the Calpine Corporation Fremont Energy Center in

Sandusky County, and PSEG Waterford Energy LLC in Washington County. The boiler capacities at these three facilities range from about 80 to 90 MMBtu/hr. These boilers have been permitted by OEPA to emit between 0.034 and 0.036 lb NOx/MMBtu, about 10% lower than the NOx emissions limits specified in the Permit for the Project, 0.04 lb NOx/MMBtu. Another facility in Ohio, the USS Galvanizing, Inc. ProTec Coating Company, operates a smaller boiler, 20.9 MMBtu/hr, at a permitted limit of 0.033 lb NOx/MMBtu. According to U.S. EPA's RBLC, compliance of these facilities with their permit emissions limits has been verified. The permitting file does not explain why these lower, previously permitted limits are not applicable for the Project.

Other states have permitted boilers requiring considerably lower NOx emissions limits. The lowest emission limits were permitted in California at 0.006 and 0.008 lb/MMBtu for boilers ranging in size from 21.0 to 2,008.0 MMBtu/hr, at AES Huntington Beach, General Dyeing and Finishing, Inc., Lacorr Packaging, CocaCola, Inc., and the Children's Hospital in Los Angeles. According to U.S. EPA's RBLC, compliance has been verified for at least two of these plants. Another facility with a 31.0 MMBtu/hr boiler, Mustang Power LLC Mustang Energy Project in Oklahoma, was permitted at 0.010 lb NOx/MMBtu. Five facilities with boiler capacities ranging from 20.9 to 110 MMBtu/hr were permitted at 0.011 lb NOx/MMBtu. Compliance has been demonstrated at all five facilities. Lower NOx emissions than specified in the permits have been measured in source tests. For example, source tests of the 110 MMBtu/hr boiler at a rendering plant operated by Darling International, Inc., in Los Angeles, California, ranged from 2.6 to 7 ppm NOx (@ 3% O_2), or 0.003 to 0.008 lb NOx/MMBtu. (SCAQMD, App. 186624[1].) Source tests at the 78.6 MMBtu/hr boiler operated by Kal Kan Foods, Inc., in Vernon, California, showed emissions of 3.0 to 6.0 ppm NOx (@ 3% O_2), 0.004 to 0.007 lb NOx/MMBtu. (SCAQMD, App. 181183[2]).

Low-NOx Burners

It appears that the boilers will be operated with low-NOx burners ("LNB"). Low-NOx burners are capable of meeting much lower limits than 0.04 lb NOx/MMBtu. Other control technologies can achieve much lower emissions than the LNB apparently intended for the Project.

Ultra-low NOx burners ("ULNB") have been installed and successfully operated on many boilers. These burners can achieve NOx limits of 5 ppm to 12 ppm, as demonstrated by source test data. According to U.S. EPA's RBLC, compliance with a 5 ppm NOx (0.006 lb/MMBtu) permit limit has been confirmed at General Dyeing and Finishing, Inc. The Merck Rahway Plant in New Jersey operates a 99.5 MMBtu/hr boiler at or below 9 ppm NOx (0.011 lb NOx/MMBtu) and the Atofina Petrochemicals Inc. La Porte Polypropylene Plant in Texas operates a 60 lb/MMBtu boiler at or below 12 ppm NOx (0.015 lb NOx/MMBtu). Ultra-low NOx burners have been permitted for two 75.6 MMBtu/hr boilers at the 40 MMGY Pacific Ethanol project, scheduled to startup third quarter 2006.[3] Selective catalytic reduction ("SCR") also reliably reduces NOx emissions to 9 ppm or below, as demonstrated by source tests.

The use of combinations of control methods can achieve considerably lower NOx emissions than the use of LNB alone. Low NOx burners can be used in combination with SCR and/or flue gas recirculation ("FGR"). The BAAQMD BACT Clearinghouse indicates that 50 MMBtu/hr and larger boilers consistently achieve 9 ppm NOx (@ 3% O_2)[4] using LNB with SCR and FGR. (BAAQMD

[1] South Coast Air Quality Management District, AQMD BACT Determinations, Application No. 186624, Darling International Inc., Los Angeles, CA, October 29, 1999.

[2] South Coast Air Quality Management District, AQMD BACT Determinations, Application No. 181183, Kal Kan Foods, Inc., Vernon, CA, October 29, 1999.

[3] San Joaquin Valley Air Pollution Control District (SJVAPCD), Initial Study/Environmental Checklist, January 2004, p. 37, http://www.valleyair.org/default.htm.

[4] Compliance with NOx emission limits demonstrated by continuous emissions monitoring or other BAAQMD-approved equivalent.

BACT Guideline[5].) Therefore, the use of LNB without any additional control method does not constitute BAT. The SCAQMD BACT Clearinghouse also establishes BACT at 9 ppm (@ 3% O_2)[6] using SCR as control technology on two natural gas-fired boilers of similar capacity. (SCAQMD App. 186624 and App. 181183.)

CO For Boilers
Much Lower CO Emissions Limits Have Been Permitted

The Permit sets a CO emission limit of 0.04 lb/MMBtu. Much lower limits than 0.04 lb/MMBtu have been achieved using low-NOx burners, ultra-low NOx burners, and oxidation catalysts, which have been installed on hundreds of utility and other boilers and are also feasible for the Project boilers.

The lowest permit limit for a boiler with LNBs, 0.011 lb CO/MMBtu (15 ppm CO @ 3% O_2), was issued by the OEPA in 2001 for the 20.9 MMBtu/hr boiler at USS Galvanizing, Inc., ProTec Coating Company. The permitting file does not explain why this emission limit is not applicable to the Project.

The lowest permitted emission limit found in the above referenced BACT clearinghouses, 0.007 lb CO/MMBtu (10 ppm CO @ 3% O_2), was issued to High Country Foods in California in 1999 for a 20.9 MMBtu/hr boiler. Compliance has been verified. Emission limits of 0.036 and 0.037 lb CO/MMBtu (49 and 50 ppm CO @ 3% O_2) were permitted for at least two facilities using ULNB — the Merck Rahway Plant in New Jersey and the General Dyeing and Finishing, Inc. in California. The lowest permitted emission limit using an oxidation catalyst was set at 0.0164 lb/MMBtu (22 ppm CO @ 3% O_2) for the 68.0 MMBtu/hr boiler at Interstate Power & Light Emery Generating Station in Iowa.

Levels of 50 ppm CO @ 3% O_2 (0.037 lb CO/MMBtu) and below are routinely permitted and achieved in practice. (BAAQMD BACT Guideline.) For example, source tests of the 39 MMBtu/hr boiler with ULNB and FGR at the Los Angeles County Internal Services Department measured emissions consistently below 15 ppm CO (0.018 lb CO/MMBtu), consistent with the manufacturer's warranty of 25 ppm CO."

Response to Comment 6:

This source is minor under the Prevention of Significant Deterioration (PSD) regulations (326 IAC 2-2), therefore these boilers are not subject BACT requirements. However, NOx and CO emission limits are necessary in the permit to render the requirements of PSD and Part 70 (326 IAC 2-7) not applicable. These limits are contained in Condition D.3.4 and D.3.5 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.

[5] Bay Area Air Quality Management District, BACT Guideline, Boilers, August 12, 1994.

[6] Compliance with NOx emission limits demonstrated by continuous emissions monitoring and source tests.

Appendix A: Emission Calculations
VOC and HAP Emissions
From the Fermentation and Distillation Process Scrubber

Company Name: Premier Ethanol, LLC
Address: Portland, Indiana
FESOP: 075-22858-00032
Reviewer: ERG/MP
Date: May 1, 2006

1. Process Description:

The exhaust from the fermentation/distillation scrubber (CE008) is routed to the RTO (CE009).

2. Potential to Emit (PTE) of VOC and HAP from the scrubber:

Pollutant	Emission Rate after Control (lbs/hr)*	PTE after Control (tons/yr)	Control Efficiency (%)**	PTE before Control (tons/yr)
VOC	20.00	87.6	95%	1,752
HAP				
Acetaldehyde	2.9	12.7	50%	25.4
Methanol	0.1	0.4	50%	0.88
Formaldehyde	0.1	0.4	50%	0.88
Propionaldehyde	0.1	0.4	50%	0.88
Total HAPs	3.20	14.0	50%	28.03

* VOC and HAP emission factors provided by the source and are based on stack tests at similar facilities.
The Permittee will perform stack testing of the RTO stack.

** The control efficiency information is based on the information from other similar plants.

Methodology

PTE after Control (tons/yr) = Emission Rate after Control (lbs/hr) x 8,760 hr/yr x 1 ton/2000 lbs
PTE before Control (tons/yr) = PTE after Control (tons/yr) / (1- Control Efficiency)

Company Name: Premier Ethanol, LLC
Address: Portland, Indiana
FESOP: 075-22858-00032
Reviewer: ERG/MP
Date: May 1, 2006

1. Process Description:

The RTO controls emissions from the dryers and the fermentation/distillation scrubber.
The RTO has the following control efficiencies (based on engineering
estimates and stack test results at similar facilities as provided by the source):

PM:	90%
VOC:	98%
HAP:	97%
CO:	90%

2. Dryer Emissions

2.1 Combustion Emissions from the two (2) 60 MMBtu/hr dryers (EU025 and EU026)

Heat Input Capacity MMBtu/hr	Potential Throughput MMBtu/yr
120.0	1051200.0

	Pollutant				
	PM	PM10	SO2	NOx	VOC
Emission Factor in lb/MMBtu*	0.00745	0.00745	0.00059	0.07	0.0054
Potential Emission in tons/yr	3.9	3.9	0.3	36.8	2.8

*PM emissions assumed equal to PM10 emissions. Emission factors for PM, PM10, SO2, and VOC from AP-42, Chapter 1.4, Tables 1.4-1 and 1.4-2 (AP-42, 07/98). Emission Factors for NOx from Stack Test at similar facility. CO emissions addressed on Page 4.

Methodology

Potential Throughput (MMBtu/yr) = Heat Input Capacity (MMBtu/hr) x 8,760 hrs/yr

PTE (tons/yr) = Potential Throughput (MMBtu/yr) x Emission Factor (lbs/MMBtu) x 1 ton/2000 lbs

Appendix A: Emission Calculations
RTO stack (2 DDGS Dryers, Fermentation/Distillation Scrubber)

Company Name: Premier Ethanol, LLC
Address: Portland, Indiana
FESOP: 075-22858-00032
Reviewer: ERG/MP
Date: May 1, 2006

2.2 Process Emissions from the two (2) 60 MMBtu/hr dryers

	Pollutant						
	VOC	PM	CO	Acetaldehyde	Acrolein	Methanol	Formaldehyde
Emission Rate before Control (lbs/hr)*	465.30	57.40	80.00	11.40	0.80	1.20	1.60
Potential Emission in tons/yr	2038.01	251.41	350.40	49.93	3.50	5.26	7.01

* Emission Factors from provided by source based on engineering estimates at similar facilities. CO emission factor includes both combustion and process emissions.

Methodology

Potential Emissions (tons/yr) = Emission Rate before Control (lbs/hr) x 8760 hr/yr x 1 ton/2000 lbs

3. Combustion Emissions from the RTO (30 MMBtu/hr)

Heat Input Capacity MMBtu/hr	Potential Throughput MMBtu/yr
30.0	262800.0

	Pollutant					
	PM	PM10	SO2	NOx**	VOC	CO
Emission Factor in lb/MMBtu*	0.00745	0.00745	0.00059	0.04	0.0054	0.0824
Potential Emission in tons/yr	1.0	1.0	0.1	5.3	0.7	10.8

*PM emissions assumed equal to PM10 emissions. Emission factors for PM, PM10, SO2, VOC, and CO from AP-42, Chapter 1.4, Tables 1.4-1 and 1.4-2 (AP-42, 07/98).
** Emission Factor for NOx from Manufacturer's guarantee.

Methodology

Potential Throughput (MMBtu/yr) = Heat Input Capacity (MMBtu/hr) x 8,760 hrs/yr
Potential Emissions (tons/yr) = Potential Throughput (MMBtu/yr) x Emission Factor (lbs/MMBtu) x 1 ton/2000 lbs

Appendix A: Emission Calculations
RTO stack (2 DDGS Dryers, Fermentation/Distillation Scrubber)

Company Name: Premier Ethanol, LLC
Address: Portland, Indiana
FESOP: 075-22858-00032
Reviewer: ERG/MP
Date: May 1, 2006

4. Fermentation/Distillation Scrubber Emissions

Pollutant	Emission Rate from scrubber (lb/hr)*	Emission Rate from scrubber (tons/yr)*
VOC	20.00	87.6
HAPs:		
Acetaldehyde	2.9	12.7
Methanol	0.1	0.4
Formaldehyde	0.1	0.4
Propionaldehyde	0.1	0.4

* See scrubber calculations on page 2.

Methodology

PTE (tons/yr) = Emission Rate from scrubber (lbs/hr) x 8,760 hr/yr x 1 ton/2000 lbs

5. Total RTO Stack PTE (tons/yr)

Pollutant	Dryer Combustion PTE	Dryer Process PTE (Uncontrolled)	Dryer Process PTE (Controlled)	Scrubber PTE (Uncontrolled)	Scrubber PTE (Controlled)	RTO Combustion PTE	Total RTO Stack PTE	Total RTO Stack PTE (lb/hr)
PM	3.9	251	25.1			1.0	30.0	6.86
PM10	3.9	251	25.1			1.0	30.0	6.86
SO2	0.3					0.1	0.4	0.09
VOC	2.8	2038	40.8	87.6	1.8	0.7	46.1	10.5
CO		350	35.0			10.8	45.9	10.5
NOx	36.8					5.3	42.0	9.60
Acetaldehyde		49.9	5.0	12.7	0.3		5.25	1.20
Methanol		5.26	0.5	0.44	0.01		0.53	0.12
Formaldehyde		7.01	0.7	0.44	0.01		0.71	0.16
Acrolein		3.50	0.4				0.35	0.08
Propionaldehyde				0.44	0.01		0.01	0.002
Total HAP	0.0	65.7	6.6	14.0	0.3	0.0	6.9	1.6

Methodology

PTE Controlled (tons/yr) = Uncontrolled Emission Rate (tons/yr) x (1 - Control Efficiency)
Total RTO Stack PTE (tons/yr) = Dryer Combustion PTE + Dryer Process PTE (Controlled) + Scrubber PTE (Controlled) + RTO Combustion PTE
Total RTO Stack PTE (lb/hr) = (Dryer Combustion PTE + Dryer Process PTE (Controlled) + RTO Combustion PTE + Scrubber PTE (Controlled)) * 2000/8760
These emission estimates reflect the following level of control from the dryer process emissions and fermentation/distillation scrubber exhausts:

PM: 90%
VOC: 98%
HAP: 90% Dryer, 98% Scrubber
CO: 90%

Appendix A: Emission Calculations
PM/PM10 and VOC Emissions
From the DDGS Cooler (EU029)

Company Name: Premier Ethanol, LLC
Address: Portland, Indiana
FESOP: 075-22858-00032
Reviewer: ERG/MP
Date: May 1, 2006

1. Potential to Emit PM/PM10

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)
CE010	DDGS Cooler	Baghouse	0.004	23,800	0.82	3.57	99%	357

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 VOC:

VOC Emission Factor = 5.7 (lb/hr) (Source-provided, based on engineering estimate from similar facilities.)

