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

Joseph E. Kernan
Governor

Lori F. Kaplan
Commissioner

100 North Senate Avenue
P.O. Box 6015
Indianapolis, Indiana 46206-6015
(317) 232-8603
(800) 451-6027
www.in.gov/idem

October 4, 2004

TO: Interested Parties / Applicant

RE: Putnam Energy Center, LLC / 133-19163-00003

FROM: Paul Dubenetzky
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 9/16/03

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FEDERALLY ENFORCEABLE STATE OPERATING PERMIT (FESOP) RENEWAL OFFICE OF AIR QUALITY

Putnam Ethanol, L.L.C.
7816 South US 231
Cloverdale, Indiana 46120

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

The Permittee must comply with all conditions of this permit. Noncompliance with any provision of this permit is grounds for enforcement action; permit termination, revocation and reissuance, or modification; and 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 new source review requirements and is intended to fulfill the new source review procedures and permit revision requirements pursuant to 326 IAC 2-8-11.1, applicable to those conditions.

Operation Permit No.: F133-19163-00003	
Issued by: Original signed by Paul Dubenetzky, Branch Chief Office of Air Quality	Issuance Date: October 4, 2004 Expiration Date: October 4, 2009

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SECTION A SOURCE SUMMARY

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

A.1 General Information [326 IAC 2-8-3(b)]

The Permittee owns and operates a stationary ethanol production plant.

Authorized individual:	President
Source Address:	7816 South US 231, Cloverdale, Indiana 46120
Mailing Address:	12 Salt Creek Lane, Suite 410, Hinsdale, Illinois 60521
General Source Phone:	(603) 920-9990
SIC Code:	2869
Source Location Status:	Putnam Attainment for all criteria pollutants
Source Status:	Federally Enforceable State Operating Permit (FESOP) Minor Source, under PSD; Minor Source, Section 112 of the Clean Air Act 1 of 28 Source Categories

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

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

(a) One (1) natural gas fired trim boiler, identified as B2, constructed in 2004, with a maximum heat input capacity of 96 MMBtu/hr, equipped with a low NOx burner, and exhausting through stack EP014.

(b) One (1) truck dump pit, identified as TDP, constructed in 2004, with a maximum throughput rate of 560 tons of corn per hour, controlled by baghouse CE001, and exhausting through stack EP001.

(c) One (1) rail dump pit, identified as RDP, constructed in 2004, with a maximum throughput rate of 560 tons of corn per hour, controlled by baghouse CE002, and exhausting through stack EP002.

(d) One (1) grain handling process, identified as GH1, constructed in 2004, with a maximum throughput rate of 1,120 tons of corn per hour, controlled by baghouse CE003, and exhausting through stack EP003. This process consists of the following:

(1) One (1) conveyor.

(2) Two (2) elevators.

(3) Two (2) corn silos, with a total maximum capacity of 802,000 bushels.

(4) One (1) screen.

(e) One (1) belt conveyor, identified as GH2, constructed in 2004, with a maximum throughput rate of 77 tons/hr, controlled by baghouse CE004, and exhausting through stack EP004.

(f) One (1) germ storage tank, identified as GS, constructed in 2004, with a maximum capacity of 28,100 bushels and a maximum throughput rate of 5.5 tons/hr, controlled by baghouse CE005, and exhausting through EP005.

(g) Two (2) fiber storage bins, identified as FS, constructed in 2004, with a maximum capacity of 22,500 bushels for each bin and a total maximum throughput rate of 6.9 tons/hr, controlled by baghouse CE006, and exhausting through EP006.

(h) Two (2) CPC storage bins, identified as PCS, constructed in 2004, with a maximum capacity of 22,500 bushels for each bin and a total maximum throughput rate of 13.8 tons/hr, controlled by baghouse CE009, and exhausting through EP009.

(i) One (1) truck loadout hood, identified as SS1, constructed in 2004, with a maximum throughput rate of 420 tons/hr, controlled by baghouse CE010, and exhausting stack EP010.

(j) One (1) rail loadout hood, identified as SS2, constructed in 2004, with a maximum throughput rate of 420 tons/hr, controlled by baghouse CE011, and exhausting stack EP011.

(k) One (1) fermentation process, identified as FP, constructed in 2004, with a maximum throughput rate of 77 tons/hr of grain, 45,000 gal/hr of water, and 0.25 tons/hr of yeast, using wet scrubber CE007 for VOC control, and exhausting through stack EP007.

(l) One (1) thermal oxidizer/heat recovery steam generator, identified as CE008E, constructed in 2004, using natural gas and process waste gases from the wet milling process, the dryers, and the distillation and dehydration process, with a maximum heat input capacity of 168 MMBtu/hr, and exhausting through stack EP008.

(m) One (1) wet milling process, identified as WM, constructed in 2004, with a maximum throughput rate of 77 tons/hr of grain and 32.75 tons/hr of water, controlled by thermal oxidizer/heat recovery steam generator CE008E, and exhausting through stack EP008. This process consists of the following:

(1) One (1) soak tank, controlled by baghouse CE008A.

(2) One (1) slurry tank.

(3) One (1) yeast tank.

(4) Two (2) grind mills.

(5) Two (2) hydrocyclones.

(6) One (1) germ wash screen and press.

(7) One (1) fiber wash screen and press.

(n) One (1) germ drying and cooling process, identified as GD, constructed in 2004, using natural gas as fuel, with a maximum heat input capacity of 10 MMBtu/hr and the maximum throughput rate of 5.5 tons/hr of dry solid (excluding water), controlled by cyclone CE008B and thermal oxidizer/heat recovery steam generator CE008E, and exhausting through stack EP008.

(o) One (1) fiber dryer, identified as FD, constructed in 2004, with a maximum heat input capacity of 23 MMBtu/hr and the maximum throughput rate of 6.9 tons/hr of dry solid (excluding water), controlled by cyclone CE008C and thermal oxidizer/heat recovery steam generator CE008E, and exhausting through stack EP008.

(p) One (1) protein concentration process, identified as PC, constructed in 2004, with a maximum throughput rate of 13.8 tons/hr of dry solid (excluding water), controlled by thermal oxidizer/heat recovery steam generator CE008E, and exhausting through stack EP008. This process consists of the following:

(1) One (1) decanter feed tank.

(2) One (1) soluble protein decanter.

(3) One (1) corn protein concentration (CPC) dryer, using natural gas as fuel, with a maximum heat input capacity of 47 MMBtu/hr and the maximum throughput rate of 13.8 tons/yr, and controlled by cyclone CE008D.

(4) One (1) evaporator feed tank.

(5) One (1) soluble protein concentrator evaporator.

(q) One (1) distillation and dehydration process, identified as DD, constructed in 2004, with a maximum ethanol production of 6,850 gal/hr, controlled by thermal oxidizer/heat recovery steam generator CE008E, and exhausting through stack EP008.

(r) One (1) ethanol loading rack for both railcar and truck loading, identified as ER, constructed in 2004, with a maximum throughput rate of 96,000 gallons per hour. The truck loading process is controlled by enclosed flare CE012, which is fueled by natural gas and has a maximum heat input capacity of 5.57 MMBtu/hr, and exhausting through stack EP012.

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.

(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) Grinding and machining operations controlled with fabric filters, scrubbers, mist collectors, wet collectors and electrostatic precipitators with a design grain loading of less than or equal to 0.03 grains per actual cubic foot and a gas flow rate less than or equal to 4000 actual cubic feet per minute, including the following: deburring; buffing; polishing; abrasive blasting; pneumatic conveying; and woodworking operations.

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

(12.5) pounds per day or two and five tenths (2.5) ton per year of any combination of HAPs:

(1) Two (2) shift tanks, identified as T01 and T02, constructed in 2004, each with a maximum capacity of 85,000 gallons of 200-proof ethanol.

(2) One (1) denaturant tank, identified as T03, constructed in 2004, with a maximum capacity of 35,000 gallons of natural gasoline.

(3) Two (2) denatured ethanol tanks, identified as T04 and T05, constructed in 2004, each with a maximum capacity of 750,000 gallons of denatured ethanol.

(4) One (1) digester for process water, identified as MF, constructed in 2004. This unit has methane emissions and is controlled by thermal oxidizer/heat recovery steam generator CE008E or flare CE013.

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) a Federally Enforceable State Operating Permit (FESOP).

A.5 Prior Permits Superseded [326 IAC 2-1.1-9.5]

(a) All terms and conditions of previous permits issued pursuant to permitting programs approved into the state implementation plan have been either

(1) incorporated as originally stated,

(2) revised, or

(3) deleted

by this permit.

(b) All previous registrations and permits are superseded by this permit.

SECTION B GENERAL CONDITIONS

B.1 Permit No Defense [IC 13]

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.

B.2 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.3 Permit Term [326 IAC 2-8-4(2)][326 IAC 2-1.1-9.5]

This permit 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.

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

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

B.5 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.6 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.7 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.8 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 the "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.9 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.10 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 certification may cover multiple forms in one (1) submittal.

(c) An authorized individual is defined at 326 IAC 2-1.1-1(1).

B.11 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 initial start-up 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 in letter form no later than July 1 of each year to:

Indiana Department of Environmental Management
Compliance Branch, Office of Air Quality
100 North Senate Avenue, P.O. Box 6015
Indianapolis, Indiana 46206-6015

(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, IDEM, OAQ, may require to determine the compliance status of the source.

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

B.12 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) when operation begins, 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, P. O. Box 6015
Indianapolis, Indiana 46206-6015

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

(b) The Permittee shall implement the PMPs, including any required record keeping, as necessary to ensure that failure to implement a PMP does not cause or contribute to an exceedance of any limitation on emissions or potential to emit.

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

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

B.13 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 describes 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 No.: 1-800-451-6027 (ask for Office of Air Quality, Compliance Section) or,
Telephone No.: 317-233-5674 (ask for Compliance Section)
Facsimile No.: 317-233-5967

(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, P.O. Box 6015
Indianapolis, Indiana 46206-6015

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 the "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) 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.14 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 Provision), 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, P.O. Box 6015
Indianapolis, Indiana 46206-6015

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 need to be included in this report.

The Quarterly Deviation and Compliance Monitoring Report does require the certification by the "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.15 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 FESOP 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 the "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.16 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 the "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, P.O. Box 6015
Indianapolis, IN 46206-6015

(b) Timely Submittal of Permit Renewal [326 IAC 2-8-3]

(1) A timely renewal application is one that is:

(A) Submitted at least nine (9) months prior to the date of the expiration of this permit; and

(B) 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.

(2) If IDEM, OAQ upon receiving a timely and complete 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.

(c) Right to Operate After Application for Renewal [326 IAC 2-8-9]
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 needed to process the application.

B.17 Permit Amendment or Revision [326 IAC 2-8-10] [326 IAC 2-8-11.1]

(a) Permit amendments and revisions are governed by the requirements of 326 IAC 2-8-10 or 326 IAC 2-8-11.1 whenever the Permittee seeks to amend or modify this permit.

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

Indiana Department of Environmental Management
Permits Branch, Office of Air Quality

100 North Senate Avenue, P.O. Box 6015
Indianapolis, Indiana 46206-6015

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

(c) The Permittee may implement the administrative amendment changes addressed in the request for an administrative amendment immediately upon submittal of the request. [326 IAC 2-8-10(b)(3)]

(d) No permit amendment or modification is required for the addition, operation or removal of a nonroad engine, as defined in 40 CFR 89.2.

B.18 Operational Flexibility [326 IAC 2-8-15][326 IAC 2-8-11.1]

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

(1) The changes are not modifications under any provision of Title I of the Clean Air Act;

(2) Any approval required by 326 IAC 2-8-11.1 has been obtained;

(3) The changes do not result in emissions which exceed the emissions allowable under this permit (whether expressed herein as a rate of emissions or in terms of total emissions);

(4) The Permittee notifies the:

Indiana Department of Environmental Management
Permits Branch, Office of Air Quality
100 North Senate Avenue, P.O. Box 6015
Indianapolis, Indiana 46206-6015

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 which document, on a rolling five (5) year basis, all such changes and emissions trading that are subject to 326 IAC 2-8-15(b) through (d) and makes such records available, upon reasonable request, to 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 increases and decreases in emissions 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 [326 IAC 2-8-15(d)]
The Permittee may make changes at the source within the range of alternative operating scenarios that are described in the terms and conditions of this permit in accordance with 326 IAC 2-8-4(7). No prior notification of IDEM, OAQ or U.S. EPA is required.

(d) Backup fuel switches specifically addressed in, and limited under, Section D of this permit shall not be considered alternative operating scenarios. Therefore, the notification requirements of part (a) of this condition do not apply.

B.19 Permit Revision 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.20 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.21 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, P.O. Box 6015
Indianapolis, Indiana 46206-6015

The application which shall be submitted by the Permittee does require the certification by the "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.22 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 317-233-4320 (ask for OAQ, Billing, Licensing, and Training Section), to determine the appropriate permit fee.

B.23 Credible Evidence [326 IAC 2-7-5(3)][326 IAC 2-7-6][62 FR 8314]

Notwithstanding the conditions of this permit that state specific methods that may be used to demonstrate compliance with, or a violation of, applicable requirements, any person (including the Permittee) may also use other credible evidence to demonstrate compliance with, or a violation of, any term or condition of this permit.

SECTION C SOURCE OPERATION CONDITIONS

Entire Source

Emissions 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 [40 CFR 52 Subpart P][326 IAC 6-3-2]

(1) Pursuant to 40 CFR 52 Subpart P, particulate matter emissions from any process not already regulated by 326 IAC 6-1 or any New Source Performance Standard, and which has a maximum process weight rate less than 100 pounds per hour shall not exceed 0.551 pounds per hour.

(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) 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.

(c) 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(3)]

The Permittee shall not operate an incinerator or incinerate any waste or refuse except as provided in 326 IAC 4-2 and in 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 Operation of Equipment [326 IAC 2-8-5(a)(4)]

Except as otherwise provided by statute, rule or in this permit, all air pollution control equipment listed in this permit and used to comply with an applicable requirement shall be operated at all times that the emission units vented to the control equipment are in operation.

C.8 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.9 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, P.O. Box 6015
Indianapolis, Indiana 46206-6015

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 the "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.10 Performance Testing [326 IAC 3-6]

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

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

Indiana Department of Environmental Management
Compliance Data Section, Office of Air Quality
100 North Senate Avenue, P. O. Box 6015
Indianapolis, Indiana 46206-6015

no later than thirty-five (35) days prior to the intended test date. The protocol submitted by the Permittee does not require certification by the “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 the “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.11 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.12 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 shall be implemented when operation begins. If required by Section D, the Permittee shall be responsible for installing any necessary equipment and initiating any required monitoring related to that equipment.

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

C.13 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.14 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.15 Pressure Gauge and Other Instrument Specifications [326 IAC 2-1.1-11] [326 IAC 2-8-4(3)] [326 IAC 2-8-5(1)]

(a) Whenever a condition in this permit requires the measurement of pressure drop across any part of the unit or its control device, the gauge employed shall have a scale such that the expected normal reading shall be no less than twenty percent (20%) of full scale and be accurate within plus or minus two percent ("2%) of full scale reading.

(b) Whenever a condition in this permit requires the measurement of a temperature and flow rate, the instrument employed shall have a scale such that the expected normal reading shall be no less than twenty percent (20%) of full scale and be accurate within plus or minus two percent ("2%) of full scale reading.

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

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

C.16 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.17 Compliance Response Plan - Preparation, Implementation, Records, and Reports [326 IAC 2-8-4] [326 IAC 2-8-5]

(a) The Permittee is required to prepare a Compliance Response Plan (CRP) for each compliance monitoring condition of this permit. If a Permittee is required to have an Operation, Maintenance and Monitoring (OMM) Plan under 40 CFR 60, such plans shall be deemed to satisfy the requirements for a CRP for those compliance monitoring conditions. A CRP shall be submitted to IDEM, OAQ upon request. The CRP shall be prepared prior to commencing operation of the new facilities, supplemented from time to time by the Permittee, maintained on site, and is comprised of:

(1) Reasonable response steps that may be implemented in the event that a response step is needed pursuant to the requirements of Section D of this permit; and an expected time frame for taking reasonable response steps.

(2) If, at any time, the Permittee takes reasonable response steps that are not set forth in the Permittee's current Compliance Response Plan or Operation, Maintenance and Monitoring (OMM) Plan and the Permittee documents such response in accordance with subsection (e) below, the Permittee shall amend its Compliance Response Plan or Operation, Maintenance and Monitoring (OMM) Plan to include such response steps taken.

(b) For each compliance monitoring condition of this permit, reasonable response steps shall be taken when indicated by the provisions of that compliance monitoring condition as follows:

(1) Reasonable response steps shall be taken as set forth in the Permittee's current Compliance Response Plan or Operation, Maintenance and Monitoring (OMM) Plan; or

(2) If none of the reasonable response steps listed in the Compliance Response Plan or Operation, Maintenance and Monitoring (OMM) Plan is applicable or responsive to the excursion, the Permittee shall devise and implement additional response steps as expeditiously as practical. Taking such additional response steps shall not be considered a deviation from this permit so long as the Permittee documents such response steps in accordance with this condition.

(3) If the Permittee determines that additional response steps would necessitate that the emissions unit or control device be shut down, and it will be ten (10) days or more until the unit or device will be shut down, then the Permittee shall promptly notify the IDEM, OAQ of the expected date of the shut down. The notification shall also include the status of the applicable compliance monitoring parameter with respect to normal, and the results of the response actions taken up to the time of notification.

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

(c) The Permittee is not required to take any further response steps for any of the following reasons:

(1) A false reading occurs due to the malfunction of the monitoring equipment and prompt action was taken to correct the monitoring equipment.

(2) The Permittee has determined that the compliance monitoring parameters established in the permit conditions are technically inappropriate, has previously submitted a request for an administrative amendment to the permit, and such request has not been denied.

(3) An automatic measurement was taken when the process was not operating.

(4) The process has already returned or is returning to operating within "normal" parameters and no response steps are required.

(d) When implementing reasonable steps in response to a compliance monitoring condition, if the Permittee determines that an exceedance of an emission limitation has occurred, the Permittee shall report such deviations pursuant to Section B-Deviations from Permit Requirements and Conditions.

(e) The Permittee shall record all instances when response steps are taken. In the event of an emergency, the provisions of 326 IAC 2-8-12 (Emergency Provisions) requiring prompt corrective action to mitigate emissions shall prevail.

(f) Except as otherwise provided by a rule or provided specifically in Section D, all monitoring as required in Section D shall be performed when the emission unit is operating, except for time necessary to perform quality assurance and maintenance activities.

C.18 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 the "authorized individual" as defined by 326 IAC 2-1.1-1(1).