PTE of VOC (tons/yr) = 5.7 (lb/hr) x 8760 (hr/yr) x 1 (ton/2000 lbs) = **24.97 (tons/yr)**

3. Potential to Emit HAPs:

	Pollutant			
	Acetaldehyde	Methanol	Formaldehyde	Total
Emission Rate after Control (lbs/hr) *	0.21	0.08	0.02	0.31
PTE after Control in tons/yr	**0.92**	**0.35**	**0.09**	**1.36**

*HAP emission rates were provided by the source based on engineering estimates from a similar facility.

Methodology

PTE after Control (tons/yr) = Emission Rate after Control (lbs/hr) x 8760 hr/yr x 1 ton/2000 lbs

Appendix A: Emission Calculations
VOC and HAP Emissions from Ethanol Loading Racks (EU036)

Company Name: Premier Ethanol, LLC
Address: Portland, Indiana
FESOP: 075-22858-00032
Reviewer: ERG/MP
Date: May 1, 2006

1. Emission Factors: AP-42

Denatured ethanol will be shipped by either truck loading rack or railcar loading rack. Railcars will be dedicated fleets, but the trucks may be used to carry gasoline prior to filling with ethanol. Both railcars and trucks will be filled by submerged loading process. Truck and rail loadout operations will be controlled by a flare (CE013), 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)

Previous Stored Liquid	*S	P (psia)	M (lbs/mole lbs)	T (degree R)	L (lbs/kgal)
Gasoline (normal)	1.0	4.0226	66	507	6.52
Gasoline (clean cargo)	0.5	4.0226	66	507	3.26
Denatured Ethanol (normal)	0.6	0.55	49.7	507	0.40
Denatured Ethanol (clean cargo)	0.5	0.55	49.7	507	0.33

Therefore, the emission factor for loading denatured ethanol to trucks which stored gasoline previously
= L (gasoline, normal) - L (gasoline, clean cargo) + L (denatured ethanol, clean cargo) = 3.60 (lbs/kgal)

2. Potential to Emit VOC Before Control:

(1) Assume all ethanol loaded out via truck:
Loading rate for trucks: 69 MMgal/yr
PTE of VOC before Control (tons/yr) = 69 MMgal/yr x 3.60 lbs/kgal x 1 ton/2000 lbs = **124.1 tons/yr**

(2) Assume all ethanol loaded out via rail:
Loading rate for rail: 69 MMgal/yr
PTE of VOC before Control (tons/yr) = 69 MMgal/yr x 0.40 lbs/kgal x 1 ton/2000 lbs = **13.9 tons/yr**

3. Limited Potential to Emit:

Annual Production Limit: 69,000 kgal/yr (total)
Flare Control Efficiency: 98%

(1) Assume all ethanol loaded out via truck:
PTE of VOC from truck loading (tons/yr) = 3.60 lbs/kgal x 69,000 kgal/yr x (1-98%) x 1 ton/2000 lbs = **2.48 tons/yr**

(2) Assume all denatured ethanol is loaded to railcars (controlled by flare):
PTE of VOC (tons/yr) = 0.40 lbs/kgal x 69,000 kgal/yr x (1-98%) x 1 ton/2000 lbs = **0.28 tons/yr**

Worst case scenario is when loading 69 Mmgal/yr denatured ethanol to trucks = 2.48 tons/yr

4. Potential to Emit HAPs:

HAP emissions are mainly from the unloading process for trucks, which may have been used to ship gasoline previously.

HAP	HAP Fraction*	PTE of HAP before Control (tons/yr)	PTE of HAP after Control (tons/yr)
Benzene	2.50E-03	0.31	6.20E-03
Carbon Disulfide	2.00E-05	0.002	4.96E-05
Cumene	1.00E-04	0.01	2.48E-04
Ethyl benzene	5.00E-05	0.01	1.24E-04
n-Hexane	5.00E-02	6.20	1.24E-01
Toluene	5.00E-03	0.62	1.24E-02
Xylene	5.00E-04	0.06	1.24E-03
Total	**0.06**	7.2	0.14

* 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 Fraction
Limited PTE of HAP after Control (tons/yr) = Limited PTE of VOC by Trucks (tons/yr) x HAP Fraction

Appendix A: Emission Calculations
Fugitive Emissions From Paved Roads

Company Name: Premier Ethanol, LLC
Address: Portland, Indiana
FESOP: 075-22858-00032
Reviewer: ERG/MP
Date: May 1, 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) =	27.5 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 = $(0.082 \times (0.6/2)^{0.65} \times (27.5/3)^{1.5} - 0.00047) \times (1 - 120/1460)$ = **0.95** 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)	*Trip Number (trips/yr)	* Round Trip Distance (mile/trip)	Vehicle Mile Traveled (VMT) (miles/yr)	Traffic Component (%)	Component Vehicle Weight (tons)	PTE of PM (tons/yr)	PTE of PM10 (tons/yr)
DDGS Load Out	27.5	7,008	0.75	5,256	16.2%	4.45	2.51	0.49
Ethanol Load Out	27.5	8,625	0.75	6,469	19.9%	5.47	3.09	0.60
Denaturant Delivery	27.5	381	0.75	286	0.88%	0.24	0.14	0.03
Grain Delivery	27.5	27,331	0.75	20,498	63.1%	17.34	9.78	1.91
Total				**32,509**	**100%**	**27.5**	**15.5**	**3.02**

* This information is provided by the source.

Methodology

Vehicle Mile Traveled (miles/yr) = Trip Number (trips/yr) x Round-Trip Distance (mile/trip)
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

Appendix A: Emission Calculations
PTE Summary

Company Name: Premier Ethanol, LLC
Address: Portland, Indiana
FESOP: 075-22858-00032
Reviewer: ERG/MP
Date: May 1, 2006

Limited Potential To Emit after Control

Emission Units	PM	PM10	SO_2	*NO_x	VOC	CO	Total HAPs
Grain Receiving and Handling	12.9	12.9	-	-	-	-	-
Grain Receiving - Fugitive	12.3	4.03	-	-	-	-	-
RTO Stack	30.0	30.0	0.39	42.0	46.1	45.9	7.13
DDGS Cooler	3.57	3.57	-	-	24.97	-	1.36
DDGS Handling and Loadout	1.20	1.20	-	-	-	-	-
DDGS Loadout - Fugitive	3.77	1.27	-	-	-	-	-
Boilers	9.33	9.33	0.74	50.1	6.75	50.1	
Wet Cake Production*	-	-	-	-	See Note	-	See Note
Ethanol Loadout and Flare	-	-	-	1.15	2.48	2.88	0.14
Paved Roads (Fugitive)	15.5	3.02	-	-	-	-	-
Cooling Tower	5.07	5.07	-	-	-	-	-
Diesel Fire Pump	0.23	0.23	0.53	2.77	0.05	0.06	Negligible
Storage Tanks**	-	-	-	-	1.91	-	Negligible
Leaks	-	-	-	-	1.66	-	0.04
Other Insignificant Activities	1.00	1.00	-	-	1.00	-	-
Total PTE	**94.9**	**71.7**	**1.7**	**96.1**	**84.9**	**98.9**	**8.7**

Note:
* This plant is capable to produce both DDGS and MDGS. The emissions from the DDGS production is the worst case scenario. Therefore, the PTE of the wet cake production is not included in the PTE for the entire source.
** Emissions from the storage tanks were calculated by the Permittee using EPA TANKS software (version 4.09d) and have been verified.

ATSD Appendix B
Best Available Control Technology (BACT) Determinations

Source Background and Description

Source Name:	Premier Ethanol, LLC
Source Location:	Approximately 1.5 miles WSW of Portland, IN
County:	Jay
SIC Code:	2869
Operating Permit No.:	F075-22858-00032
Permit Reviewer:	ERG/MP

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;
- DDGS Cooler; 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, the BACT review for the DDGS cooler is provided in Section B.4, and the BACT review for the ethanol loadout is provided in Section B.5. 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:

Premier Ethanol, LLC (Premier) facility will use a fermentation process to produce ethanol from grain. The potential VOC emissions from this activity 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, Premier is required to control the VOC emissions from the fermentation process using 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 98%. 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 a 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
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.	
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.	
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.	
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.	
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

Plant	PBLD ID or Permit #	Date Issued and State	Facility	Control Technology and Permit Date	Stack Test Results and Dates
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, ICM provided the following information for the fermentation processes at other ethanol production plants:

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
Thermal Oxidizer	98% or <10 ppmv
Catalytic Oxidizer	98%
Flare	98%
Wet Scrubber	98% or < 20 ppmv
Refrigeration Condenser	90%

Step 4 – Evaluate the Most Effective Controls and Document Results

Based on control efficiencies, the combination of a wet scrubber and thermal oxidizer is the most effective control technology.

Step 5 – Select BACT

Since the use of a wet scrubber and a thermal oxidizer combined provide the highest ranked control efficiency of 99%, the Permittee proposes to use a wet scrubber and a thermal oxidizer 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 by a wet scrubber and a thermal oxidizer.

(b) The overall average VOC control efficiency for the wet scrubber and thermal oxidizer system (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 outlet of the wet scrubber/thermal oxidizer system shall not exceed 10.5 lbs/hr.

Appendix B.2
Best Available Control Technology (BACT) Determination
For Distillation and Dehydration Process

Introduction:

Premier 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, Premier 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 detail 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
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	
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	
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	
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	
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.	
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

In addition to the RBLC data, ICM provided the following information for the distillation and dehydration processes at other ethanol production plants:

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 (01/03)
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	5.40 lbs/hr (12/05/02)
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	Not Available
ACE Ethanol*, WI	20	Wet scrubber	95% removal or 20 ppm for less than 200 ppm inlet	1.07 lbs/hr (11/20/02)

* lbs/hr as ethanol
** lbs/hr as carbon multiplied by the Midwest Scaling Factor of 2.0

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
Thermal Oxidizer	98% or <10 ppmv
Catalytic Oxidizer	98%
Flare	98%
Wet Scrubber	98% or < 20 ppmv
Refrigeration Condenser	90%

Step 4 – Evaluate the Most Effective Controls and Document Results

Based on control efficiencies, the combination of a wet scrubber and thermal oxidizer is the most effective control technology.

Step 5 – Select BACT

Since the use of a wet scrubber and a thermal oxidizer combined provide the highest ranked control efficiency of 99%, the Permittee proposes to use a wet scrubber and a thermal oxidizer as the BACT for the distillation process. 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 by a wet scrubber and a thermal oxidizer.

(b) The overall average VOC control efficiency for the wet scrubber and thermal oxidizer system (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 outlet of the wet scrubber/thermal oxidizer system shall not exceed 10.5 lbs/hr.

Appendix B.5
Best Available Control Technology (BACT) Determination
For Ethanol Loadout

Introduction:

Premier will ship denatured ethanol using either tank trucks or railcars. 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 may carry gasoline 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 rack are greater than 25 tons per year. Since this unit will be constructed after the January 1, 1980 applicability date and there are no other rules in 326 IAC 8 applicable to this unit, the Permittee is required to control the VOC emissions from the ethanol loading rack 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
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.	
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.	
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.	
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.	
Central Indiana Ethanol, LLC	F053-21057-00062	08/04/05 (IN)	Ethanol Loading Rack	Flare with a control efficiency of 98%	
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	IL-0090	03/28/03 (IL)	Ethanol Loading	Flare with a control efficiency of	Not Available

Midland Co.			Rack	95%	
Van Waters & Rogers	CA-0894	09/01/99 (CA)	Truck Loading Stations	Thermal oxidizer with a control efficiency of 95%	Not Available

In addition to the RBLC data, ICM provided the following information for ethanol loadout processes at other ethanol production plants:

Source, State	Max. Ethanol Production Rate (MMgal/yr)	Control Technology	Emission Limits
Agri-Energy, MN	22	DDGS Dryer/TO	Truck: 95% Destruction or 10ppm of VOC emissions from the thermal oxidizer. Railcar: dedicated ethanol vessels only
Al-Corn, MN	30	DDGS Dryer/TO	Truck: 95% Destruction or 10ppm of VOC emissions from the thermal oxidizer. Railcar: dedicated ethanol vessels only
Central MN Ethanol, MN	22	DDGS Dryer	Truck: Route to dryer control equipment Railcar: dedicated ethanol vessels only
Corn Plus, MN	44	Boiler/TO	95% destruction or 10 ppm limit for boiler
CVEC, MN	49.5	DDGS Dryer/TO	Truck: Route to dryer control equipment (95% reduction or 10 ppm) Railcar: Dedicated ethanol vessels only
Diversified Energy Co., MN	20	Flare	95% destruction
Ethanol 2000, MN	35	Flare	95% destruction
Agra Resources Coop. (dba EXOL), MN	50	DDGS Dryer/TO	Truck: 95% destruction or 10 ppm limit for VOC emissions from the thermal oxidizer
Pro-Corn, MN	50	Flare	95% destruction

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	98%
Refrigeration Condenser	Greater than 90%

Step 4 – Evaluate the Most Effective Controls and Document Results

The two most effective control technologies are thermal oxidizers and flares.

Step 5 – Select BACT

Since flares achieve the highest control efficiency and have been used to control VOC emissions from other ethanol loading racks, The Premier, LLC facility proposed to use a flare, CE013, with a destruction efficiency of 98% to control the VOC emissions from the ethanol loading rack for trucks and railcars. Pursuant to 326 IAC 8-1-6, IDEM, OAQ has determined that the following requirements represent BACT for the truck loading rack at this source:

(a) The VOC emissions from ethanol loadout shall be collected and controlled by a flare when loading denatured ethanol.

(b) The overall efficiency for the enclosed flare (including the capture efficiency and destruction efficiency) shall be at least 98%.