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

C.19 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 shall be implemented when operation begins.

C.20 General Reporting Requirements [326 IAC 2-8-4(3)(C)] [326 IAC 2-1.1-11]

(a) The source 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 the "authorized individual" as defined by 326 IAC2-1.1-1(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 Branch, Office of Air Quality
100 North Senate Avenue, P. O. Box 6015
Indianapolis, Indiana 46206-6015

(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 the "authorized individual" as defined by 326 IAC 2-1.1-1(1).

(e) The first report shall cover the period commencing on the date of initial start-up and ending on the last day of the reporting period. All subsequent reporting periods shall be 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.21 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 – Boiler B2

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

(a) One (1) natural gas fired trim boiler, identified as B2, constructed in 2004, with a maximum heat input capacity of 96 MMBtu/hr, equipped with a low NOx burner, and exhausting through stack EP014.

(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.

D.1.2 Federally Enforceable State Operating Permit [326 IAC 2-8]

The attached Affidavit of Construction shall be submitted to the Office of Air Quality (OAQ), Permit Administration & Development Section, verifying that the emission units were constructed as proposed in the application.

Effective Date of the Permit

D.1.3 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.1.4 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.1.5 CO Emissions [326 IAC 2-8-4] [326 IAC 2-2]

Pursuant to 326 IAC 2-8-4, the CO emissions from this boiler shall not exceed 50 lbs/MMCF. This is equivalent to 21 tons/yr of CO emissions from this boiler. Combined with the CO emissions from other units, the CO emissions from the entire source are limited to less than 100 tons/yr. Therefore, the requirement of 326 IAC 2-7 (Part 70 Program) and 326 IAC 2-2 (PSD) are not applicable.

D.1.6 General Provisions Relating to NSPS [326 IAC 12-1][40 CFR Part 60, Subpart A]

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

D.1.7 NSPS Requirements [326 IAC 12-1][40 CFR 60, Subpart Dc]

Pursuant to 40 CFR 60.48c, the Permittee shall maintain daily records of the amount and type of fuel burned in boiler B2.

D.1.8 Particulate Emissions [326 IAC 6-2-4]

Pursuant to 326 IAC 6-2-4 (Particulate Emission Limitations for Sources of Indirect Heating), particulate emissions from the 96 MMBtu per hour heat input boiler (identified as B2) shall be limited to 0.26 pounds per MMBtu heat input.

The limit was calculated using 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)

D.1.9 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.1.10 Testing Requirements [326 IAC 2-8-5(a)(1), (4)] [326 IAC 2-1.1-11]

In order to demonstrate compliance with Condition D.1.5, the Permittee shall perform CO testing for boiler B2, within 180 days after achieving the maximum production, but not later than 360 days after initial startup, utilizing methods as approved by the Commissioner. 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.1.11 Record Keeping Requirements

(a) To document compliance with Condition D.1.7, the Permittee shall maintain daily records of the amount and type of fuel combusted in boiler B2.

(b) To document compliance with Condition D.1.9, the Permittee shall maintain of records of any additional inspections prescribed by the Preventive Maintenance Plan.

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

SECTION D.2 FACILITY OPERATION CONDITIONS – Grain Receiving and Handling Processes

Facility Description [326 IAC 2-8-4(10)] – Grain Receiving and Handling Processes:

(b) One (1) truck dump pit, identified as TDP, constructed in 2004, with a maximum throughput rate of 560 tons of corn per hour, controlled by baghouse CE001, and exhausting through stack EP001.

(c) One (1) rail dump pit, identified as RDP, constructed in 2004, with a maximum throughput rate of 560 tons of corn per hour, controlled by baghouse CE002, and exhausting through stack EP002.

(d) One (1) grain handling process, identified as GH1, constructed in 2004, with a maximum throughput rate of 1,120 tons of corn per hour, controlled by baghouse CE003, and exhausting through stack EP003. This process consists of the following:

(1) One (1) conveyor.

(2) Two (2) elevators.

(3) Two (2) corn silos, with a total maximum capacity of 802,000 bushels.

(4) One (1) screen.

(e) One (1) belt conveyor, identified as GH2, constructed in 2004, with a maximum throughput rate of 77 tons/hr, controlled by baghouse CE004, and exhausting through stack EP004.

(f) One (1) germ storage tank, identified as GS, constructed in 2004, with a maximum capacity of 28,100 bushels and a maximum throughput rate of 5.5 tons/hr, controlled by baghouse CE005, and exhausting through EP005.

(g) Two (2) fiber storage bins, identified as FS, constructed in 2004, with a maximum capacity of 22,500 bushels for each bin and a total maximum throughput rate of 6.9 tons/hr, controlled by baghouse CE006, and exhausting through EP006.

(h) Two (2) CPC storage bins, identified as PCS, constructed in 2004, with a maximum capacity of 22,500 bushels for each bin and a total maximum throughput rate of 13.8 tons/hr, controlled by baghouse CE009, and exhausting through EP009.

(i) One (1) truck loadout hood, identified as SS1, constructed in 2004, with a maximum throughput rate of 420 tons/hr, controlled by baghouse CE010, and exhausting stack EP010.

(j) One (1) rail loadout hood, identified as SS2, constructed in 2004, with a maximum throughput rate of 420 tons/hr, controlled by baghouse CE011, and exhausting stack EP011.

(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.

D.2.2 Federally Enforceable State Operating Permit [326 IAC 2-8]

The attached Affidavit of Construction shall be submitted to the Office of Air Quality (OAQ), Permit Administration & Development Section, verifying that the emission units were constructed as proposed in the application.

Effective Date of the Permit

D.2.3 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.2.4 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.2.5 PM and PM10 Emissions [326 IAC 2-2] [326 IAC 2-8-4]

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)
TDP	Truck Dump Pit	CE001	0.86
RDP	Rail Dump Pit	CE002	1.29
GH1	Grain Handling	CE003	0.30
GH2	Belt Conveyor	CE004	0.04
GS	Germ Storage Tank	CE005	0.43
FS	Fiber Storage Tanks	CE006	0.05
PCS	CPC Storage Bin	CE009	0.09
SS1	Truck Loadout Hood	CE010	0.69
SS2	Rail Loadout Hood	CE011	0.34

This is equivalent to 17.9 tons of PM/PM10 emissions. Combined with the PM/PM10 emissions from boiler B2, thermal oxidizer/heat recovery steam generator CE008E, flare CE012, unpaved roads, and insignificant activities, 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.2.6 Particulate Emission Limitations [326 IAC 6-3-2]

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

Unit ID	Unit Description	Max. Throughput Rate (tons/hr)	Particulate Emission Limit (lbs/hr)
TDP	Truck Dump Pit	560	70.3
RDP	Rail Dump Pit	560	70.3
GH1	Grain Handling	1,120	79.1
GH2	Belt Conveyor	77	48.7
GS	Germ Storage Tank	5.5	12.8
FS	Each of Fiber Storage Tank	6.9	15.0
PCS	Each of CPC Storage Bin	13.8	23.8
SS1	Truck Loadout Hood	420	66.9
SS2	Rail Loadout Hood	420	66.9

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 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

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

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

Compliance Determination Requirements

D.2.8 Particulate Control

In order to comply with Conditions D.2.5 and D.2.6, 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
TDP	Truck Dump Pit	CE001
RDP	Rail Dump Pit	CE002
GH1	Grain Handling	CE003
GH2	Belt Conveyor	CE004
GS	Germ Storage Tank	CE005
FS	Fiber Storage Tanks	CE006
PCS	CPC Storage Bin	CE009
SS1	Truck Loadout Hood	CE010
SS2	Rail Loadout Hood	CE011

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

D.2.9 Visible Emissions Notations

(a) Visible emission notations of the baghouse stack exhausts (stacks EP001 through EP006, and EP009 through EP011) shall be performed once per shift 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) The Compliance Response Plan for these units shall contain troubleshooting contingency and response steps for when an abnormal emission is observed. Failure to take

response steps in accordance with Section C - Compliance Response Plan – Preparation, Implementation, Records and Reports shall be considered a deviation from this permit.

D.2.10 Parametric Monitoring

The Permittee shall record the total static pressure drop across the baghouses used in conjunction with the grain receiving operations (TDP and RDP), the grain handling process (GH1), the belt conveyor (GH2), the germ storage tank (GS), the fiber storage bins (FS), the CPC storage bins (PCS), and the loadout hoods (SS1 and SS2), at least once per shift 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-Compliance Response Plan – Preparation, Implementation, Records and Reports. 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 - Compliance Response Plan - Preparation, Implementation, Records and Reports shall be considered a deviation from this permit.

The instrument used for determining the pressure shall comply with Section C - Pressure Gauge and Other 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.2.11 Baghouse Inspections

An inspection shall be performed each calendar quarter of all bags controlling the the grain receiving operations (TDP and RDP), the grain handling process (GH1), the belt conveyor (GH2), the germ storage tank (GS), the fiber storage bins (FS), the CPC storage bins (PCS), and the loadout hoods (SS1 and SS2). Inspections required by this condition shall not be performed in consecutive months. All defective bags shall be replaced.

D.2.12 Broken or Failed Bag Detection

In the event that bag failure has been observed:

(a) For multi-compartment units, the affected compartments will be shut down immediately until the failed units have been repaired or replaced. Within eight (8) business hours of the determination of failure, response steps according to the timetable described in the Compliance Response Plan shall be initiated. For any failure with corresponding response steps and timetable not described in the Compliance Response Plan, response steps shall be devised within eight (8) business hours of discovery of the failure and shall include a timetable for completion. Failure to take response steps in accordance with Section C - Compliance Response Plan -Preparation, Implementation, Records, and Reports, shall be considered a deviation from this permit. If operations continue after bag failure is observed and it will be 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.