(c) The VOC emissions from the flare for both truck and rail shall not exceed 0.99 lbs/hr. This limit was calculated based on the worst-case emission rate between loading trucks and loading railcars. The worst-case hourly emissions occur during truck loading, and the limit was calculated using a VOC emission factor of 3.6 lbs/kgal, the maximum truck loadout rate of 39 kgal/hr, and the flare control efficiency of 98% (3.6 lbs/kgal x 39 kgal/hr x (1-98%) = 2.81 lbs/hr). The VOC emission factor of 3.6 lbs/kgal for truck loading was calculated using the equation in AP-42, Chapter 5.2 (see the emission calculations in Appendix A).

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:	Premier Ethanol, LLC
Source Location:	2701 W SR 67, Portland, Indiana 47371
County:	Jay
SIC Code:	2869
Operation Permit No.:	F075-22858-00032
Permit Reviewer:	ERG/MP

The Office of Air Quality (OAQ) has reviewed a FESOP renewal application from Premier Ethanol, LLC relating to the operation of an ethanol production plant.

History

Premier Ethanol, LLC submitted an application on March 24, 2006, to IDEM, OAQ applying for a Federally Enforceable State Operating Permit to construct and operate a new ethanol production plant at Portland, Indiana 47371. This is the first permit approval for this source.

Permitted Emission Units and Pollution Control Equipment

There are no permitted emission units at the Premier Ethanol, LLC plant 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 and handling operation, constructed in 2006, controlled by baghouse CE001, exhausting through stack SV001, and consisting of the following:

(1) Two (2) truck dump pits, identified as EU001, constructed in 2006, with a maximum throughput rate of 840 tons of corn per hour.

(2) Two (2) grain legs and conveying system, identified as EU002, constructed in 2006, with a maximum throughput rate of 840 tons per hour.

(3) Four (4) grain bins, identified as EU003, constructed in 2006, with a maximum throughput rate of 840 tons per hour.

(b) One (1) corn scalper, identified as EU004, constructed in 2006, with a maximum throughput rate of 140 tons of corn per hour, controlled by baghouse CE002, and exhausting through stack SV002.

(c) One (1) surge bin, identified as EU005, constructed in 2006, with a maximum throughput rate of 140 tons of corn per hour, controlled by baghouse CE002, and exhausting through stack SV002.

(d) Five (5) hammermills, identified as EU006, EU007, EU008, EU009, and EU010, constructed in 2006, each with a maximum throughput rate of 20 tons of corn per hour, controlled by baghouses CE003, CE004, CE005, CE006, and CE007, respectively, and exhausting through stacks SV003, SV004, SV005, SV006, and SV007, respectively.

(e) One (1) fermentation process, constructed in 2006, with a maximum throughput rate of 55,400 gallons per hour, controlled by scrubber CE008 and thermal oxidizer CE009, with emissions exhausted through SV009. This process consists of the following:

(1) One (1) slurry tank, identified as EU011, constructed in 2006.

(2) Five (5) fermenters, identified as EU012 through EU016, constructed in 2006.

(3) One (1) yeast propagation tank, identified as EU017, constructed in 2006.

(4) One (1) beer well, identified as EU018, constructed in 2006.

(f) One (1) regenerative thermal oxidizer, identified as CE009, constructed in 2006, with a maximum heat input capacity of 30 MMBtu/hr, using natural gas as fuel, with emissions exhausted through stack SV009.

(g) One (1) distillation process, constructed in 2006, with a maximum throughput rate of 54,000 gallons of ethanol per hour, controlled by scrubber CE008 and thermal oxidizer CE009, with emissions exhausted through stack SV009. This process consists of the following:

(1) One (1) beer stripper, identified as EU019, constructed in 2006.

(2) One (1) rectifier column, identified as EU020, constructed in 2006.

(3) One (1) side stripper, identified as EU021, constructed in 2006.

(4) One (1) set of three (3) molecular sieves, identified as EU022, constructed in 2006.

(5) One (1) set of four (4) evaporators, identified as EU023, constructed in 2006.

(h) One (1) set of four (4) centrifuges, identified as EU024, constructed in 2006, controlled by thermal oxidizer CE009 during normal operation, with emissions exhausted through stack SV009. During wetcake production, emissions from EU024 are exhausted through bypass stack SV017.

(i) Two (2) natural gas fired DDGS dryers, identified as EU025 and EU026, constructed in 2006, each with a maximum heat input rate of 60 MMBtu/hr, with a total maximum throughput rate of 26 tons of DDGS per hour, controlled by multiclones CE013 and CE014, respectively, with emissions venting to thermal oxidizer CE009, and exhausting to stack SV009.

(j) Two (2) natural gas fired boilers, identified as EU027 and EU028, constructed in 2006, each with a maximum heat input rate of 143 MMBtu/hr each, with emissions exhausting to stacks SV013 and SV014, respectively.

(k) One (1) fluidized DDGS cooler, identified as EU029, constructed in 2006, with a maximum throughput rate of 26 tons/hr of DDGS, controlled by baghouse CE010, and exhausting to stack SV010.

(l) One (1) DDGS handling and storage operation, constructed in 2006, with a maximum throughput rate of 220 tons/hr of DDGS, and consisting of the following:

(1) One (1) DDGS storage silo, identified as EU030, constructed in 2006, controlled by baghouse CE011, with emissions exhausted to stack SV011.

(2) One (1) DDGS silo bypass, identified as EU031, constructed in 2006, controlled by baghouse CE012, with emissions exhausted to stack SV012.

(3) One (1) DDGS storage building, identified as EU032, constructed in 2006, controlled by baghouse CE001, with emissions exhausted to stack SV001.

(m) One (1) DDGS loadout operation, constructed in 2006, with a maximum throughput rate of 220 tons/hr of DDGS, and consisting of the following:

(1) One (1) DDGS conveyor, identified as EU033, constructed in 2006, controlled by baghouse CE001, with emissions exhausted to stack SV001.

(2) One (1) DDGS truck loadout spout, identified as EU034, constructed in 2006.

(3) One (1) DDGS rail loadout spout, identified as EU035, constructed in 2006, controlled by baghouse CE001, with emissions exhausted to stack SV001.

(n) One (1) ethanol loading system, identified as EU036, consisting of one (1) rack for trucks and two (2) racks for railcars, constructed in 2006, with a maximum throughput rate of 39,000 gallons per hour when loading trucks, and 144,000 gallons per hour when loading railcars. This unit is controlled by enclosed flare CE013, which is fueled by natural gas and has a pilot gas flare heat input capacity of 54,000 Btu/hr, and exhausts through stack SV016.

(o) One (1) diesel generator, identified as EU037, constructed in 2006, with a maximum power output rate of 2,460 HP, and exhausting to stack SV015.

Insignificant Activities

The source also consists of the following insignificant activities, as defined in 326 IAC 2-7-1(21):

(a) Solvent recycling systems with batch capacity less than or equal to 100 gallons.

(b) Forced and induced draft cooling tower system 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) Underground conveyors, including underground grain and product transfer conveyors.

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

(g) 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) off spec tank for 190-proof ethanol, identified as T001, constructed in 2006, with a maximum capacity of 250,000 gallons. [40 CFR 60, Subpart Kb]

(2) One (1) tank for 200-proof ethanol, identified as T002, constructed in 2006, with a maximum capacity of 250,000 gallons of 200-proof ethanol. [40 CFR 60, Subpart Kb]

(3) One (1) denatured ethanol tank, identified as T003, constructed in 2006, with a maximum capacity of 2,000,000 gallons of denatured ethanol. [40 CFR 60, Subpart Kb]

(4) One (1) denatured ethanol tank, identified as T004, constructed in 2006, with a maximum capacity of 2,000,000 gallons of denatured ethanol. [40 CFR 60, Subpart Kb]

(5) One (1) denaturant tank, identified as T005, constructed in 2006, with a maximum capacity of 126,900 gallons of natural gasoline. [326 IAC 8-9] [40 CFR 60, Subpart Kb]

(6) One (1) diesel storage tank, identified as T006, constructed in 2006, with a maximum storage capacity less than 2,000 gallons of diesel fuel.

(7) One (1) thin stillage tank, identified as T007, constructed in 2006, with a maximum storage capacity of 500,000 gallons of thin stillage.

(8) One (1) syrup tank, identified as T008, constructed in 2006, with a maximum storage capacity of 61,000 gallons of syrup.

Existing Approvals

No air approvals have been issued to this source.

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 March 24, 2006. Additional information was received on May 16, 2006 and June 19, 2006.

Emission Calculations

See Appendix A of this document for detailed emission calculations (pages 1 through 18). The PTE for the storage tanks is 1.91 tons per year (tons/yr) of VOC, which was calculated using EPA TANKS 4.0 software.

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, inclulding 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."

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	64.3
Acrolein	3.5
Formaldehyde	7.4
Methanol	5.7
Propionaldehyde	0.4
n-hexane	2.5
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 100 tons per year. Therefore, the source is subject to the provisions of 326 IAC 2-7. The source will be issued a FESOP because the source 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. Therefore, the source is subject to the provisions of 326 IAC 2-7. The source will be issued a FESOP because the source 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 PSD applicability.

Potential to Emit After Issuance

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

	Potential To Emit (tons/year)						
Process/Emission Unit	PM	PM10	SO_2	VOC	CO	NO_x	HAPs
Grain Receiving and Handling	12.9	12.9	-	-	-	-	-
Grain Receiving - Fugitive	12.3	4.03	-	-	-	-	-
RTO Stack	30.0	30.0	0.39	46.1	45.9	42.0	7.13

	Potential To Emit (tons/year)						
Process/Emission Unit	PM	PM10	SO_2	VOC	CO	NO_x	HAPs
DDGS Cooler	3.57	3.57	-	32.0	-	-	1.36
DDGS Handling and Loadout	1.20	1.20	-	-	-	-	-
DDGS Loadout - Fugitive	3.77	1.27	-	-	-	-	-
Boilers	9.33	9.33	0.74	6.75	50.1	50.1	
Ethanol Loadout and Flare	-	-	-	1.56	2.88	1.15	0.08
Paved Roads (Fugitive)	12.6	2.46	-	-	-	-	-
Cooling Tower (Insignificant)	5.1	5.1	-	-	-	-	-
Diesel Fire Pump (Insignificant)	0.23	0.23	0.53	0.05	0.06	2.77	Negligible
Storage Tanks (Insignificant)	-	-	-	1.91	-	-	Negligible
Equipment Leaks (Insignificant)	-	-	-	1.66	-	-	0.04
Wet Cake Storage*	-	-	-	See Note	-	-	See Note
Other Insignificant Activities	1.00	1.00	-	1.00	-	-	-
Total Emissions	92.1	71.1	1.7	91.0	98.9	96.1	8.6

Note: "-" pollutant not emitted by the facility.
* This plant is capable of producing both DDGS and WDGS. The emissions from DDGS production is the worst case scenario. Therefore, the PTE of wet cake storage is not included in the PTE for the entire source.

County Attainment Status

The source is located in Jay County.

Pollutant	Status
PM-10	Attainment
PM2.5	Attainment
SO_2	Attainment
NO_2	Attainment
1-hour Ozone	Attainment
8-hour Ozone	Attainment
CO	Attainment
Lead	Attainment

(a) Jay County has been classified as unclassifiable or 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 surrogate for PM2.5 emissions. See the State Rule Applicability – Entire Source section.

(b) Volatile organic compounds (VOC) and Nitrogen Oxides 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. Jay 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. See the State Rule Applicability – Entire Source section.

(c) Jay County has been classified as attainment or unclassifiable in Indiana for all remaining pollutants. Therefore, these emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2. See the State Rule Applicability – Entire Source section.

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	85.7
PM10	64.8
SO_2	1.7
VOC	91.0
CO	98.9
NO_x	96.1
Single HAP	Less than 10
Combination HAPs	Less than 25

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) 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.

(b) The two 143 MMBtu/hr boilers (EU027 and EU028) 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 (EU027 and EU028) 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 (EU027 and EU028), except when otherwise specified in 40 CFR 60, Subpart Db.

(c) Tanks T001 through T005 have capacities greater than 75 cubic meters (19,813 gallons) and will be used to store volatile organic liquids. 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 proposed storage tanks (T001 through T005) 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 12-1, apply to the storage tanks T001 through T005, except when otherwise specified in 40 CFR 60, Subpart Kb.

(d) 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. The proposed ethanol production plant is subject to the following portions of 40 CFR 60, Subpart VV.

1. 40 CFR 60.480
2. 40 CFR 60.481
3. 40 CFR 60.482-1
4. 40 CFR 60.482-2
5. 40 CFR 60.482-3
6. 40 CFR 60.482-4
7. 40 CFR 60.482-5
8. 40 CFR 60.482-6
9. 40 CFR 60.482-7
10. 40 CFR 60.482-8
11. 40 CFR 60.482-9
12. 40 CFR 60.482-10
13. 40 CFR 60.483-1
14. 40 CFR 60.483-2
15. 40 CFR 60.485
16. 40 CFR 60.486
17. 40 CFR 60.487

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 VV.

(e) Ethanol is one of the chemicals listed in 40 CFR 60.667. However, according to the EPA memorandum from Mr. George T. Czerniak dated December 6, 2002, the manufacture of ethanol using a fermentation process (biological synthesis) was 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).

(f) There are no National Emission Standards for Hazardous Air Pollutants (NESHAPs) (326 IAC 14 and 20, and 40 CFR Part 61 and 63) included in this permit.

(g) 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.

(h) The requirements of 40 CFR Part 63, Subpart F (National Emission Standards for Organic Hazardous Air Pollutants From Synthetic Organic Chemical Manufacturing Industry), 40 CFR Part 63, Subpart G (National Emission Standards for Organic Hazardous Air Pollutants from Synthetic Organic Chemical Manufacturing Industry for Process Vents, Storage Vessels, Transfer Operations, and Wastewater), and 40 CFR Part 63, Subpart H (National Emission Standards for Organic Hazardous Air Pollutants for Equipment Leaks), are not included in this permit because (1) this source has accepted limits that make it a minor source of hazardous air pollutants; (2) the source does not manufacture as a primary product any of the chemicals listed in Table 1 of 40 CFR 63, Subpart F, Tetrahydro-benzaldehyde, or Crotonaldehyde; and (3) the source does not use as a reactant, manufacture as a product or co-product any of the chemicals listed in Table 2 of 40 CFR 63, Subpart F.

(i) 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. The source does not operate any of the processes specified in 40 CFR 63.190(b).

(j) 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.

(k) 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.

(l) 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.

(m) This source has accepted limits that make it a minor source of hazardous air pollutants. Therefore, the requirements of the NESHAP for Industrial, Commercial, and Institutional Boilers and Process Heaters (40 CFR 63, Subpart DDDDD) are not included in this permit.