(b) For single compartment baghouses, if failure is indicated by a significant drop in the baghouse's pressure readings with abnormal visible emissions or the failure is indicated by an opacity violation, or if bag failure is determined by other means, such as gas temperatures, flow rates, air infiltration, leaks, dust traces or triboflows, then 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).

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

D.2.13 Record Keeping Requirements

(a) To document compliance with Condition D.2.9, the Permittee shall maintain records of once per shift visible emission notations of the baghouse stack exhausts.

(b) To document compliance with Condition D.2.10, the Permittee shall maintain once per shift records of the total static pressure drop during normal operation.

(c) To document compliance with Condition D.2.11, the Permittee shall maintain records of the results of the inspections required under Condition D.2.11.

(d) To document compliance with Condition D.2.7, the Permittee shall maintain of records of any additional inspections prescribed by the Preventive Maintenance Plan.

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

SECTION D.3 FACILITY OPERATION CONDITIONS – Fermentation Process

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

(k) One (1) fermentation process, identified as FP, constructed in 2004, with a maximum throughput rate of 77 tons/hr of grain, 45,000 gal/hr of water, and 0.25 tons/hr of yeast, using wet scrubber CE007 for VOC control, and exhausting through stack EP007.

(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.

D.3.2 Federally Enforceable State Operating Permit [326 IAC 2-8]

The attached Affidavit of Construction shall be submitted to the Office of Air Quality (OAQ), Permit Administration & Development Section, verifying that the emission units were constructed as proposed in the application.

Effective Date of the Permit

D.3.3 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.3.4 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.3.5 VOC and HAP Emissions [326 IAC 2-2] [326 IAC 2-8-4] [326 IAC 2-4.1]

Pursuant to 326 IAC 2-8-4 (FESOP), the VOC and HAP emissions from scrubber CE007 controlling the fermentation process shall not exceed the following:

(a) 2.44 lbs/hr for VOC.

(b) 1.5 lbs/hr for total HAPs.

Combined with the VOC emissions from other units, the VOC emissions from the entire source are limited to less than 100 tons/yr, and the total HAP emissions from the entire source are limited to less than 10 tons/yr. 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.3.6 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 process with a Best Available Control Technology (BACT), which has been determined to be the following:

(a) The VOC emissions from the fermentation process (FP) shall be controlled by wet scrubber CE007.

(b) The destruction efficiency for the wet scrubber shall be at least 97%.

(c) The capture efficiency shall be 100% as defined in EPA Method 204.

(d) The VOC emissions from wet scrubber CE007 shall not exceed 2.44 lbs/hr.

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

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

Compliance Determination Requirements

D.3.8 VOC and HAP Control

In order to comply with Conditions D.3.5 and D.3.6, wet scrubber CE007 shall be in operation and control emissions from the fermentation process at all times that this process is in operation.

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.3.5 and D.3.6, the Permittee shall perform VOC (including emission rate, destruction efficiency, and capture efficiency) and HAP testing for scrubber CE007, 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.3.10 Parametric Monitoring

The Permittee shall monitor and record the flow rate of scrubber CE007 at least once per shift when the fermentation process is in operation. When for any one reading, the flow rate of the scrubber is less than the normal minimum of 40 gallons per minute, or a minimum established during the latest stack test, the Permittee shall take reasonable response steps in accordance with Section C - Compliance Response Plan - Implementation, Preparation, Records, and Reports. 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 - Compliance Response Plan - Preparation, Implementation, Records, and Reports shall be considered a deviation from this permit.

The instruments used for determining the flow rate shall comply with Section C - Pressure Gauge and Other 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.3.11 Scrubber Inspections

An inspection shall be performed each calendar quarter of the scrubber controlling the fermentation process. Inspections required by this condition shall not be performed in consecutive months.

D.3.12 Scrubber Detection

In the event that a scrubber malfunction has been observed:

Failed units and the associated process will be shut down immediately until the failed units have been repaired or replaced. Operations may continue only if the event qualifies as an emergency and the Permittee satisfies the requirements of the emergency provisions of this permit (Section B - Emergency Provisions). Failure to take response steps in accordance with Section C - Compliance Response Plan - Preparation, Implementation, Records, and Reports 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.3.13 Record Keeping Requirements

(a) To document compliance with Condition D.3.10, the Permittee shall maintain once per shift records of flow rate for scrubber CE007 during normal operation.

(b) To document compliance with Condition D.3.11, the Permittee shall maintain records of the results of the inspections required under Condition D.3.11.

(c) To document compliance with Condition D.3.7, the Permittee shall maintain of records of any additional inspections prescribed by the Preventive Maintenance Plan.

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

SECTION D.4 FACILITY OPERATION CONDITIONS - Wet Milling Process, Dryers, and Distillation Process

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

(l) One (1) thermal oxidizer/heat recovery steam generator, identified as CE008E, constructed in 2004, using natural gas and process waste gases from the wet milling process, the dryers, and the distillation and dehydration process, with a maximum heat input capacity of 168 MMBtu/hr, and exhausting through stack EP008.

(m) One (1) wet milling process, identified as WM, constructed in 2004, with a maximum throughput rate of 77 tons/hr of grain and 32.75 tons/hr of water, controlled by thermal oxidizer/heat recovery steam generator CE008E, and exhausting through stack EP008. This process consists of the following:

(1) One (1) soak tank, controlled by baghouse CE008A.

(2) One (1) slurry tank.

(3) One (1) yeast tank.

(4) Two (2) grind mills.

(5) Two (2) hydrocyclones.

(6) One (1) germ wash screen and press.

(7) One (1) fiber wash screen and press.

(n) One (1) germ drying and cooling process, identified as GD, constructed in 2004, using natural gas as fuel, with a maximum heat input capacity of 10 MMBtu/hr and the maximum throughput rate of 5.5 tons/hr of dry solid (excluding water), controlled by cyclone CE008B and thermal oxidizer/heat recovery steam generator CE008E, and exhausting through stack EP008.

(o) One (1) fiber dryer, identified as FD, constructed in 2004, with a maximum heat input capacity of 23 MMBtu/hr and the maximum throughput rate of 6.9 tons/hr of dry solid (excluding water), controlled by cyclone CE008C and thermal oxidizer/heat recovery steam generator CE008E, and exhausting through stack EP008.

(p) One (1) protein concentration process, identified as PC, constructed in 2004, with a maximum throughput rate of 13.8 tons/hr of dry solid (excluding water), controlled by thermal oxidizer/heat recovery steam generator CE008E, and exhausting through stack EP008. This process consists of the following:

(1) One (1) decanter feed tank.

(2) One (1) soluble protein decanter.

(3) One (1) corn protein concentration (CPC) dryer, using natural gas as fuel, with a maximum heat input capacity of 47 MMBtu/hr and the maximum throughput rate of 13.8 tons/yr, and controlled by cyclone CE008D.

(4) One (1) evaporator feed tank.

(5) One (1) soluble protein concentrator evaporator.

Facility Description: (Continued)

(q) One (1) distillation and dehydration process, identified as DD, constructed in 2004, with a maximum ethanol production of 6,850 gal/hr, controlled by thermal oxidizer/heat recovery steam generator CE008E, and exhausting through stack EP008.

(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.

D.4.2 Federally Enforceable State Operating Permit [326 IAC 2-8]

The attached Affidavit of Construction shall be submitted to the Office of Air Quality (OAQ), Permit Administration & Development Section, verifying that the emission units were constructed as proposed in the application.

Effective Date of the Permit

D.4.3 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.4.4 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.4.5 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 thermal oxidizer/heat recovery steam generator CE008E which is used to control the wet milling process (WM), the germ drying and cooling process (GD), the fiber dryer (FD), the protein concentration process (PC), and the distillation and dehydration process (DD):

(a) PM/PM10 emissions shall not exceed 8.30 lbs/hr.

(b) VOC emissions shall not exceed 9.61 lbs/hr.

(c) CO emissions shall not exceed 15.1 lbs/hr.

(d) NOx emissions shall not exceed 12.4 lbs/hr.

(e) Total HAP emissions shall not exceed 0.25 lbs/hr.

(f) SO_2 emissions shall not exceed 1.0 pounds per 1,000 gallon of ethanol produced.

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

D.4.6 VOC Emissions [326 IAC 8-1-6]

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

(a) The VOC emissions from the germ drying and cooling process (GD), the fiber dryer (FD), the protein concentration process (PC), and the distillation and dehydration process (DD) shall be controlled by thermal oxidizer/heat recovery steam generator CE008E.

(b) The destruction efficiency for the thermal oxidizer CE008E shall be at least 98%.

(c) The capture efficiency shall be 100% as defined in EPA Method 204.

(d) The VOC emissions from thermal oxidizer CE008E shall not exceed 9.61 lbs/hr.

D.4.7 General Provisions Relating to NSPS [326 IAC 12-1][40 CFR Part 60, Subpart A]

The provisions of 40 CFR Part 60, Subpart A - General Provisions, which are incorporated by reference in 326 IAC 12-1, apply to thermal oxidizer/heat recovery steam generator CE008E except when otherwise specified in 40 CFR Part 60, Subpart Db.

D.4.8 NOx Emissions [326 IAC 12-1][40 CFR 60, Subpart Db]

(a) Pursuant to 40 CFR 60.44b, the NOx emissions from thermal oxidizer/heat recovery steam generator CE008E shall not exceed 0.1 lbs/MMBtu.

(b) Pursuant to 40 CFR 60.48b, the Permittee shall comply with one of the following monitoring conditions for the thermal oxidizer/heat recovery steam generator CE008E:

(1) Pursuant to 40 CFR 60.48b(b), the Permittee shall 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

(2) Pursuant to 40 CFR 60.48b(g)(2), the Permittee shall monitor the operating conditions for CE008E and predict nitrogen oxides emission rates as specified in a plan submitted pursuant to 40 CFR 60.49b(c).

D.4.9 General Provisions Relating to NSPS [326 IAC 12-1][40 CFR Part 60, Subpart A]

The provisions of 40 CFR 60, Subpart A - General Provisions, which are incorporated by reference in 326 IAC 12-1, apply to the facility described in Condition D.4.10 except when otherwise specified in 40 CFR 60, Subpart VV.

D.4.10 Equipment Leaks of VOC [326 IAC 12][40 CFR 60, Subpart VV]

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

D.4.11 Particulate Emissions [326 IAC 6-2-4]

Pursuant to 326 IAC 6-2-4 (Particulate Emission Limitations for Sources of Indirect Heating), particulate emissions from the 168 MMBtu per hour heat input thermal oxidizer/heat recovery steam generator (CE008E) shall be limited to 0.26 pounds per MMBtu heat input.

The limit was calculated using 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)

D.4.12 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)
WM	Each of the Soak Tank, Slurry tank, and Yeast tank	77	48.7
GD	Germ Drying and Cooling Process	5.5	12.8
FD	Fiber Dryer	6.9	15.0
PC	Protein Concentration Process	13.8	23.8

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 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

D.4.13 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.4.14 PM and PM10 Control

In order to comply with Conditions D.4.5(a), D.4.11,and D.4.12 baghouse and cyclones shall be in operation and control emissions from the wet milling process and dryers at all times that these units are in operation.

D.4.15 VOC and HAP Control

In order to comply with Conditions D.4.5(b) and D.4.5(e), thermal oxidizer/heat recovery steam generator CE008E shall be in operation and control emissions from the wet milling processes, the germ drying and cooling process, the fiber dryer, the corn protein concentrator (CPC) dryer, and the dryers and the distillation and dehydration process at all times that these units are in operation.

D.4.16 Testing Requirements [326 IAC 2-8-5(a)(1), (4)] [326 IAC 2-1.1-11] [40 CFR 60, Subpart Db] [326 IAC 2-2]

(a) Pursuant to 40 CFR 60.46(b)(c) and in order to demonstrate compliance with Condition D.4.8, the Permittee shall perform NOx testing for thermal oxidizer/heat recovery steam generator CE008E, within 60 days after achieving the maximum production, but not later than 180 days after initial startup, utilizing methods as approved by the Commissioner.

(b) In order to demonstrate compliance with Conditions D.4.5, D.4.6, D.4.11, and D.4.12 the Permittee shall perform PM, PM10, VOC (including emission rate, destruction efficiency, and capture efficiency), SO_2, CO, and HAP testing for thermal oxidizer/heat recovery steam generator CE008E, within 60 days after achieving the maximum production, but not later than 180 days after initial startup, utilizing methods as approved by the Commissioner. PM-10 includes filterable and condensible PM-10. The VOC test 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.

(c) Within 60 days after achieving the maximum production, but not later than 180 days after initial startup, the Permittee shall perform an initial one time test for the uncontrolled VOC emissions from each of the following emission units: the germ dryer; the fiber dryer; the CPC dryer; and the distillation and dehydration process. Testing shall be conducted in accordance with Section C - Performance Testing.

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

D.4.17 Continuous Emissions Monitoring [326 IAC 3-5] [326 IAC 12] [40 CFR 60, Subpart Db] [326 IAC 2-7-6(1),(6)]

(a) In order to demonstrate compliance with Condition D.4.8(b)(1), the Permittee shall install, calibrate, maintain, and operate a continuous monitoring system for measuring NOx emissions discharged to the atmosphere. The continuous monitoring system shall meet the performance specifications of 326 IAC 3-5-2, and 40 CFR 60.48(b), and 40 CFR 60.13(h). 326 IAC 3-5 is not federally enforceable.

(b) The continuous monitors shall be operated according to Section C - Maintenance of Continuous Emission Monitoring Equipment. In the event that the nitrogen oxide continuous emissions monitor fails, the Permittee shall monitor the oxygen content and temperature once per hour. If the oxygen content or temperature is outside the range established in the latest compliance stack test, the Permittee shall take reasonable response steps in accordance with Section C - Compliance Response Plan - Preparation, Implementation, Records, and Reports. Failure to take response steps in accordance with Section C - Compliance Response Plan - Preparation, Implementation, Records, and Reports, shall be considered a deviation from this permit.

D.4.18 Visible Emissions Notations

(a) Visible emission notations of the stack exhaust from stack EP008 shall be performed once per shift 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) The Compliance Response Plan for this unit shall contain troubleshooting contingency and response steps for when an abnormal emission is observed. Failure to take response steps in accordance with Section C - Compliance Response Plan – Preparation, Implementation, Records and Reports shall be considered a deviation from this permit.

D.4.19 Thermal Oxidizer Temperature

(a) A continuous monitoring system shall be calibrated, maintained, and operated on the thermal oxidizer (CE008E) 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 an hourly average. From the date of issuance of this permit until the approved stack test results are available, the Permittee shall operate the thermal oxidizer at or above the hourly average temperature of 1,500°F.

(b) The Permittee shall determine the hourly average temperature from the most recent valid stack test that demonstrates compliance with limits in condition D.4.5, as approved by IDEM.

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

D.4.20 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 condition D.4.5, as approved by IDEM.

(b) The duct pressure or fan amperage shall be observed at least once per day when the thermal oxidizer/heat recovery steam generator 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.4.21 Parametric Monitoring

The Permittee shall record the total static pressure drop across the baghouse CE008A used in conjunction with the wet milling process (WM) at least once per shift 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 - Compliance Response Plan – Preparation, Implementation, Records and Reports. 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 - Compliance Response Plan - Preparation, Implementation, Records and Reports shall be considered a deviation from this permit.

The instrument used for determining the pressure shall comply with Section C - Pressure Gauge and Other 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.4.22 Baghouse Inspections

An inspection shall be performed each calendar quarter of all bags controlling the wet milling process (WM). Inspections required by this condition shall not be performed in consecutive months. All defective bags shall be replaced.

D.4.23 Broken or Failed Bag Detection

In the event that bag failure has been observed:

(a) For multi-compartment units, the affected compartments will be shut down immediately until the failed units have been repaired or replaced. Within eight (8) business hours of the determination of failure, response steps according to the timetable described in the Compliance Response Plan shall be initiated. For any failure with corresponding response steps and timetable not described in the Compliance Response Plan, response steps shall be devised within eight (8) business hours of discovery of the failure and shall include a timetable for completion. Failure to take response steps in accordance with Section C - Compliance Response Plan -Preparation, Implementation, Records, and Reports, shall be considered a deviation from this permit. If operations continue after bag failure is observed and it will be 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.

(b) For single compartment baghouses, if failure is indicated by a significant drop in the baghouse's pressure readings with abnormal visible emissions or the failure is indicated by an opacity violation, or if bag failure is determined by other means, such as gas temperatures, flow rates, air infiltration, leaks, dust traces or triboflows, then 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).

D.4.24 Cyclone Inspections

An inspection shall be performed each calendar quarter of all cyclones controlling the germ drying and cooling process (GD), the fiber dryer (FD), and the protein concentration process (PC). Inspections required by this condition shall not be performed in consecutive months.

D.4.25 Cyclone Failure Detection

In the event that cyclone failure 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 - Compliance Response Plan -Preparation, Implementation, Records, and Reports, 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.4.26 Record Keeping Requirements

(a) To document compliance with Conditions D.4.5(d), D.4.8, and D.4.16, the Permittee shall maintain records of the NOx emissions in accordance with 40 CFR 60.49b.

(b) To document compliance with Condition D.4.18, the Permittee shall maintain records of once per shift visible emission notations of the stack EP008.

(c) To document compliance with Condition D.4.19, the Permittee shall maintain continuous temperature records for the thermal oxidizer and the hourly average temperature used to demonstrate compliance during the most recent compliant stack test.

(d) To document compliance with Condition D.4.20, the Permittee shall maintain daily records of the duct pressure or fan amperage for the thermal oxidizer/heat recovery steam generator.

(e) To document compliance with Condition D.4.21, the Permittee shall maintain once per shift records of the total static pressure drop for baghouse CE008A during normal operation.

(f) To document compliance with Conditions D.4.22 and D.4.24, the Permittee shall maintain records of the results of the inspections required under Conditions D.4.22 and D.4.24.

(g) To document compliance with Condition D.4.13, the Permittee shall maintain of records of any additional inspections prescribed by the Preventive Maintenance Plan.

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

D.4.27 Recordkeeping Requirements [40 CFR 60, Subpart Db] [326 IAC 12]

(a) Pursuant to 40 CFR 60.49b(d), the Permittee shall record and maintain records of the amounts of each fuel combusted during each day and calculate the annual capacity factor individually for natural gas 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.

(b) Pursuant to 40 CFR 60.49b(g), the Permittee 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 40 CFR 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.