State Rule Applicability – Entire Source

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

The source will be constructed in 2006. 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 DDGS load-out operations shall not exceed the emission limits listed in the table below:

Unit ID	Unit Description	Baghouse ID	PM Emission Limit (lbs/hr)
EU001, EU002, EU003, EU032, EU033, EU035	Grain Receiving, Conveyors, and Storage Bins, and DDGS conveying, storage, and loadout	CE001	0.80
EU004, EU005	Corn Scalper, Surge Bin	CE002	0.09
EU006	Hammermill #1	CE003	0.41
EU007	Hammermill #2	CE004	0.41
EU008	Hammermill #3	CE005	0.41
EU009	Hammermill #4	CE006	0.41
EU010	Hammermill #5	CE007	0.41
EU029	DDGS Cooler	CE010	0.82
EU030	DDGS Silo Loading	CE011	0.14
EU031	DDGS Silo Bypass	CE012	0.14

This is equivalent to 17.7 tons/yr of PM. The source will use baghouses to ensure compliance with these limits. With baghouse control, the source is capable of complying with these limits.

(b) The PM emissions from the thermal oxidizer, which is used to control emissions from the fermentation and distillation operations and the dryers shall not exceed 6.86 lbs/hr. This is equivalent to 30.0 tons/yr of PM emissions.

(c) The Permittee shall use periodic sweeping to control PM emissions from the unpaved roads. The sweeping shall be applied in a manner and at a frequency sufficient to ensure compliance with 326 IAC 2-2

Combined with the PM emissions from the boilers, flare, grain receiving/loadout fugitives, unpaved roads, 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 also accepted FESOP limits on the HAP emissions from the entire source, which limits the emissions from the source to less ten (10) tons/yr for a single HAP and less than twenty-five (25) tons/yr 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/yr for a single HAP (Acetaldehyde) and greater than twenty-five (25) tons/yr 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 DDGS handling and load-out operations shall not exceed the emission limits listed in the table below:

Unit ID	Unit Description	Baghouse ID	PM10 Emission Limit (lbs/hr)
EU001, EU002, EU003, EU032, EU033, EU035	Grain Receiving, Conveyors, and Storage Bins, and DDGS conveying, storage, and loadout	CE001	0.80
EU004, EU005	Corn Scalper, Surge Bin	CE002	0.09
EU006	Hammermill #1	CE003	0.41
EU007	Hammermill #2	CE004	0.41
EU008	Hammermill #3	CE005	0.41
EU009	Hammermill #4	CE006	0.41
EU010	Hammermill #5	CE007	0.41
EU029	DDGS Cooler	CE010	0.82
EU030	DDGS Silo Loading	CE011	0.14
EU031	DDGS Silo Bypass	CE012	0.14

This is equivalent to 17.7 tons/yr of PM10. The use of baghouses ensures compliance with the PM10 limits above.

(b) The total grain received by grain receiving EU001 shall not exceed 7,358,400 tons per twelve (12) consecutive month period with compliance determined at the end of each month.

(c) The total DDGS produced shall not exceed 201,480 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 applied in a manner and at a frequency sufficient to ensure compliance with 326 IAC 2-8.

(e) The emissions from thermal oxidizer (CE009), which is used to control emissions from the fermentation and distillation scrubber and the dryers, shall not exceed the following:

(1) PM10 emissions shall not exceed 6.86 lbs/hr. This is equivalent to 30.0 tons/yr of PM.

(2) VOC emissions shall not exceed 10.5 lbs/hr. This is equivalent to 46.0 tons/yr of VOC.

(3) CO emissions shall not exceed 10.5 lbs/hr. This is equivalent to 46.0 tons/yr of CO.

(4) NOx emissions shall not exceed 9.60 lbs/hr. This is equivalent to 42.0 tons/yr of NOx.

(5) Total HAP emissions shall not exceed 1.6 lbs/hr. This is equivalent to 7.0 tons/yr. Acetaldehyde emissions shall not exceed 1.19 lbs/hr, which is equivalent to 5.21 tons/yr.

(f) The Permittee shall comply with the following requirements for the ethanol loading rack (EU036):

(1) The denatured ethanol load-out rate shall not exceed 69,000,000 gallons per twelve (12) consecutive month period with compliance determined at the end of each month.

(2) The Permittee shall use flare CE013 to control the emissions from the loading rack when loading denatured ethanol to trucks or railcars.

(3) CO emissions from flare CE013 shall not exceed 0.084 lbs/kgal.

(4) NOx emissions from flare CE013 shall not exceed 0.0334 lbs/kgal.

(5) The ethanol loading rack (EU036) shall utilize submerged loading method when loading railcars.

(6) The railcars and trucks shall not use vapor balance services.

(g) The VOC emissions from the DDGS cooler shall not exceed 7.3 lbs/hr.

Combined with the PM10, VOC, CO, NOx, and HAP 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 Jay 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 – 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 = emission rate limit (lbs/MMBtu)
Q = total source heat input capacity (MMBtu/hr)

The total source heat input capacity is 143 x 2 = 286 MMBtu/hr. Therefore, the PM emission limit for the boilers is:

$$Pt = \frac{1.09}{286^{0.26}} = 0.250 \text{ lbs/MMBtu.}$$

According to AP-42, Table 1.4-2, the PM emission factor for natural-gas fired boilers is 7.6 lbs/MMCF x 1 MMCF/1,000 MMBtu = 0.0076 lbs/MMBtu. Therefore, this boiler can comply with the PM emission limit of 0.250 lbs/MMBtu.

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:

Unit ID	Unit Description	Max. Throughput Rate (tons/hr)	Particulate Emission Limit (lbs/hr)
EU001, EU002, EU003	Grain Receiving, Conveyors, and Storage Bins	840	75.4
EU004, EU005	Corn Scalper, Surge Bin	140	54.7
EU006	Hammermill #1	20	30.5
EU007	Hammermill #2	20	30.5
EU008	Hammermill #3	20	30.5
EU009	Hammermill #4	20	30.5
EU010	Hammermill #5	20	30.5

The pounds per hour limitations were calculated using one of the following equations:

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

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

According to the emission calculations (see Appendix A), the potential to emit PM after control from these grain receiving, handling, and ship out operations is less than the emission limits above. Therefore, these operations can comply with 326 IAC 6-3-2. The use of the baghouses with these operations ensures compliance with these limits.

State Rule Applicability – Fermentation Process

326 IAC 8-1-6 (General Reduction Requirements for VOC Emissions)

The fermentation process will be constructed after January 1, 1980 and has potential VOC emissions greater than twenty-five (25) tons per year. Therefore, this fermentation process is 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 this process has been determined to be the following:

(a) The VOC emissions from the fermentation process shall be controlled by thermal oxidizer CE009.

(b) The overall control efficiency, including capture and destruction, for the thermal oxidizer shall be at least 98%, or the VOC outlet concentration shall not exceed 10 ppmv.

(c) The VOC emissions from the thermal oxidizer CE009 stack (SV009) shall not exceed 10.5 lbs/hr.

State Rule Applicability – Distillation Process

326 IAC 8-1-6 (General Reduction Requirements for VOC Emissions)

The distillation process will be constructed after January 1, 1980 and has potential VOC emissions greater than twenty-five (25) tons per year. Therefore, this distillation process is 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 this process has been determined to be the following:

(a) The VOC emissions from the distillation process shall be controlled by thermal oxidizer CE009.

(b) The overall control efficiency, including capture and destruction, for the thermal oxidizer shall be at least 98%, or the VOC outlet concentration shall not exceed 10 ppmv.

(c) The VOC emissions from the thermal oxidizer CE009 stack (SV009) shall not exceed 10.5 lbs/hr.

State Rule Applicability – DDGS Drying, Cooling, and loadout Process

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

Pursuant to 326 IAC 6-3-2, particulate emissions from each of the DDGS dryers (EU025 and EU026), the DDGS cooler (EU029), and the DDGS loadout operations (EU016 and EU017) shall not exceed the pound per hour limits listed in the table below:

Unit ID	Unit Description	Max. Throughput Rate (tons/hr)	Particulate Emission Limit (lbs/hr)
EU029	DDGS Cooler	23	33.5
EU030	DDGS Silo Loading	23	33.5
EU031	DDGS Silo Bypass	23	33.5
EU025	DDGS Dryer	29.4	39.5
EU026	DDGS Dryer	29.4	39.5
EU032	DDGS Storage Building	220	59.5
EU033	DDGS Conveyor	220	59.5
EU035	DDGS Rail Loadout Spout	220	59.5

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

Interpolation and extrapolation 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.

The use of the thermal oxidizer system (CE009) and the DDGS storage and handling baghouses (CE001, CE011, and CE012) is necessary to ensure compliance with the emission limits above.

326 IAC 8-1-6 (General Reduction Requirements for VOC Emissions)

The DDGS dryers (EU025 and EU026) will be constructed after January 1, 1980 and each of them has potential VOC emissions greater than 25 tons per year. There are no other rules in 326 IAC 8 applicable to these dryers. Therefore, these dryers are subject to 326 IAC 8-1-6 and the Permittee is required to control VOC emissions using the Best Available Control Technology (BACT). Based on the information in Appendix B, BACT for the DDGS dryers has been determined to be the following:

(a) The VOC emissions from the DDGS dryers (EU025, EU026) shall be controlled by the thermal oxidizer system CE009.

(b) The overall efficiency for the thermal oxidizer system CE009 (including the capture efficiency and destruction efficiency) shall be at least 98%, or the VOC outlet concentration shall not exceed 10 ppmv.

(c) The VOC emissions from stack SV009 for the thermal oxidizer system (CE009) shall not exceed 10.5 lbs/hr.

The DDGS cooler (EU029) will be constructed after January 1, 1980 and has potential VOC emissions greater than 25 tons per year. There are no other rules in 326 IAC 8 applicable to these dryers. Therefore, the cooler is subject to 326 IAC 8-1-6 and the Permittee is required to control VOC emissions using the Best Available Control Technology (BACT). Based on the information in Appendix B, BACT for the DDGS cooler has been determined to be the following:

(a) The VOC emissions from the DDGS cooler (EU029) shall not exceed 7.3 lbs/hr.

State Rule Applicability – Ethanol Loading Rack (EU036)

326 IAC 8-1-6 (General Reduction Requirements for VOC Emissions)

The ethanol loading rack at this source will be constructed after January 1, 1980 and has potential VOC emissions greater than 25 tons per year. There are no other rules in 326 IAC 8 applicable to this unit. Therefore, this unit is subject to 326 IAC 8-1-6 and the Permittee is required to control VOC emissions using Best Available Control Technology (BACT). Based on the information provided in Appendix B, BACT for this ethanol loading rack (EU036) has been determined to be the following:

(a) The VOC emissions from the ethanol loading rack (EU036) shall be collected and controlled by enclosed flare CE013 when the ethanol loading rack is in operation.

(b) The overall efficiency for the enclosed flare CE013 (including the capture efficiency and destruction efficiency) shall be at least 98%.

(c) The VOC emissions from the flare CE013 shall not exceed 1.44 lbs/hr. This limit was calculated based on the worst-case emission rate between loading trucks and loading railcars. The worst-case hourly emissions occur during truck loading, and the limit was calculated using a VOC emission factor of 3.6 lbs/kgal, the maximum truck loadout rate of 20 kgal/hr, and the flare control efficiency of 98% (3.6 lbs/kgal x 20 kgal/hr x (1-98%) = 1.44 lbs/hr). The VOC emission factor of 3.6 lbs/kgal for truck loading was calculated using the equation in AP-42, Chapter 5.2 (see the emission calculations in Appendix A).

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 T001 through T005 (Insignificant Activities)

326 8-4-3 (Petroleum Liquid Storage Facilities)

The denaturant storage tank (T005) 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, tank T005 is subject to the requirements of 326 IAC 8-4-3. Tank T005 will be equipped with an internal floating roof.

(a) Pursuant to 326 IAC 8-4-3(b)(1)(B), storage tank T005 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 tank T005:

(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.

The above records shall be made available to the IDEM, OAQ upon written request. Tanks T001, T002, T003, T004, T006, T007, and T008 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.

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 CE001 through CE007, CE010, CE011, and CE012, which are used to control the particulate emissions from the two (2) truck dump pits identified as EU001, the two (2) grain legs and conveying system identified as EU002, the four (4) grain bins identified as EU003, the corn scalper identified as EU004, the surge bin identified as EU005, the five (5) hammermills identified as EU006, EU007, EU008, EU009 and EU010, the DDGS cooler identified as EU029, the DDGS storage silo identified as EU030, the DDGS silo bypass identified as EU031, the DDGS storage

building identified as EU032, the DDGS conveyor identified as EU033, and the DDGS rail loadout spout identified as EU035.

(b) PM, PM10, VOC, NOx, CO, and HAP tests for the thermal oxidizer system CE009. The thermal oxidizer system (CE009) is used to control the emissions from the fermentation and distillation processes and the DDGS dryers (EU025 and EU026).

(c) NOx and CO emissions from boilers EU027 and EU028.

(d) VOC, NOx, and CO emissions from the enclosed flare CE013, which is used to control the emissions from the ethanol loading rack.

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 two (2) truck dump pits identified as EU001, the two (2) grain legs and conveying system identified as EU002, the four (4) grain bins identified as EU003, the corn scalper identified as EU004, the surge bin identified as EU005, the five (5) hammermills identified as EU006, EU007, EU008, EU009 and EU010, the DDGS cooler identified as EU029, the DDGS storage silo identified as EU030, the DDGS silo bypass identified as EU031, the DDGS storage building identified as EU032, the DDGS conveyor identified as EU033, and the DDGS rail loadout spout identified as EU035 have applicable compliance monitoring conditions as specified below. These units are controlled by baghouses CE001 through CE007, CE010, CE011, and CE012.

   Visible Emissions Notations

   (a) Visible emission notations of the baghouse stack exhausts (stacks SV001 through SV007, SV010, SV011, and SV012) 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

(a) The Permittee shall record the pressure drop across the baghouses used in conjunction with the grain receiving and handling operations (EU001 through EU005), the hammermills (EU006 through EU010), and the DDGS handling and loadout operations (EU030 through EU033, and EU035), 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.

(c) 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 the two (2) truck dump pits identified as EU001, the two (2) grain legs and conveying system identified as EU002, the four (4) grain bins identified as EU003, the corn scalper identified as EU004, the surge bin identified as EU005, the five (5) hammermills identified as EU006, EU007, EU008, EU009 and EU010, the DDGS cooler identified as EU029, the DDGS storage silo identified as EU030, the DDGS silo bypass identified as EU031, the DDGS storage building identified as EU032, the DDGS conveyor identified as EU033, and the DDGS rail loadout spout identified as EU035 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 process and the DDGS dryers (EU025 and EU026), which are controlled by the thermal oxidizer system (CE009), have applicable compliance monitoring conditions as specified below:

Visible Emissions Notations

(a) Visible emission notations of the stack exhaust from the RTO system stack (SV009) 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.

(f) A continuous monitoring system shall be calibrated, maintained, and operated on the thermal oxidizer system (CE009) 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 oxidizer (CE009) must operate properly at all times the fermentation and distillation processes and the DDGS dryers (EU025 and EU026) 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 ethanol loading rack (EU036), which is controlled by enclosed flare CE013, 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 flare CE009 must operate properly at all times that the ethanol loading rack (EU047) 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 operation of this ethanol production plant shall be subject to the conditions of the FESOP 075-22858-00032.

Appendix A: Emission Calculations
PM and PM10 Emissions
From the Grain Receiving and Handling Operations

Company Name: Premier Ethanol, LLC
Address: Portland, Indiana
FESOP: 075-22858-00032
Reviewer: ERG/MP
Date: May 1, 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)
CE001	Grain Receiving (EU001), Conveyors (EU 002), and Storage Bins (EU003)	Baghouse	0.004	23,450	0.80	3.52	99%	352
CE002	Corn Scalper (EU 004), Surge Bin (EU 005)	Baghouse	0.004	2,500	0.09	0.38	99%	38
CE003	Hammermill #1 (EU 006)	Baghouse	0.004	12,000	0.41	1.80	99%	180
CE004	Hammermill #2 (EU 007)	Baghouse	0.004	12,000	0.41	1.80	99%	180
CE005	Hammermill #3 (EU 008)	Baghouse	0.004	12,000	0.41	1.80	99%	180
CE006	Hammermill #4 (EU 009)	Baghouse	0.004	12,000	0.41	1.80	99%	180
CE007	Hammermill #5 (EU 010)	Baghouse	0.004	12,000	0.41	1.80	99%	180
Total						12.9		1,291

Assume all PM emissions equal PM10 emissions.

Methodology

PTE of PM/PM10 after Control (lbs/hr) = Outlet 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) = Outlet 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)	Baghouse ID	Capture Efficiency (%)	Fugitive PM Emissions (tons/yr)	Fugitive PM10 Emissions (tons/yr)
F001	Grain Receiving	683,280	0.180	0.0590	CE001	80%	12.30	4.03

Note: Emission factors are from AP-42, Chapter 9.9.1 - Grain Elevators, Table 9.9.1-1 (04/03). Assume all the grain receiving and loadout is by truck, which is the worst case scenario.
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 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 Process Scrubber

Company Name: Premier Ethanol, LLC
Address: Portland, Indiana
FESOP: 075-22858-00032
Reviewer: ERG/MP
Date: May 1, 2006

1. Process Description:

The exhaust from the fermentation/distillation scrubber (CE008) is routed to the RTO (CE009).

2. Potential to Emit (PTE) of VOC and HAP from the scrubber:

Pollutant	Emission Rate after Control (lbs/hr)*	PTE after Control (tons/yr)	Control Efficiency (%)**	PTE before Control (tons/yr)
VOC	20.00	87.6	95%	1,752
HAP				
Acetaldehyde	2.9	12.7	50%	25.4
Methanol	0.1	0.4	50%	0.88
Formaldehyde	0.1	0.4	50%	0.88
Propionaldehyde	0.1	0.4	50%	0.88
Total HAPs	3.20	14.0	50%	28.03

* VOC and HAP emission factors provided by the source and are based on stack tests at similar facilities.
The Permittee will perform stack testing of the RTO stack.

** The control efficiency information is based on the information from other similar plants.

Methodology

PTE after Control (tons/yr) = Emission Rate after Control (lbs/hr) x 8,760 hr/yr x 1 ton/2000 lbs
PTE before Control (tons/yr) = PTE after Control (tons/yr) / (1- Control Efficiency)

Appendix A: Emission Calculations
RTO stack (2 DDGS Dryers, Fermentation/Distillation Scrubber)

Company Name: Premier Ethanol, LLC
Address: Portland, Indiana
FESOP: 075-22858-00032
Reviewer: ERG/MP
Date: May 1, 2006

1. Process Description:

The RTO controls emissions from the dryers and the fermentation/distillation scrubber.
The RTO has the following control efficiencies (based on engineering
estimates and stack test results at similar facilities as provided by the source):

PM:	90%
VOC:	98%
HAP:	97%
CO:	90%

2. Dryer Emissions

2.1 Combustion Emissions from the two (2) 60 MMBtu/hr dryers (EU025 and EU026)

Heat Input Capacity MMBtu/hr	Potential Throughput MMBtu/yr
120.0	1051200.0

	Pollutant				
	PM	PM10	SO2	NOx	VOC
Emission Factor in lb/MMBtu*	0.00745	0.00745	0.00059	0.07	0.0054
Potential Emission in tons/yr	3.9	3.9	0.3	36.8	2.8

*PM emissions assumed equal to PM10 emissions. Emission factors for PM, PM10, SO2, and VOC from AP-42, Chapter 1.4, Tables 1.4-1 and 1.4-2 (AP-42, 07/98). Emission Factors for NOx from Stack Test at similar facility. CO emissions addressed on Page 4.

Methodology

Potential Throughput (MMBtu/yr) = Heat Input Capacity (MMBtu/hr) x 8,760 hrs/yr

PTE (tons/yr) = Potential Throughput (MMBtu/yr) x Emission Factor (lbs/MMBtu) x 1 ton/2000 lbs

Appendix A: Emission Calculations
RTO stack (2 DDGS Dryers, Fermentation/Distillation Scrubber)

Company Name: Premier Ethanol, LLC
Address: Portland, Indiana
FESOP: 075-22858-00032
Reviewer: ERG/MP
Date: May 1, 2006

2.2 Process Emissions from the two (2) 60 MMBtu/hr dryers

	Pollutant						
	VOC	PM	CO	Acetaldehyde	Acrolein	Methanol	Formaldehyde
Emission Rate before Control (lbs/hr)*	465.30	57.40	80.00	11.40	0.80	1.20	1.60
Potential Emission in tons/yr	2038.01	251.41	350.40	49.93	3.50	5.26	7.01

* Emission Factors from provided by source based on engineering estimates at similar facilities. CO emission factor includes both combustion and process emissions.

Methodology

Potential Emissions (tons/yr) = Emission Rate before Control (lbs/hr) x 8760 hr/yr x 1 ton/2000 lbs

3. Combustion Emissions from the RTO (30 MMBtu/hr)

Heat Input Capacity MMBtu/hr	Potential Throughput MMBtu/yr
30.0	262800.0

	Pollutant					
	PM	PM10	SO2	NOx**	VOC	CO
Emission Factor in lb/MMBtu*	0.00745	0.00745	0.00059	0.04	0.0054	0.0824
Potential Emission in tons/yr	1.0	1.0	0.1	5.3	0.7	10.8

*PM emissions assumed equal to PM10 emissions. Emission factors for PM, PM10, SO2, VOC, and CO from AP-42, Chapter 1.4, Tables 1.4-1 and 1.4-2 (AP-42, 07/98).
** Emission Factor for NOx from Manufacturer's guarantee.

Methodology

Potential Throughput (MMBtu/yr) = Heat Input Capacity (MMBtu/hr) x 8,760 hrs/yr
Potential Emissions (tons/yr) = Potential Throughput (MMBtu/yr) x Emission Factor (lbs/MMBtu) x 1 ton/2000 lbs

Appendix A: Emission Calculations
RTO stack (2 DDGS Dryers, Fermentation/Distillation Scrubber)

Company Name: Premier Ethanol, LLC
Address: Portland, Indiana
FESOP: 075-22858-00032
Reviewer: ERG/MP
Date: May 1, 2006

4. Fermentation/Distillation Scrubber Emissions

Pollutant	Emission Rate from scrubber (lb/hr)*	Emission Rate from scrubber (tons/yr)*
VOC	20.00	87.6
HAPs:		
Acetaldehyde	2.9	12.7
Methanol	0.1	0.4
Formaldehyde	0.1	0.4
Propionaldehyde	0.1	0.4

* See scrubber calculations on page 2.

Methodology

PTE (tons/yr) = Emission Rate from scrubber (lbs/hr) x 8,760 hr/yr x 1 ton/2000 lbs

5. Total RTO Stack PTE (tons/yr)

Pollutant	Dryer Combustion PTE	Dryer Process PTE (Uncontrolled)	Dryer Process PTE (Controlled)	Scrubber PTE (Uncontrolled)	Scrubber PTE (Controlled)	RTO Combustion PTE	Total RTO Stack PTE	Total RTO Stack PTE (lb/hr)
PM	3.9	251	25.1			1.0	30.0	6.86
PM10	3.9	251	25.1			1.0	30.0	6.86
SO2	0.3					0.1	0.4	0.09
VOC	2.8	2038	40.8	87.6	1.8	0.7	46.1	10.5
CO		350	35.0			10.8	45.9	10.5
NOx	36.8					5.3	42.0	9.60
Acetaldehyde		49.9	5.0	12.7	0.3		5.25	1.20
Methanol		5.26	0.5	0.44	0.01		0.53	0.12
Formaldehyde		7.01	0.7	0.44	0.01		0.71	0.16
Acrolein		3.50	0.4				0.35	0.08
Propionaldehyde				0.44	0.01		0.01	0.002
Total HAP	0.0	65.7	6.6	14.0	0.3	0.0	6.9	1.6

Methodology

PTE Controlled (tons/yr) = Uncontrolled Emission Rate (tons/yr) x (1 - Control Efficiency)
Total RTO Stack PTE (tons/yr) = Dryer Combustion PTE + Dryer Process PTE (Controlled) + Scrubber PTE (Controlled) + RTO Combustion PTE
Total RTO Stack PTE (lb/hr) = (Dryer Combustion PTE + Dryer Process PTE (Controlled) + RTO Combustion PTE + Scrubber PTE (Controlled)) * 2000/8760
These emission estimates reflect the following level of control from the dryer process emissions and fermentation/distillation scrubber exhausts:

PM:	90%
VOC:	98%
HAP:	97%
CO:	90%

Appendix A: Emission Calculations
HAP Emissions from Natural Gas Combustion
From Two (2) 60 MMBtu/hr DDGS Dryers and One (1) 30 MMBtu/hr RTO System

Company Name: Premier Ethanol, LLC
Address: Portland, Indiana
FESOP: 075-22858-00032
Reviewer: ERG/MP
Date: May 1, 2006

SV009 HAP Emissions from Natural Gas Combustion

1. Dryer Combustion HAPs - There are two DDGS dryers, each with a capacity of 60 MMBtu/hr, burning natural gas. The dryers will exhaust to the RTO at all times when the dryers are operated. The source indicated that the RTO has an estimated HAP control effiency of 97%.

	Emission Factor*	Potential to Emit Emissions (Uncontrolled)		PTE (Controlled)	
HAP Pollutant	**(lb/MMscf)**	**(lb/hr)**	**(ton/yr)**	**(lb/hr)**	**(ton/yr)**
Benzene	0.0021	2.52E-04	1.10E-03	7.56E-06	3.31E-05
Formaldehyde	0.075	9.00E-03	3.94E-02	2.70E-04	1.18E-03
Hexane	1.8	2.16E-01	9.46E-01	6.48E-03	2.84E-02
Naphthalene	0.00061	7.32E-05	3.21E-04	2.20E-06	9.62E-06
Toluene	0.0034	4.08E-04	1.79E-03	1.22E-05	5.36E-05
Arsenic	0.0002	2.40E-05	1.05E-04	7.20E-07	3.15E-06
Berylium	0.000012	1.44E-06	6.31E-06	4.32E-08	1.89E-07
Cadmium	0.0011	1.32E-04	5.78E-04	3.96E-06	1.73E-05
Chromium	0.0014	1.68E-04	7.36E-04	5.04E-06	2.21E-05
Cobalt	0.000084	1.01E-05	4.42E-05	3.02E-07	1.32E-06
Lead	0.0005	6.00E-05	2.63E-04	1.80E-06	7.88E-06
Manganese	0.00038	4.56E-05	2.00E-04	1.37E-06	5.99E-06
Mercury	0.00026	3.12E-05	1.37E-04	9.36E-07	4.10E-06
Nickel	0.0021	2.52E-04	1.10E-03	7.56E-06	3.31E-05
Selenium	0.000025	3.00E-06	1.31E-05	9.00E-08	3.94E-07
	Total:	**0.226**	**0.992**	**0.007**	**0.030**

* Emission factors from AP-42, Chapter 1.4, Tables 1.4-3 and 1.4-4 (07/98).

Methodology

PTE (Uncontrolled) (tons/yr) = Potential Throughput (MMBtu/yr) x Emission Factor (lbs/MMscf) x 1 MMCF/1,000 MMBtu x 1 ton/2000 lbs
PTE (Controlled) (tons/yr) = Potential Throughput (MMBtu/yr) x Emission Factor (lbs/MMscf) x 1 MMCF/1,000 MMBtu x 1 ton/2000 lbs (1 - 97%)

2. RTO Combustion HAPs - This facility will operate an RTO to control emissions from the fermentation and distillation systems and the the DDGS dryers. The RTO is equipped with five natural gas fired burners rated at 6 MMBtu/hr each for a total of 30 MMBTU/hr.

	Emission Factor*	PTE	
HAP Pollutant	**(lb/MMscf)**	**(lb/hr)**	**(ton/yr)**
Benzene	0.0021	6.30E-05	2.76E-04
Formaldehyde	0.075	2.25E-03	9.86E-03
Hexane	1.8	5.40E-02	2.37E-01
Naphthalene	0.00061	1.83E-05	8.02E-05
Toluene	0.0034	1.02E-04	4.47E-04
Arsenic	0.0002	6.00E-06	2.63E-05
Berylium	0.000012	3.60E-07	1.58E-06
Cadmium	0.0011	3.30E-05	1.45E-04
Chromium	0.0014	4.20E-05	1.84E-04
Cobalt	0.000084	2.52E-06	1.10E-05
Lead	0.0005	1.50E-05	6.57E-05
Manganese	0.00038	1.14E-05	4.99E-05
Mercury	0.00026	7.80E-06	3.42E-05
Nickel	0.0021	6.30E-05	2.76E-04
Selenium	0.000025	7.50E-07	3.29E-06
	Total:	**0.057**	**0.248**

* Emission factors from AP-42, Chapter 1.4, Tables 1.4-3 and 1.4-4 (07/98).