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

D.4.28 Reporting Requirements [40 CFR 60, Subpart Db] [326 IAC 12]

(a) Pursuant to 40 CFR 60.49b(a), the Permittee shall submit notification of the date of initial startup, as provided by 40 CFR 60.7. This notification shall include the information specified in 40 CFR 60.49b(a)(1) through (4).

(b) Pursuant to 40 CFR 60.49b(b), the Permittee shall submit 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 Permittee 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) Pursuant to 40 CFR 60.49b(h), the Permittee shall submit excess emission reports for any excess emissions which occurred during the reporting period.

(d) Pursuant to 40 CFR 60.49b(i), the Permittee shall submit reports containing the information recorded under 40 CFR 60.49b(g) and Condition D.4.24(b).

(e) Pursuant to 40 CFR 60.49b(v), the Permittee may submit electronic quarterly reports for NOx in lieu of submitting the written reports required. The format of each quarterly electronic report shall be coordinated with IDEM, OAQ. 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 Permittee shall coordinate with IDEM, OAQ to obtain their agreement to submit reports in this alternative format.

(f) Pursuant to 40 CFR 60.49b(w), the Permittee is required to submit the above reports each six (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.

SECTION D.5 FACILITY OPERATION CONDITIONS – Ethanol Loading Rack

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

(r) One (1) ethanol loading rack for both railcar and truck loading, identified as ER, constructed in 2004, with a maximum throughput rate of 96,000 gallons per hour. The truck loading process is controlled by a enclosed flare CE012, which is fueled by natural gas and has a maximum heat input capacity of 5.57 MMBtu/hr, and exhausting through stack EP012.

(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.

D.5.2 Federally Enforceable State Operating Permit [326 IAC 2-8]

The attached Affidavit of Construction shall be submitted to the Office of Air Quality (OAQ), Permit Administration & Development Section, verifying that the emission units were constructed as proposed in the application.

Effective Date of the Permit

D.5.3 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.5.4 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.5.5 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 rack:

(a) The denatured ethanol load-out rate shall not exceed 63,000,000 gallons per twelve (12) consecutive month period with compliance determined at the end of each month.

(b) The Permittee shall use flare CE012 to control the emissions from the loading rack when loading denatured ethanol to trucks.

(c) VOC emissions from flare CE012 shall not exceed 0.18 lbs/kgal.

(d) CO emissions from flare CE012 shall not exceed 0.13 lbs/kgal.

(e) NOx emissions from flare CE012 shall not exceed 0.08 lbs/kgal.

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 total HAP emissions from the entire source are limited to less than 10 tons/yr. Therefore, the requirements of 326 IAC 2-7 (Part 70 Program) and 326 IAC 2-2 (PSD) are not applicable.

D.5.6 VOC Emissions [326 IAC 8-1-6]

The potential VOC emissions from the truck loading process are greater than 25 tons/yr. Pursuant to 326 IAC 8-1-6 (BACT), and the Permittee shall collect and control the VOC emissions from the ethanol loading rack, when loading ethanol to trucks, 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 shall be collected and controlled by enclosed flare CE012 when loading denatured ethanol to trucks.

(b) The destruction efficiency for the vapor collection system and enclosed flare CE012 shall be at least 98%.

(c) The capture efficiency shall be 100% as defined in EPA Method 204.

(d) The VOC emissions from enclosed flare CE012 shall not exceed 0.18 pounds per kilo gallons of denatured ethanol loaded.

D.5.7 Equipment Leaks of VOC [326 IAC 12][40 CFR 60, Subpart VV]

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

D.5.8 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.5.9 VOC Control

In order to comply with Condition D.5.5(c), enclosed flare CE012 shall be in operation and control emissions from the ethanol loading rack at all times when this rack is loading ethanol to trucks.

D.5.10 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.5.5(c), (d), (e) and D.5.6, the Permittee shall perform VOC (including emission rate, destruction efficiency, and capture efficiency), CO, and NOx testing for enclosed flare CE012, within 60 days after achieving the maximum production, but not later than 180 days after initial startup, utilizing methods as approved by the Commissioner. 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.5.11 Visible Emissions Notations

(a) Visible emission notations of the stack exhaust from stack EP012 shall be performed once per shift 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) The Compliance Response Plan for this unit shall contain troubleshooting contingency and response steps for when an abnormal emission is observed. Failure to take response steps in accordance with Section C - Compliance Response Plan – Preparation, Implementation, Records and Reports shall be considered a deviation from this permit.

D.5.12 Flare Pilot Flame

In order to comply with Conditions D.5.5 and D.5.6, the Permittee shall monitor the presence of a flare pilot flame using a thermocouple or any other equivalent device to detect the presence of a flame when the ethanol loading rack is in operation and is loading ethanol to trucks.

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

D.5.13 Record Keeping Requirements

(a) To document compliance with Condition D.5.5(a), the Permittee shall maintain monthly records of the amount of denatured ethanol loaded out.

(b) To document compliance with Condition D.5.11, the Permittee shall maintain records of once per shift visible emission notations of stack EP012.

(c) To document compliance with Condition D.5.8, the Permittee shall maintain of records of any additional inspections prescribed by the Preventive Maintenance Plan.

(d) To document compliance with Condition D.5.12, the Permittee shall maintain records of temperature or other parameters sufficient to demonstrate the presence of a pilot flame when the loading rack is in operation and is loading ethanol to trucks.

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

D.5.14 Reporting Requirements

A quarterly summary of the information to document compliance with Condition D.5.5(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 – Storage Tanks

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

Insignificant Activities

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

(1) Two (2) shift tanks, identified as T01 and T02, constructed in 2004, each with a maximum capacity of 85,000 gallons of 200-proof ethanol.

(2) One (1) denaturant tank, identified as T03, constructed in 2004, with a maximum capacity of 35,000 gallons of natural gasoline.

(3) Two (2) denatured ethanol tanks, identified as T04 and T05, constructed in 2004, each with a maximum capacity of 750,000 gallons of denatured ethanol.

(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 General Provisions Relating to NSPS [326 IAC 12-1][40 CFR Part 60, Subpart A]

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

D.6.2 Storage Tanks [326 IAC 12][40 CFR 60, Subpart Kb]

Pursuant to 40 CFR 60, Subpart Kb, the Permittee shall install internal floating roofs with tanks T01 through T05 and the shall comply with the following requirements in 40 CFR 60.112b (a)(1) for the internal floating roofs:

(a) 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.

(b) 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:

(1) 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.

(2) 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.

(3) 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.

(c) 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.

(d) 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.

(e) 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.

(f) 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.

(g) 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.

(h) 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.

(i) Each penetration of the internal floating roof that allows for passage of a ladder shall have a gasketed sliding cover.

D.6.3 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.

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

D.6.4 Testing and Procedures [40 CFR 60, Subpart Kb] [326 IAC 12]

Pursuant to 40 CFR 60.113b, the Permittee shall comply with the following requirement:

(a) 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.

(b) 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 40 CFR 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.

(c) For vessels equipped with a double-seal system as specified in 40 CFR 60.112b(a)(1)(ii)(B):

(1) Visually inspect the vessel as specified in paragraph (a)(4) of this section at least every 5 years; or

(2) Visually inspect the vessel as specified in 40 CFR 60.113(a)(2).

(d) 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 40 CFR 60.113(a)(2) and (a)(3)(ii) and at intervals no greater than 5 years in the case of vessels specified in 40 CFR 60.113(a)(3)(i).

(e) Notify the IDEM, OAQ in writing at least 30 days prior to the filling or refilling of each storage vessel for which an inspection is required by 40 CFR 60.113(a)(1) and (a)(4) to afford IDEM, OAQ the opportunity to have an observer present. If the inspection required by 40 CFR 60.113 (a)(4) is not planned and the Permittee could not have known about the inspection 30 days in advance or refilling the tank, the Permitee shall notify the IDEM, OAQ 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 IDEM, OAQ at least 7 days prior to the refilling.

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

D.6.5 Record Keeping Requirements

(a) Pursuant to 40 CFR 60.116b, the Permittee shall maintain the following records:

(1) The dimension of the storage vessel and an analysis showing the capacity of the storage vessel for the life of the source; and

(2) The VOL stored, the period of storage, and the maximum true vapor pressure of that VOL during the respective storage period, for at least 2 years.

(b) To document compliance with Condition D.6.3, the Permittee shall maintain of records of any additional inspections prescribed by the Preventive Maintenance Plan.

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

SECTION D.7 FACILITY OPERATION CONDITIONS – Other Insignificant Activities

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

Insignificant Activities

(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.

(e) Underground conveyors, including underground grain and product transfer conveyors are not on PFD.

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

(g) Grinding and machining operations controlled with fabric filters, scrubbers, mist collectors, wet collectors and electrostatic precipitators with a design grain loading of less than or equal to 0.03 grains per actual cubic foot and a gas flow rate less than or equal to 4000 actual cubic feet per minute, including the following: deburring; buffing; polishing; abrasive blasting; pneumatic conveying; and woodworking operations.

(h) Other emission units, not regulated by a NESHAP, with PM10, NOx, and SO2 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:

(4) One (1) digester for process water, identified as MF, constructed in 2004. This unit has methane emissions and is controlled by thermal oxidizer/heat recovery steam generator CE008E or flare CE013.

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

There are no specific state or federal rules applicable to these emission units.