Methodology

PTE (tons/yr) = Potential Throughput (MMBtu/yr) x Emission Factor (lbs/MMscf) x 1 MMCF/1,000 MMBtu x 1 ton/2000 lbs

3. Total HAPs

	CAS	PTE	
HAP Pollutant		**(lb/hr)**	**(ton/yr)**
Benzene	71-43-2	7.06E-05	3.09E-04
Formaldehyde	50-00-0	2.52E-03	1.10E-02
Hexane	110-54-3	6.05E-02	2.65E-01
Naphthalene	91-20-3	2.05E-05	8.98E-05
Toluene	108-88-3	1.14E-04	5.00E-04
Arsenic	7440-38-2	6.72E-06	2.94E-05
Berylium	7440-41-7	4.03E-07	1.77E-06
Cadmium	7440-43-7	3.70E-05	1.62E-04
Chromium	7440-47-3	4.70E-05	2.06E-04
Cobalt	7440-48-4	2.82E-06	1.24E-05
Lead	NA	1.68E-05	7.36E-05
Manganese	7439-96-5	1.28E-05	5.59E-05
Mercury	7439-97-6	8.74E-06	3.83E-05
Nickel	7440-02-0	7.06E-05	3.09E-04
Selenium	7782-49-2	8.40E-07	3.68E-06
	Total:	**0.063**	**0.278**

Methodology

PTE (tons/yr) = Potential Emissions from Dryers (tons/yr) + Potential Emissions from RTO (tons/yr)

Appendix A: Emission Calculations
PM/PM10 and VOC Emissions
From the DDGS Cooler (EU029)

Company Name: Premier Ethanol, LLC
Address: Portland, Indiana
FESOP: 075-22858-00032
Reviewer: ERG/MP
Date: May 1, 2006

1. Potential to Emit PM/PM10

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)
CE010	DDGS Cooler	Baghouse	0.004	23,800	0.82	3.57	99%	357

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 VOC:

VOC Emission Factor = 7.3 (lb/hr) (Source-provided, based on engineering estimate from similar facilities.)

PTE of VOC (tons/yr) = 7.3 (lb/hr) x 8760 (hr/yr) x 1 (ton/2000 lbs) = **31.97 (tons/yr)**

3. Potential to Emit HAPs:

	Pollutant			
	Acetaldehyde	Methanol	Formaldehyde	Total
Emission Rate after Control (lbs/hr) *	0.21	0.08	0.02	0.31
PTE after Control in tons/yr	**0.92**	**0.35**	**0.09**	**1.36**

*HAP emission rates were provided by the source based on engineering estimates from a similar facility.

Methodology

PTE after Control (tons/yr) = Emission Rate after Control (lbs/hr) x 8760 hr/yr x 1 ton/2000 lbs

Appendix A: Emission Calculations
PM and PM10 Emissions
From the DDGS Handling and Loadout Operations

Company Name: Premier Ethanol, LLC
Address: Portland, Indiana
FESOP: 075-22858-00032
Reviewer: ERG/MP
Date: May 1, 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)
CE011	DDGS Silo Loading (EU030)	Baghouse	0.004	4,000	0.14	0.60	99%	60.1
CE012	DDGS Silo Bypass (EU031)	Baghouse	0.004	4,000	0.14	0.60	99%	60.1
Total						1.20		120.14

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)
EU043	DDGS Loadout Operation	175,200	0.0860	0.0290	50%	3.77	1.27

Note: Emission factors are from AP-42, Chapter 9.9.1 - Grain Elevators, Table 9.9.1-2 (03/03).
There are no fugitive emissions from the DDGS handling operations because the emissions from these units are 100% captured.

Methodology

Fugitive PM/PM10 (tons/yr) = Annual Throughput Limit (tons/yr) x Uncontrolled PM Emission Factor (lbs/ton) x (1-Capture Efficiency) x 1 ton/2000 lbs

Appendix A: Emission Calculations
Criteria and HAP Emissions
From two (2) 143 MMBtu/hr Boilers (EU027 and EU028)

Company Name: Premier Ethanol, LLC
Address: Portland, Indiana
FESOP: 075-22858-00032
Reviewer: ERG/MP
Date: May 1, 2006

Heat Input Capacity MMBtu/hr	Potential Throughput MMBtu/yr	Potential Throughput MMCF/yr
286.0	2505360.0	2505.4

Criteria Pollutants

	PM*	PM10*	SO2	NOx**	VOC	CO***
Emission Factor in lb/MMBtu	0.00745	0.00745	0.00059	0.04	0.0054	0.04
Potential Emission in tons/yr	9.3	9.3	0.7	50.1	6.8	50.1

*PM emission factor is filterable PM only. PM10 emission factor is condensable and filterable PM10 combined.
** Emission Factor for NOx from manufacturer guarantee. Permit requires verification through stack testing.
*** Emission Factor for CO from performance test data for similar unit. Permit requires verification through stack testing.

HAPs - Organics

	Benzene	Dichlorobenzene	Formaldehyde	Hexane	Toluene
Emission Factor in lb/MMBtu	2.1E-06	1.2E-06	7.4E-05	1.8E-03	3.3E-06
Potential Emission in tons/yr	2.58E-03	1.47E-03	9.21E-02	2.21E+00	4.18E-03

HAPs - Metals

	Lead	Cadmuim	Chromium	Manganese	Nickel
Emission Factor in lb/MMBtu	4.9E-07	1.1E-06	1.4E-06	3.7E-07	2.1E-06
Potential Emission in tons/yr	6.14E-04	1.35E-03	1.72E-03	4.67E-04	2.58E-03

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.
MMBtu = 1,000,000 Btu
MMCF - 1,000,000 Cubic Feet of Gas

Potential Throughput (MMBtu) = Heat Input Capacity (MMBtu/hr) x 8,760 hrs/yr
Potential Throughput (MMCF) = Heat Input Capacity (MMBtu/hr) x 8,760 hrs/yr x 1 MMCF/1,000 MMBtu
Emission Factors from AP-42, Chapter 1.4, Tables 1.4-1, 1.4-2, and 1.4-3, SCC #1-01-006-01, 1-01-006-04
unless otherwise noted (AP-42 Supplement D 3/98)
Potential Emission (tons/yr) = Throughput (MMBtu/yr) x Emission Factor (lb/MMBtu)/2,000 lb/ton

Appendix A: Emission Calculations
VOC and HAP Emissions
From the Wetcake Production

Company Name: Premier Ethanol, LLC
Address: Portland, Indiana
FESOP: 075-22858-00032
Reviewer: ERG/MP
Date: May 1, 2006

1. Process Description:

Max. Throughput Rate: 60 tons/hr of wetcake (provided by the source)

2. Potential to Emit (PTE) of VOC and HAP from Wetcake Storage:

Pollutant	*Emission Factor (lbs/ton)	PTE (tons/yr)
VOC	8.30E-03	**2.17**
HAP		
Acetaldehyde	1.00E-04	**0.03**
Acrolein	2.00E-05	**5.23E-03**
Formaldehyde	2.00E-04	**0.05**
Methanol	4.00E-05	**0.01**
Total HAP		**0.09**

* Emission Factors provided by the source based on the stack test results for DENCO, LLC in Morris, MN.

Methodology

PTE (tons/yr) = Max. Throughput Rate (tons/hr) x Emission Factor (lbs/ton) x 8760 hr/yr x 1 ton/2000 lbs

3. Potential to Emit (PTE) of VOC from Centrifuge bypass Stack (SV017):

Pollutant	*Emission Factor (lbs/hr)	PTE (tons/yr)
VOC	8.09E-02	**0.35**

* Emission Factors provided by the source based on engineering calculations.

Methodology

PTE (tons/yr) = Emission Factor (lbs/hr) x 8760 hr/yr x 1 ton/2000 lbs

4. Potential to Emit (PTE) of VOC and HAP from Wetcake Production:

Pollutant	PTE (tons/yr)
VOC	**2.52**
HAP	
Acetaldehyde	**0.03**
Acrolein	**0.01**
Formaldehyde	**0.05**
Methanol	**0.01**
Total HAP	**0.09**

Methodology

PTE (tons/yr) = PTE from Wetcake Storage (tons/yr) + PTE from Centrifuge bypass Stack (tons/yr)

Appendix A: Emission Calculations
VOC and HAP Emissions from Ethanol Loading Racks (EU036)

Company Name: Premier Ethanol, LLC
Address: Portland, Indiana
FESOP: 075-22858-00032
Reviewer: ERG/MP
Date: May 1, 2006

1. Emission Factors: AP-42

Denatured ethanol will be shipped by either truck loading rack or railcar loading rack. Railcars will be dedicated fleets, but the trucks may be used to carry gasoline prior to filling with ethanol. Both railcars and trucks will be filled by submerged loading process. Truck and rail loadout operations will be controlled by a flare (CE013), 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)

Previous Stored Liquid	*S	P (psia)	M (lbs/mole lbs)	T (degree R)	L (lbs/kgal)
Gasoline (normal)	1.0	4.0226	66	507	6.52
Gasoline (clean cargo)	0.5	4.0226	66	507	3.26
Denatured Ethanol (normal)	0.6	0.55	49.7	507	0.40
Denatured Ethanol (clean cargo)	0.5	0.55	49.7	507	0.33

Therefore, the emission factor for loading denatured ethanol to trucks which stored gasoline previously
= L (gasoline, normal) - L (gasoline, clean cargo) + L (denatured ethanol, clean cargo) = 3.60 (lbs/kgal)

2. Potential to Emit VOC Before Control:

(1) Assume all ethanol loaded out via truck:
Loading Rate limit for truck: 69 MMgal/yr
PTE of VOC before Control (tons/yr) = 69 MMgal/yr x 3.60 lbs/kgal x 1 ton/2000 lbs = **124.1 tons/yr**

(2) Assume 40 MMgal/yr loadout out via truck, 29 MMgal/yr loaded out via rail:
Loading Rate limit for truck: 40 MMgal/yr
PTE of VOC before Control (tons/yr) = 40 MMgal/yr x 3.60 lbs/kgal x 1 ton/2000 lbs = **71.9 tons/yr**
Loading Rate for rail: 29 MMgal/yr
PTE of VOC before Control (tons/yr) = 29 MMgal/yr x 0.40 lbs/kgal x 1 ton/2000 lbs = **0.6 tons/yr**
Total: **72.5 tons/yr**

(3) Assume all ethanol loaded out via rail:
Loading Rate limit for rail: 69 MMgal/yr
PTE of VOC before Control (tons/yr) = 69 MMgal/yr x 0.40 lbs/kgal x 1 ton/2000 lbs = **13.9 tons/yr**

3. Limited Potential to Emit:

Annual Production Limit: 69,000 kgal/yr (total)
Annual Truck Loading Limit: 40,000 kgal/yr (truck loading limit)
Flare Control Efficiency: 98%

(1) Assume 40 Mmgal/yr denatured ethanol is loaded to trucks, 29 Mmgal/yr is loaded to rail:
PTE of VOC from truck loading (tons/yr) = 3.60 lbs/kgal x 40,000 kgal/yr x (1-98%) x 1 ton/2000 lbs = **1.44 tons/yr**
PTE of VOC from rail loading (tons/yr) = 0.40 lbs/kgal x 29,000 kgal/yr x (1-98%) x 1 ton/2000 lbs = **0.12 tons/yr**
Total: **1.56**

(2) Assume all denatured ethanol is loaded to railcars (controlled by flare):
PTE of VOC (tons/yr) = 0.40 lbs/kgal x 69,000 kgal/yr x (1-98%) x 1 ton/2000 lbs = **0.28 tons/yr**

Worst case scenario is when loading 40 Mmgal/yr denatured ethanol to trucks and 29 Mmgal/yr to rail = 1.56 tons/yr

4. Potential to Emit HAPs:

HAP emissions are mainly from the unloading process for trucks, 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	0.18	3.60E-03
Carbon Disulfide	2.00E-05	1.44E-03	2.88E-05
Cumene	1.00E-04	7.19E-03	1.44E-04
Ethyl benzene	5.00E-05	3.60E-03	7.19E-05
n-Hexane	5.00E-02	3.6	7.19E-02
Toluene	5.00E-03	0.36	7.19E-03
Xylene	5.00E-04	0.04	7.19E-04
Total	**0.06**	4.2	0.08

* 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 Fraction
Limited PTE of HAP after Control (tons/yr) = Limited PTE of VOC by Trucks (tons/yr) x HAP Fraction

Appendix A: Emission Calculations
Combustion Emissions
From Flare CE013 for Ethanol Loading Rack (EU036)

Company Name: Premier Ethanol, LLC
Address: Portland, Indiana
FESOP: 075-22858-00032
Reviewer: ERG/MP
Date: May 1, 2006

Heat Input Capacity MMBtu/hr	Annual Production Limit kgal/yr
0.055	69,000

	Pollutant					
	PM*	PM10*	SO_2*	NOx**	VOC***	CO**
Emission Factor	NA	NA	NA	0.0334 (lbs/kgal)	-	0.084 (lbs/kgal)
Limited Potential to Emit in tons/yr	**NA**	**NA**	**NA**	**1.15**	**1.56**	**2.88**

*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 (John Zink Company).

*** VOC emission calculations can be found in page 11 of this appendix.

Methodology

Limited PTE of NOx and CO (tons/yr) = Annual Production Limit (kgal/yr) x Emission Factor (lbs/kgal) x 1 ton/2000 lbs

Appendix A: Emission Calculations
Fugitive Emissions From Paved Roads

Company Name: Premier Ethanol, LLC
Address: Portland, Indiana
FESOP: 075-22858-00032
Reviewer: ERG/MP
Date: May 1, 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) =	27.5 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 = $(0.082 \times (0.6/2)^{0.65} \times (27.5/3)^{1.5} - 0.00047) \times (1 - 120/1460)$ = **0.95** 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)	*Trip Number (trips/yr)	* Round Trip Distance (mile/trip)	Vehicle Mile Traveled (VMT) (miles/yr)	Traffic Component (%)	Component Vehicle Weight (tons)	PTE of PM (tons/yr)	PTE of PM10 (tons/yr)
DDGS Load Out	27.5	3,504	0.75	2,628	9.9%	2.73	1.25	0.24
Ethanol Load Out	27.5	4,313	0.75	3,235	12.2%	3.36	1.54	0.30
Denaturant Delivery	27.5	190	0.75	143	0.54%	0.15	0.07	0.01
Grain Delivery	27.5	27,331	0.75	20,498	77.3%	21.27	9.78	1.91
Total				**26,504**	**100%**	**27.5**	**12.6**	**2.46**

* This information is provided by the source.

Methodology

Vehicle Mile Traveled (miles/yr) = Trip Number (trips/yr) x Round-Trip Distance (mile/trip)
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

Appendix A: Emission Calculations
PM/PM10 Emissions
From the the Cooling Tower (Insignificant Activity)

Company Name: Premier Ethanol, LLC
Address: Portland, Indiana
FESOP: 075-22858-00032
Reviewer: ERG/MP
Date: May 1, 2006

1. Process Description:

Type of Cooling Tower:	Induced Draft	
Circulation Flow Rate:	18,500	gal/min
Total Drift:	0.005%	of the circulating flow
Total Dissolved Solids:	2,500	ppm
Density:	8.345	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) = 18,500 gal/min x 60 min/hr x 0.005% x 8.345 lbs/gal x 2,500 ppm x 1/1,000,000 ppm = **1.16 lbs/hr**

PTE of PM/PM10 (tons/yr) = 1.16 lbs/hr x 8760 hr/yr x 1 ton/2000 lbs = **5.1 tons/yr**

Appendix A: Emission Calculations
Criteria Pollutants
From the Diesel Emergency Generator (EU037)

Company Name: Premier Ethanol, LLC
Address: Portland, Indiana
FESOP: 075-22858-00032
Reviewer: ERG/MP
Date: May 1, 2006

Power Output (HP)	Operation Limit (hr/yr)
2,640	100

	Pollutant					
	PM*	PM10*	SO_2	NO_x	**VOC	CO
Emission Factor in lb/HP-hr	1.72E-03	1.72E-03	4.00E-03	2.10E-02	3.66E-04	4.58E-04
PTE (tons/yr)	**0.23**	**0.23**	**0.53**	**2.77**	**0.05**	**0.06**

*Assume PM10 emissions are equal to PM emissions.
** Assume TOC (total organic compounds) emissions are equal to VOC emissions.
Emission factors are from manufacturer data, except for SO2, which is from AP-42, Chapter 3.4, Table 3.4-1, SCC #2-02-004-01 (AP-42 Supplement B, 10/96).

Methodology

PTE (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: Premier Ethanol, LLC
Address: Portland, Indiana
FESOP: 075-22858-00032
Reviewer: ERG/MP
Date: May 1, 2006

1. Emission Factors

Equipment Type	Service	Emission Factor (lbs/hour/source)*
Pump Seals	light liquid	0.04378
Valves	light liquid	0.008866
Valves	gas	0.013134
Compressors	gas	0.5016
Relief Valves	gas	0.2288
Sampling Connections	all	0.033
Open Ended Lines	all	0.00374
Connectors	all	0.004026

* Emission Factors from EPA-453/R-95-017, Table 2-1.

2. Uncontrolled Emissions

Sources in Denaturant service (Assum 100% VOC by weight)

Equipment Type	Component Count	VOC Emissions (lbs/hr)	VOC Emissions (tons/yr)
Pump Seals	1	0.04	0.19
Valves lt. Liq.	15	0.13	0.58
Valves gas	0	0.00	0.00
Compressors	0	0.00	0.0
Relief Valves	0	0.00	0.0
Sampling Connections	0	0.00	0.0
Open Ended Lines	2	0.01	0.0
Connectors	4	0.02	0.1
	Total	**0.20**	**0.9**

Sources in Denatured Ethanol service (assume 100% VOC by weight)

Equipment Type	Component Count	VOC Emissions (lbs/hr)	VOC Emissions (tons/yr)
Pump Seals	2	0.09	0.4
Valves lt. Liq.	63	0.56	2.4
Valves gas	14	0.18	0.8
Compressors	0	0.00	0.0
Relief Valves	2	0.46	2.0
Sampling Connections	0	0.00	0.0
Open Ended Lines	8	0.03	0.1
Connectors	35	0.14	0.6
	Total	**1.46**	**6.4**

Methodology

VOC Emissions (tons/yr) = Component Count x Emission Factor (lbs/hr/source) x VOC by weight (%) x 8760 hr/yr x 1 ton/2000 lbs

3. Controls

Since all of these sources are subject to the NSPS subpart VV; credit for emission reduction attributable to control equipments and a Leak Detection and Repair (LDAR) Program is applied as follows in accordance with EPA-453/R-95-017, chapter 5:

Summary of Equipment Controls and Control Efficiency

Equipment Type	Number of Sources controlled	Control Modification	Control %
Pump Seals	0	Dual mechanical seal with barrier fluid at higher pressure	100
Valves lt. Liq.	0		
Valves gas	0		
Compressors	0		
Relief Valves	2	Rupture disk assembly	100
Sampling Connections	0		
Open Ended Lines	10	Blind, cap, plug or second valve	100
Connectors	0		

Control Effectiveness for a LDAR Program

Equipment Type	Control effectiveness (%) for at least Monthly monitoring 10,000 ppmv leak definition
Pump Seals	69
Valves lt. Liq.	84
Valves gas	87
Connectors	NA
Relief Valves	87

Appendix A: Emission Calculations
VOC and HAP Emissions
From Equipment Leaks (continued)

Company Name: Premier Ethanol, LLC
Address: Portland, Indiana
FESOP: 075-22858-00032
Reviewer: ERG/MP
Date: May 1, 2006

4. Controlled VOC Emissions

Assume:
- 100% control for 3 relief valves and 25 open ended lines,
- 69% control for all pump seals,
- 84% control for all valves in light liquid service,
- 87% control for all valves in gas/vapor service and relief valves;

Controlled Emissions

Equipment Type	VOC Emissions (lbs/hr)	VOC Emissions (tons/yr)
Pump Seals	0.04	0.2
Valves lt. Liq.	0.11	0.5
Valves gas	0.02	0.1
Relief Valves	0.03	0.1
Open Ended Lines	0.01	0.1
Connectors	0.16	0.7
Total VOCs	**0.4**	**1.7**

Methodology

VOC Emissions (tons/yr) = Uncontrolled emissions (tons/yr) x (1-Control Effectiveness)

4. Controlled HAP Emissions

HAP	HAP Fraction*	Fugitive HAP Emissions (tons/yr)
Acetaldehyde	2.00E-04	3.32E-04
Methanol	2.11E-05	3.49E-05
Formaldehyde	2.81E-05	4.66E-05
Acrolein	1.40E-05	2.33E-05
Benzene	3.60E-03	5.97E-03
Ethylbenzene	1.00E-04	1.66E-04
n-Hexane	1.80E-02	2.99E-02
Toluene	6.00E-04	9.96E-04
Xylene	3.00E-04	4.98E-04
Total		**0.04**

* This is the worst-case HAP fraction for denatured ethanol or denaturant (gasoline vapors).

Methodology

Fugitive HAP Emissions (tons/yr) = Total Controlled VOC Emissions (tons/yr) x HAP Fraction

Appendix A: Emission Calculations
PTE Summary

Company Name: Premier Ethanol, LLC
Address: Portland, Indiana
FESOP: 075-22858-00032
Reviewer: ERG/MP
Date: May 1, 2006

Limited Potential To Emit after Control

Emission Units	PM	PM10	SO_2	*NO_x	VOC	CO	Total HAPs
Grain Receiving and Handling	12.9	12.9	-	-	-	-	-
Grain Receiving - Fugitive	12.3	4.03	-	-	-	-	-
RTO Stack	30.0	30.0	0.39	42.0	46.1	45.9	7.13
DDGS Cooler	3.57	3.57	-	-	32.0	-	1.36
DDGS Handling and Loadout	1.20	1.20	-	-	-	-	-
DDGS Loadout - Fugitive	3.77	1.27	-	-	-	-	-
Boilers	9.33	9.33	0.74	50.1	6.75	50.1	
Wet Cake Production*	-	-	-	-	See Note	-	See Note
Ethanol Loadout and Flare	-	-	-	1.15	1.56	2.88	0.08
Paved Roads (Fugitive)	12.6	2.46	-	-	-	-	-
Cooling Tower	5.07	5.07	-	-	-	-	-
Diesel Fire Pump	0.23	0.23	0.53	2.77	0.05	0.06	Negligible
Storage Tanks**	-	-	-	-	1.91	-	Negligible
Leaks	-	-	-	-	1.66	-	0.04
Other Insignificant Activities	1.00	1.00	-	-	1.00	-	-
Total PTE	**92.1**	**71.1**	**1.7**	**96.1**	**91.0**	**98.9**	**8.6**

Note:
* This plant is capable to produce both DDGS and MDGS. The emissions from the DDGS production is the worst case scenario. Therefore, the PTE of the wet cake production is not included in the PTE for the entire source.
** Emissions from the storage tanks were calculated by the Permittee using EPA TANKS software (version 4.09d) and have been verified.

Appendix B
Best Available Control Technology (BACT) Determinations

Source Background and Description

Source Name:	Premier Ethanol, LLC
Source Location:	2701 W SR 67, Portland, IN 47371
County:	Jay
SIC Code:	2869
Operating Permit No.:	F075-22858-00032
Permit Reviewer:	ERG/MP

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;
- DDGS Cooler; 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, the BACT review for the DDGS cooler is provided in Section B.4, and the BACT review for the ethanol loadout is provided in Section B.5. 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:

Premier Ethanol, LLC (Premier) facility will use a fermentation process to produce ethanol from grain. The potential VOC emissions from this activity 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, Premier is required to control the VOC emissions from the fermentation process using 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 98%. 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 a 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
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.	
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.	
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.	
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.	
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

Plant	PBLD ID or Permit #	Date Issued and State	Facility	Control Technology and Permit Date	Stack Test Results and Dates
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, ICM provided the following information for the fermentation processes at other ethanol production plants:

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
Thermal Oxidizer	98% or < 10 ppmv
Catalytic Oxidizer	98%
Flare	98%
Wet Scrubber	98% or < 20 ppmv
Refrigeration Condenser	90%

Step 4 – Evaluate the Most Effective Controls and Document Results

Based on control efficiencies, the thermal oxidizer, flare, and wet scrubber are the most effective control technologies.

Step 5 – Select BACT

Since the use of a wet scrubber or a thermal oxidizer provide the highest ranked control efficiency of 98%, the Permittee propose to use a thermal oxidizer 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 by a thermal oxidizer.

(b) The overall average VOC control efficiency for the thermal oxidizer (including the capture efficiency and control efficiency) shall be at least 98%, or the VOC outlet concentration shall not exceed 10 ppmv.

(c) The VOC emissions from the thermal oxidizer shall not exceed 10.5 lbs/hr.

Appendix B.2
Best Available Control Technology (BACT) Determination
For Distillation and Dehydration Process

Introduction:

Premier 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, Premier 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 detail 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
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	
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	
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	
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	
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.	
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

In addition to the RBLC data, ICM provided the following information for the distillation and dehydration processes at other ethanol production plants:

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 (01/03)
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	5.40 lbs/hr (12/05/02)
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	Not Available
ACE Ethanol*, WI	20	Wet scrubber	95% removal or 20 ppm for less than 200 ppm inlet	1.07 lbs/hr (11/20/02)

* lbs/hr as ethanol
** lbs/hr as carbon multiplied by the Midwest Scaling Factor of 2.0

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
Thermal Oxidizer	98% or <10 ppmv
Catalytic Oxidizer	98%
Flare	98%
Wet Scrubber	98% or < 20 ppmv
Refrigeration Condenser	90%

Step 4 – Evaluate the Most Effective Controls and Document Results

Based on control efficiencies, the thermal oxidizer, flare, and wet scrubber are the most effective control technologies.

Step 5 – Select BACT

Both a thermal oxidizer and a flare generate their own emissions from the combustion process. The Premier, LLC facility proposes to use thermal oxidation as BACT for the distillation and dehydration process. Therefore, pursuant to 326 IAC 8-1-6, IDEM, OAQ has determined that the following requirements represent BACT for the distillation and dehydration process at this source:

(a) The VOC emissions from the distillation and dehydration process shall be controlled by a thermal oxidizer.

(b) The overall average VOC control efficiency for the thermal oxidizer (including the capture efficiency and control efficiency) shall be at least 98%, or the VOC outlet concentration shall not exceed 10 ppmv.

(c) The VOC emissions from the thermal oxidizer shall not exceed 10.5 lbs/hr.

Best Available Control Technology (BACT) Determination
For the DDGS Dryers (EU013 and EU014)

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 detail 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
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	
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	
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	
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	
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	
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)	Dryer	RTO with a control efficiency of 95%	99.6% (03/19/03)
Archer Daniels	IL-0087	12/27/02 (IL)	Feed Dryer	RTO with a control efficiency of	Not Available

Midland Co.				95% and VOC < 10 ppm	
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)

In addition to the RBLC data, ICM provided the following information for DDGS drying processes at other ethanol production plants:

Source, State	Max. Ethanol Production Rate (MMgal/yr)	Control Technology	Emission Limits	Stack Test Results and Dates
Ace Ethanol, WI	NA	RTO	96% reduction	NA
Agri-Energy, MN	22	RTO	95% destruction or 10 ppm	99.59% (01/28/03)
Al-Corn, MN	30	TO	95% destruction or 10 ppm	0.11 lbs/hr (08/03/04)
Central MN Ethanol, MN	22	Wet scrubber	95% destruction or 10 ppm	NA
Corn Plus, MN	44	TO or Boiler	95% destruction or 10 ppm	NA
CVEC, MN	49.5	RTO	95% destruction or 10 ppm	NA
Diversified Energy Co., MN	20	RTO	95% destruction or 10 ppm	NA
Ethanol 2000, MN	35	RTO	95% destruction or 10 ppm	97.74 %; 5.94 lbs/hr (10/31/02)
Agra Resources Coop. (dba EXOL), MN	50	RTO	95% destruction or 10 ppm	NA
Pro-Corn, MN	50	RTO	95% destruction or 10 ppm	97.7%; 3.54 lbs/hr (04/01/03)
Gopher State, MN	NA	RTO	95% destruction and 7.7 lbs/hr	1.225 lbs/hr (09/21/01)
EXOL, MN	NA	RTO	NA	0.42 lbs/hr (08/26/03)
DENCO, MN	30	RTO	6.0 lbs/hr	97.3%; 1.93 lbs/hr (01/20/04)

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: 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	98% 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 98%.

Step 5 – Select BACT

The Premier, LLC facility proposed to use thermal oxidizer with a control efficiency of 98% to control the VOC emissions from the DDGS dryers. The exhausts from the fermentation scrubber, the distillation process, and the DDGS dryers will be controlled by the thermal oxidizer. The thermal oxidizer will vent to stack SV009. Pursuant to 326 IAC 8-1-6, IDEM, OAQ has determined that the following requirements represent BACT for the DDGS dryers at this source:

(a) The VOC emissions from the DDGS dryers shall be controlled by a thermal oxidizer.