SECTION E.1 40 CFR 60, Subpart VV - Standards of Performance for Equipment Leaks of VOC in the Synthetic Organic Chemicals Manufacturing Industry

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

E.1.1 Standards: Pumps in Light Liquid Service [326 IAC 12][40 CFR 60, Subpart VV]

Pursuant to 40 CFR 60.482-2 (Standards: Pumps in Light Liquid Service), the Permittee shall comply with the following requirements:

(a) Each pump in light liquid service shall:

(1) be monitored monthly to detect leaks by the methods specified in Condition E.1.10, except as provided in this condition; and

(2) be checked by visual inspection each calendar week for indications of liquids dripping from the pump seal.

(b) If an instrument reading of 10,000 ppm or greater is measured, a leak is detected. If there are indications of liquids dripping from the pump seal, a leak is detected.

(c) 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 Condition E.1.9. 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 Condition E.1.1(a), provided the following requirements are met:

(1) Each dual mechanical seal system is:

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

(B) 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 Condition E.1.8; or

(C) 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) The following requirements are met:

(A) Each sensor as described in Condition E.1.1(d)(3) is checked daily or is equipped with an audible alarm;

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

(6) 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 Condition E.1.1(d)(5)(B), a leak is detected. 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 Condition E.1.9. 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 Condition E.1.11(d)(1) and (d)(2), for no detectable emission, as indicated by an instrument reading of less than 500 ppm above background, is exempt from the requirements of Conditions E.1.1(a), (c), and (d) 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 Condition E.1.10(b), and

(3) Is tested for compliance with Condition E.1.1(e)(2) 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 Condition E.1.8, it is exempt from Conditions E.1.1(a) through (e).

(g) Any pump that is designated, as described in Condition E.1.11(e)(1), as an unsafe-to-monitor pump is exempt from the monitoring and inspection requirements of Conditions E.1.1(a) and (d)(4) through (d)(6) if:

(1) The Permittee demonstrates that the pump is unsafe-to-monitor because monitoring personnel would be exposed to an immediate danger as a consequence of complying with Condition E.1.1(a); and

(2) The Permittee 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 Condition E.1.1(c) 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 Conditions E.1.1(a)(2) and (d)(4), and the daily requirements of Condition E.1.1(d)(5), provided that each pump is visually inspected as often as practicable and at least monthly.

E.1.2 Standards: Compressors [326 IAC 12][40 CFR 60, Subpart VV]

Pursuant to 40 CFR 60.482-3 (Standards: Compressors), the Permittee shall comply with the following requirements:

(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 Condition E.1.2(h) and (i).

(b) Each compressor seal system as required in Condition E.1.2(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 Condition E.1.8; 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 Condition E.1.2(a) shall be equipped with a sensor that will detect failure of the seal system, barrier fluid system, or both.

(e) Each sensor as required in Condition E.1.2(d) shall be equipped with an audible alarm. The Permittee 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 Condition E.1.2(e), a leak is detected.

(g) 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 Condition E.1.9. 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 Conditions E.1.2(a) and (b), 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 Condition E.1.8, except as provided in Condition E.1.2(i).

(i) Any compressor that is designated, as described in Condition E.1.11(d)(1) and (d)(2), for no detectable emissions, as indicated by an instrument reading of less than 500 ppm above background, is exempt from the requirements of Conditions E.1.2(a) through (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 Condition E.1.10(b); and

(2) Is tested for compliance with Condition E.1.2(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 40 CFR 60.14 and 40 CFR 60.15 is exempt from Conditions E.1.2(a), (b), (c), (d), (e), and (h), provided the Permittee 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 Conditions E.1.2(a), (b), (c), (d), (e), and (h).

E.1.3 Standards: Pressure Relief Devices in Gas/Vapor Service [326 IAC 12][40 CFR 60, Subpart VV]

Pursuant to 40 CFR 60.482-4 (Standards: Pressure Relief Devices in Gas/Vapor Service), the Permittee shall comply with the following requirements:

(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 Condition E.1.10(b).

(b) 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 Condition E.1.9. 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 Condition E.1.10(b).

(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 Condition E.1.8 is exempted from the requirements of Conditions E.1.3(a) and (b).

(d) Any pressure relief device that is equipped with a rupture disk upstream of the pressure relief device is exempt from the requirements of Conditions E.1.3(a) and (b), provided after each pressure release, a new rupture disk is 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 Condition E.1.9.

E.1.4 Standards: Sampling Connection Systems [326 IAC 12][40 CFR 60, Subpart VV]

Pursuant to 40 CFR 60.482-5 (Standards: Sampling Connection Systems), the Permittee shall comply with the following requirements:

(a) Each sampling connection system shall be equipped with a closed-purged, closed-loop, or closed-vent system. 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 Condition E.1.4(a) shall comply with the following requirements:

(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 Condition E.1.8; or

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

(A) 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;

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

(C) 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 Conditions E.1.4(a) and (b).

E.1.5 Standards: Open-Ended Valves or Lines [326 IAC 12][40 CFR 60, Subpart VV]

Pursuant to 40 CFR 60.482-6 (Standards: Open-Ended Valves or Lines), the Permittee shall comply with the following requirements:

(a) Each open-ended valve or line shall be equipped with a cap, blind flange, plug, or a second valve. 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 Condition E.1.5(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 Conditions E.1.5(a), (b) and (c).

(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 Conditions E.1.5(a) through (c) are exempt from the requirements of Conditions E.1.5(a) through (c).

E.1.6 Standards: Valves in Gas/Vapor Service and in Light Liquid Service [326 IAC 12][40 CFR 60, Subpart VV]

Pursuant to 40 CFR 60.482-7 (Standards: Valves in Gas/Vapor Service and in Light Liquid Service), the Permittee shall comply with the following requirements:

(a) Each valve shall be monitored monthly to detect leaks by the methods specified in Condition E.1.10(a) and shall comply with Conditions E.1.6(b) through (e), except as provided in Conditions E.1.6(f), (g), and (h).

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

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

(d) 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 Condition E.1.9. 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 Condition E.1.11(d)(2), for no detectable emissions, as indicated by an instrument reading of less than 500 ppm above background, is exempt from the requirements of Condition E.1.6(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 Condition E.1.10(b), and

(3) Is tested for compliance with Condition E.1.6(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 Condition E.1.11(e)(1), as an unsafe-to-monitor valve is exempt from the requirements of Condition E.1.6(a) if:

(1) The Permittee demonstrates that the valve is unsafe to monitor because monitoring personnel would be exposed to an immediate danger as a consequence of complying with Condition E.1.6(a), and

(2) The Permittee 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 Condition E.1.11(e)(2), as a difficult-to-monitor valve is exempt from the requirements of Condition E.1.6(a) if:

(1) The Permittee 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 Permittee designates less than 3.0 percent of the total number of valves as difficult-to-monitor, and

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

E.1.7 Standards: Pumps and Valves in Heavy Liquid Service, Pressure Relief Devices in Light Liquid or Heavy Liquid Service, and Connectors [326 IAC 12][40 CFR 60, Subpart VV]

Pursuant to 40 CFR 60.482-8 (Standards: Pumps and Valves in Heavy Liquid Service, Pressure Relief Devices in Light Liquid or Heavy Liquid Service, and Connectors), the Permittee shall comply with the following requirements:

(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 Permittee shall follow either one of the following procedures:

(1) The Permittee shall monitor the equipment within 5 days by the method specified in Condition E.1.10(a) and shall comply with the requirements of Conditions E.1.7(b) through (d).

(2) The Permittee 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) 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 Condition E.1.9. 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 Condition E.1.6(e).

E.1.8 Standards: Closed Vent Systems and Control Devices [326 IAC 12][40 CFR 60, Subpart VV]

Pursuant to 40 CFR 60.482-10 (Standards: Closed Vent Systems and Control Devices), the Permittee shall comply with the following requirements:

(a) For closed vent systems and control devices used to comply with the provisions of 40 CFR 60, Subpart VV, the Permittee shall comply with the provisions of this Condition.

(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 40 CFR 60.18.

(e) For control devices used to comply with the provisions of 40 CFR 60, Subpart VV, the Permittee shall monitor these control devices to ensure that they are operated and maintained in conformance with their designs.

(f) Except as provided in Conditions E.1.8(i) through (k), each closed vent system shall be inspected according to the procedures and schedule specified below:

(1) If the vapor collection system or closed vent system is constructed of hard-piping, the Permittee shall comply with the requirements specified in Conditions E.1.8(f)(1)(A) and (f)(1)(B):

(A) Conduct an initial inspection according to the procedures in Condition E.1.10(a); and

(B) 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 Permittee shall:

(A) Conduct an initial inspection according to the procedures in Condition E.1.10(a); and

(B) Conduct annual inspections according to the procedures in Condition E.1.10(a).

(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 Condition E.1.8(h).

(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 Permittee 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 Condition E.1.8(f)(1)(A) and (f)(2).

(j) Any parts of the closed vent system that are designated, as described in Condition E.1.8(l)(1), as unsafe to inspect are exempt from the inspection requirements of Conditions E.1.8(f)(1)(A) and (f)(2) if they comply with the following requirements:

(1) The Permittee 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 Conditions E.1.8(f)(1)(A) or (f)(2); and

(2) The Permittee 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 Condition E.1.8(l)(2), as difficult to inspect are exempt from the inspection requirements of Conditions E.1.8(f)(1)(A) and (f)(2) if they comply with the requirements specified below:

(1) The Permittee 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 40 CFR 60.14 and 60.15, or the Permittee designates less than 3.0 percent of the total number of closed vent system equipment as difficult to inspect; and

(3) The Permittee 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 Permittee shall record the information specified below:

(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 Condition E.1.11(b).