(b) The overall efficiency for the thermal oxidizer (including the capture efficiency and destruction efficiency) shall be at least 98%, or the VOC outlet concentration shall not exceed 10 ppmv.

(c) The VOC emissions from the thermal oxidizer shall not exceed 10.5 lbs/hr.

Appendix B.4
Best Available Control Technology (BACT) Determination
For the DDGS Cooler

Introduction:

VOCs will be emitted from the DDGS cooling process as trace quantities of alcohol from the fermentation process are evaporated. The potential VOC emissions from the DDGS cooler is greater than 25 tons per year and there are no other rules in 326 IAC 8 applicable to DDGS coolers; therefore, the Permittee is required to control the VOC emissions from the DDGS cooler with BACT.

Step 1 – Identify Control Options

The following available technologies were identified and evaluated to control VOC emissions from the coolers at ethanol production plants:

(a) IDEM, OAQ reviewed the following six (6) control technologies. The detail 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 coolers in EPA's RACT/BACT/LAER Clearinghouse (RBLC) and Indiana Air Permits did not identify any previous BACT determinations for DDGS coolers.

Step 2 – Eliminate Technically Infeasible Control Options

After reviewing the above technologies, IDEM, OAQ eliminated carbon adsorption, wet scrubbers, 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 coolers due to the characteristics of the cooler exhaust gases (most of the VOC is driven off in the dryers).

Wet Scrubbers: OAQ believes the use of wet scrubbers would be technically infeasible because the compounds that are controlled are not easily adsorbed in water, and the low VOC concentration and high volumetric flow rate would make them ineffective.

Refrigeration Condensers: OAQ believes that condensers would be technically infeasible because the cooler 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	98%
Catalytic Oxidation	98%
Flare	98%

Step 4 – Evaluate the Most Effective Controls and Document Results

According to the analysis above, each control technology has a control efficiency of 98%.

Step 5 – Evaluate the Most Effective Controls and Document Results

Premier provided IDEM, OAQ with a thorough economic analysis of the technically feasible control options. The analysis estimated the cost of the VOC control equipment, including the initial capital cost of the various components intrinsic to the complete system, and the estimated annual operating costs. The estimated total capital cost was calculated with the use of a factoring method of determining direct and indirect installation costs. The basic equipment costs were obtained from vendor's quoted prices. Annualized costs were developed based on information from the vendors and a literature review. The analysis assumed an interest rate of 7% and an equipment life of 10 years. The basis of cost effectiveness used to evaluate the control options is the ratio of the annualized cost to the amount of VOC (tons) removed per year. Note that the cost effectiveness of each option accounts for VOC destruction at 98% for incineration technologies (i.e. add-on controls). Costs were then developed for the feasible control options. The costs for this option was then compared to a final option, which consists of the operating plant without add-on controls, to arrive at a determination of BACT for VOC emissions from the proposed emission units. The options considered were as follows:

(a) Regenerative Thermal Oxidizer;

(b) Catalytic Oxidizer;

(c) Flare; and

(d) Increasing the size of the regenerative thermal oxidizer controlling the dryers to accommodate the DDGS cooler.

A complete breakdown of the costs associated with regenerative thermal oxidizer, flare, and increasing the size of the dryer thermal oxidizer is included in Appendix C. Costs for the catalytic oxidizer are assumed equal to those of the regenerative thermal oxidizer. A summary of the cost figures determined in the analysis is provided in the table below:

Control Option	Efficiency (%)	Equipment Cost ($)	Total Operating Cost ($/yr)	Total Annualized Costs ($/yr)	VOC (tons/year)	Potential VOC removal (tons/year)	Cost Effectiveness ($/ton VOC removed)
RTO	98%	$1,544,998	$1,225,952	$1,445,929	32.0	31.36	$46,151
Flare	98%	$996,092	$1,563,386	$1,705,209	32.0	31.36	$54,426
Increasing the size of the dryer RTO	98%	$525,000	$1,161,668	$1,259,590	32.0	31.36	$40,203

Step 6 – Select BACT

The cost effectiveness, as determined by the ratio of the annualized costs to the tons of VOC removed per year, for the RTO is equal to $46,151, for the Flare is $54,426, and for increasing the size of the dryer

RTO is $40,203. Therefore, IDEM, OAQ has determined the installation of add-on control on the DDGS cooler is economically infeasible for Premier. This determination is based on the following information:

(a) The cooler exhaust has a high air flow rate and a low VOC concentration (as the majority of the VOC is driven off in the dryers and controlled by the dryer RTO);

(b) There are no current BACT determinations for DDGS coolers; and

(c) The cost effectiveness of add-on controls is substantial.

Pursuant to 326 IAC 8-1-6, IDEM, OAQ has determined that the following requirements represent BACT for the DDGS cooler at this source:

(a) The VOC emissions from the DDGS cooler shall not exceed 7.3 lbs/hr.

Appendix B.5
Best Available Control Technology (BACT) Determination
For Ethanol Loadout

Introduction:

Premier will ship denatured ethanol using either tank trucks or railcars. 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 may carry gasoline 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 rack are greater than 25 tons per year. Since this unit will be constructed after the January 1, 1980 applicability date and there are no other rules in 326 IAC 8 applicable to this unit, the Permittee is required to control the VOC emissions from the ethanol loading rack 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
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.	
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.	
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.	
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.	
Central Indiana Ethanol, LLC	F053-21057-00062	08/04/05 (IN)	Ethanol Loading Rack	Flare with a control efficiency of 98%	
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	IL-0090	03/28/03 (IL)	Ethanol Loading	Flare with a control efficiency of	Not Available

Midland Co.			Rack	95%	
Van Waters & Rogers	CA-0894	09/01/99 (CA)	Truck Loading Stations	Thermal oxidizer with a control efficiency of 95%	Not Available

In addition to the RBLC data, ICM provided the following information for ethanol loadout processes at other ethanol production plants:

Source, State	Max. Ethanol Production Rate (MMgal/yr)	Control Technology	Emission Limits
Agri-Energy, MN	22	DDGS Dryer/TO	Truck: 95% Destruction or 10ppm of VOC emissions from the thermal oxidizer. Railcar: dedicated ethanol vessels only
Al-Corn, MN	30	DDGS Dryer/TO	Truck: 95% Destruction or 10ppm of VOC emissions from the thermal oxidizer. Railcar: dedicated ethanol vessels only
Central MN Ethanol, MN	22	DDGS Dryer	Truck: Route to dryer control equipment Railcar: dedicated ethanol vessels only
Corn Plus, MN	44	Boiler/TO	95% destruction or 10 ppm limit for boiler
CVEC, MN	49.5	DDGS Dryer/TO	Truck: Route to dryer control equipment (95% reduction or 10 ppm) Railcar: Dedicated ethanol vessels only
Diversified Energy Co., MN	20	Flare	95% destruction
Ethanol 2000, MN	35	Flare	95% destruction
Agra Resources Coop. (dba EXOL), MN	50	DDGS Dryer/TO	Truck: 95% destruction or 10 ppm limit for VOC emissions from the thermal oxidizer
Pro-Corn, MN	50	Flare	95% destruction

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	98%
Refrigeration Condenser	Greater than 90%

Step 4 – Evaluate the Most Effective Controls and Document Results

The two most effective control technologies are thermal oxidizers and flares.

Step 5 – Select BACT

Since flares achieve the highest control efficiency and have been used to control VOC emissions from other ethanol loading racks, The Premier, LLC facility proposed to use a flare, CE013, with a destruction efficiency of 98% to control the VOC emissions from the ethanol loading rack for trucks and railcars. Pursuant to 326 IAC 8-1-6, IDEM, OAQ has determined that the following requirements represent BACT for the truck loading rack at this source:

(a) The VOC emissions from ethanol loadout shall be collected and controlled by a flare when loading denatured ethanol.

(b) The overall efficiency for the enclosed flare (including the capture efficiency and destruction efficiency) shall be at least 98%.

(c) The VOC emissions from the flare for both truck and rail shall not exceed 1.44 lbs/hr. This limit was calculated based on the worst-case emission rate between loading trucks and loading railcars. The worst-case hourly emissions occur during truck loading, and the limit was calculated using a VOC emission factor of 3.6 lbs/kgal, the maximum truck loadout rate of 20 kgal/hr, and the flare control efficiency of 98% (3.6 lbs/kgal x 20 kgal/hr x (1-98%) = 1.44 lbs/hr). The VOC emission factor of 3.6 lbs/kgal for truck loading was calculated using the equation in AP-42, Chapter 5.2 (see the emission calculations in Appendix A).

Appendix C: Cost Analysis for DDGS Cooler Control Options

Company Name: Premier Ethanol, LLC
Address: Portland, IN
FESOP: 001-18132-00025
Reviewer: ERG/MP
Date: May 26, 2006

			Regenerative Thermal Oxidizer	Flare	Larger Primary RTO (Dryer/Scrubber RTO)[1]
Design Air Flow Rate (scfm):			23,000	23,000	23,000
I. Capital Cost					
	(formula)				
1. Purchased Equipment:					
Basic Equipment & Auxiliaries (A)			$996,000	$596,941	$500,000
Taxes	0.05	A	$49,800	$29,847	$25,000
Freight	0.05	A	(included in C)	(included in C)	(included in C)
Total Purchase Cost (B)			**$1,045,800**	**$626,788**	**$525,000**
2. Direct Installation Costs:			(provided by vendor)	(provided by vendor)	
Foundations & Supports	0.08	B			
Erection & Handling	0.14	B			
Electrical	0.04	B			
Piping	0.02	B			
Insulation	0.01	B			
Painting	0.01	B			
Site Preparation (As Required)					
Facilities and buildings (As required)					
Total Direct Installation Cost (C)			**$175,000**	**$175,000**	**(none)**
Total Direct Capital Cost (TDC)	**(B+C)**		**$1,220,800**	**$801,788**	**$525,000**
3. Indirect Costs:					
Engineering	0.1	B	$104,580	$62,679	$52,500
Loss of Production Cost			$0	$0	$0
Construction & Field Expenses	0.05	B	$52,290	$31,339	$26,250
Contractor Fees	0.1	B	$104,580	$62,679	$52,500
Start Up and Performance Tests	0.03	B	$31,374	$18,804	$15,750
Contingencies	0.03	B	$31,374	$18,804	$15,750
Total Indirect Cost (D)			**$324,198**	**$194,304**	**$162,750**
Total Install Capital Cost	**(B+C+D)**		**$1,544,998**	**$996,092**	**$687,750**
Capital Recovery Factor (7%, 10 year)			0.14238	0.14238	0.14238
Capital Recovery Cost (E)			**$219,977**	**$141,824**	**$97,922**

II. ANNUALIZED COSTS

1. Direct Operating Costs:				
Operating Labor (F)		$3,640	$1,820	$0
a. Number of Employees		*1*	*1*	*1*
b. Cost/Employee/Hour w/Benefits	*(Provided by the source)*	*$35.0*	*$35.0*	*$35.0*
c. Operating Hours/Year		*104*	*52*	*0*
Supervisory Labor (F1)	0.15 F	$546	$273	$0
Maintenance Labor (F2)		$7,280	$1,820	$0
a. Number of Employees		*1*	*1*	*1*
b. Cost/Employee/Hour w/Benefits	*(Provided by the source)*	*$35.0*	*$35.0*	*$20.0*
c. Operating Hours/Year		*208*	*52*	*0*
Maintenance Material (F3)	1 F2	$7,280	$1,820	$0
Utilities				
a. Natural Gas		$1,111,118	$2,777,796	$1,111,118
*MMBTU/HR Input ****		*12*	*30*	*12*
Operating Hours/Year		*8,760*	*8,760*	*8,760*
*Cost/MMBTU**		*$10.57*	*$10.57*	*$10.57*
b. Electricity		$23,040	$23,040	$23,040
KW Requirements/Hr		*30*	*30*	*30*
KWH/YR		*6,000*	*6,000*	*6,000*
*Cost/KWH**		*$0.128*	*$0.128*	*$0.128*
Water		$0	$0	$0
Air		$0	$0	$0
Replacement Parts		$0	$0	$0
Total Direct Operating Cost (G)		**$1,152,904**	**$2,806,569**	**$1,134,158**
2. Indirect Operating Costs:				
Overhead	0.6 (F+F1+F2+F3)	$11,248	$3,440	$0
Property Tax, Insurance, and Administrative Costs	0.04 (B+C+D)	$61,800	$39,844	$27,510
Total Indirect Operating Cost (H)		**$73,048**	**$43,283**	**$27,510**
3. Heat Recovery Credits (I):		**$0**	**$1,286,467**	**$0**
MMBTU/HR Input		*12*	*30*	*12*
Operating Hours/Year		*8,760*	*8,760*	*8,760*
Unit Heat Efficiency		*95%*	*95%*	*95%*
Heat Exchange Efficiency		*65%*	*65%*	*65%*
*Percent Heat Recovery***		*0%*	*75%*	*0%*
Cost/MMBTU		*$10.57*	*$10.57*	*$10.57*
Total Annual Operating Cost	**(G+H-I)**	**$1,225,952**	**$1,563,386**	**$1,161,668**

Total Annual Cost	**(E+G+H-I)**	**$1,445,929**	**$1,705,209**	**$1,259,590**
Uncontrolled PTE (tons/yr)	**31.97**			
Destruction Efficiency		**98%**	**98%**	**98%**
Capture Efficiency		**100%**	**100%**	**100%**
Overall Control Efficiency		**98.0%**	**98.0%**	**98.0%**
Pollution Removed (tons/yr)		**31.33**	**31.33**	**31.33**
Cost Effectiveness		**$46,151**	**$54,426**	**$40,203**

* This is the average price for industrial use in Indiana in March 2006, electric average cost from December 2005 from the webpage for Energy Information Administration (http://www.eia.doe.gov/).

** A regenerative thermal oxidizer has energy recovery as an integral process component and does not require an add-on heat recovery system. Therefore, heat recovery credits are not included.

*** Fuel use for stand alone RTO assumes two 6 MMBtu/hr burners. Flare assumes one 30 MMBtu/hr burner with 75% heat recovery. Fuel use for the larger primary RTO is based on the incremental increase in the RTO to accommodate the extra air flow.

[1] The larger Primary RTO (used to control emissions from the fermentation/distillation scrubber and the dryers) will not have any additional direct installation or operating or labor costs beyond the cost of the dryer RTO.