(4) For each inspection conducted in accordance with Condition E.1.10(a) 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 Condition E.1.8(f)(1)(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.

(m) Closed vent systems and control devices used to comply with provisions of 40 CFR 60, Subpart VV shall be operated at all times when emissions may be vented to them.

E.1.9 Standards: Delay of Repair [326 IAC 12][40 CFR 60, Subpart VV]

Pursuant to 40 CFR 60.482-9 (Standards: Delay of Repair), the Permittee shall comply with the following requirements:

(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 Permittee 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 Condition E.1.8.

(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.

Compliance Determination Requirements

E.1.10 Test Methods and Procedures [326 IAC 12][40 CFR 60, Subpart VV]

Pursuant to 40 CFR 60.485 (Test Methods and Procedures), the Permittee shall comply with the following requirements:

(a) The Permittee shall determine compliance with the standards in Conditions E.1.1 through E.1.9 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:

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

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

(b) The Permittee shall determine compliance with the no detectable emission standards in Conditions E.1.1(e), E.1.2(i), E.1.3, and E.1.6(f) as follows:

(1) The requirements of Condition E.1.11(a) 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.

(c) The Permittee 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 in 40 CFR 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, Conditions E.1.10(c) (1) and (2) shall be used to resolve the disagreement.

(d) The Permittee shall demonstrate that 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 in 40 CFR 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.

(e) Samples used in conjunction with Conditions E.1.10(c), (d), and (f) shall be representative of the process fluid that is contained in or contacts the equipment or the gas being combusted in the flare.

(f) The Permittee 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 (H_T) 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 in 40 CFR 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 in 40 CFR 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.

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

E.1.11 Recordkeeping Requirements [326 IAC 12][40 CFR 60, Subpart VV]

Pursuant to 40 CFR 60.486 (Recordkeeping Requirements), the Permittee shall comply with the following requirements:

(a) When each leak is detected as specified in Conditions E.1.1, E.1.2, E.1.6, and E.1.7, 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 Condition E.1.6(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.

(b) When each leak is detected as specified in Conditions E.1.1, E.1.2, E.1.6, and E.1.7, the following information shall be recorded in a log 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 Condition E.1.10(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 employee 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.

(c) The following information pertaining to the design requirements for closed vent systems and control devices described in Condition E.1.8 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 Condition E.1.8(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 Conditions E.1.1, E.1.2, E.1.3, and E.1.4 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 Conditions E.1.1, E.1.2, E.1.3, and E.1.4.

(d) The following information pertaining to all equipment subject to the requirements in Conditions E.1.1 through E.1.9 and 40 CFR 60.482-1shall 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 40 CFR 60, Subpart VV.

(2) A list of identification numbers for equipment that are designated for no detectable emissions under the provisions of Conditions E.1.1(e), E.1.2(i) and E.1.6(f) and the designation of equipment as subject to the requirements of Conditions E.1.1(e), E.1.2(i), or E.1.6(f) shall be signed by the Permittee.

(3) A list of equipment identification numbers for pressure relief devices required to comply with Condition E.1.3.

(4) The following information:

(A) The dates of each compliance test as required in Conditions E.1.1(e), E.1.2(i), E.1.3, and E.1.6(f);

(B) The background level measured during each compliance test;

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

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

(e) The following information pertaining to all valves subject to the requirements of Conditions E.1.6(g) and (h) and to all pumps subject to the requirements of Conditions E.1.1(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.

(f) The following information shall be recorded for valves complying with Condition E.1.1:

(1) A schedule of monitoring.

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

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

(1) Design criterion required in Conditions E.1.1(d)(5) and E.1.2(e) and explanation of the design criterion; and

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

(h) 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.

(i) The provisions of 40 CFR 60.7 (b) and (d) do not apply to affected facilities subject to this subpart.

E.1.12 Reporting Requirements [326 IAC 12][40 CFR 60, Subpart VV]

Pursuant to 40 CFR 60.487 (Reporting Requirements), the Permittee shall comply with the following requirements:

(a) The Permittee shall submit semiannual reports to the Administrator.

(b) All semiannual reports to the Administrator shall include the following information, summarized from the information required in Condition E.1.11.

(1) Process unit identification.

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

(A) Number of valves for which leaks were detected as described in Condition E.1.6(b),

(B) Number of valves for which leaks were not repaired as required in Condition E.1.6(d),

(C) Number of pumps for which leaks were detected as described in Conditions E.1.1(b) and E.1.1(d)(6),

(D) Number of pumps for which leaks were not repaired as required in Conditions E.1.1(c) and E.1.1(d)(6),

(E) Number of compressors for which leaks were detected as described in Condition E.1.2(f),

(F) Number of compressors for which leaks were not repaired as required in Condition E.1.2(g), and

(G) 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.

(c) Revisions to items reported in the initial semiannual report if changes have occurred since the initial report or subsequent revisions to the initial report.

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF AIR QUALITY

FEDERALLY ENFORCEABLE STATE OPERATING PERMIT (FESOP) CERTIFICATION

Source Name: Putnam Ethanol, L.L.C.
Source Address: 7816 South US 231, Cloverdale, Indiana 46120
Mailing Address: 12 Salt Creek Lane, Suite 410, Hinsdale, Illinois 60521
FESOP No.: 133-19163-00003

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
P.O. Box 6015
100 North Senate Avenue
Indianapolis, Indiana 46206-6015
Phone: 317-233-5674
Fax: 317-233-5967

FEDERALLY ENFORCEABLE STATE OPERATING PERMIT (FESOP)
EMERGENCY OCCURRENCE REPORT

Source Name: Putnam Ethanol, L.L.C.
Source Address: 7816 South US 231, Cloverdale, Indiana 46120
Mailing Address: 12 Salt Creek Lane, Suite 410, Hinsdale, Illinois 60521
FESOP No.: 133-19163-00003

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 317-233-5674, ask for Compliance Section); and
- The Permittee must submit notice in writing or by facsimile within two (**2**) working days (Facsimile Number: 317-233-5967), 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: Putnam Ethanol, L.L.C.
Source Address: 7816 South US 231, Cloverdale, Indiana 46120
Mailing Address: 12 Salt Creek Lane, Suite 410, Hinsdale, Illinois 60521
FESOP No.: 133-19163-00003
Facility: Ethanol Loading Rack
Parameter: Ethanol Throughput Rate
Limit: Less than 63,000,000 gallons per twelve (12) consecutive month period with compliance determined at the end of each month.

YEAR:_____

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

☐ No deviation occurred in this quarter.

☐ Deviation/s occurred in this quarter.
Deviation has been reported on:_____

Submitted by: _____
Title / Position: _____
Signature: _____
Date: _____
Phone: _____

Attach a signed certification to complete this report.

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF AIR QUALITY

COMPLIANCE DATA SECTION

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

Source Name: Putnam Ethanol, L.L.C.
Source Address: 7816 South US 231, Cloverdale, Indiana 46120
Mailing Address: 12 Salt Creek Lane, Suite 410, Hinsdale, Illinois 60521
FESOP No.: 133-19163-00003

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

Technical Support Document (TSD) for a New Source Review and a Federally Enforceable State Operating Permit (FESOP)

Source Background and Description

Source Name:	Putnam Ethanol, L.L.C.
Source Location:	7816 South US 231, Cloverdale, Indiana 46120
County:	Putnam
SIC Code:	2869
Operation Permit No.:	F133-19163-00003
Permit Reviewer:	ERG/YC

The Office of Air Quality (OAQ) has reviewed a New Source Review and FESOP application from Putnam Ethanol, L.L.C. relating to the construction and operation of an ethanol production plant.

History

Putnam Ethanol, L.L.C. (formerly Putnam Energy Center, L.L.C.) was issued a Minor Source Operating Permit #133-12915-00003 on June 8, 2001 to construct an electric generating station. However, the source never started the construction of the electric generating station. On May 24, 2004, Putnam Ethanol, L.L.C submitted an application to IDEM, OAQ applying for a Federally Enforceable State Operating Permit to construct and operate a new ethanol production plant at the same location. The source stated that they would not proceed with the construction of the electric generating station. IDEM, OAQ will revoke permits MSOP 133-12915-00003 and Acid Rain Permit 133-13567-00003 upon issuance of this FESOP.

Permitted Emission Units and Pollution Control Equipment

There are no permitted emission units at this source during this review process.

Unpermitted Emission Units and Pollution Control Equipment

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

New Emission Units and Pollution Control Equipment

The application includes information relating to the prior approval for the construction and operation of the following equipment pursuant to 326 IAC 2-8-4(11):

(a) One (1) natural gas fired trim boiler, identified as B2, constructed in 2004, with a maximum heat input capacity of 96 MMBtu/hr, equipped with a low NOx burner, and exhausting through stack EP014.

(b) One (1) truck dump pit, identified as TDP, constructed in 2004, with a maximum throughput rate of 560 tons of corn per hour, controlled by baghouse CE001, and exhausting through stack EP001.

(c) One (1) rail dump pit, identified as RDP, constructed in 2004, with a maximum throughput rate of 560 tons of corn per hour, controlled by baghouse CE002, and exhausting through stack EP002.

(d) One (1) grain handling process, identified as GH1, constructed in 2004, with a maximum throughput rate of 1,120 tons of corn per hour, controlled by baghouse CE003, and exhausting through stack EP003. This process consists of the following:

(1) One (1) conveyor.

(2) Two (2) elevators.

(3) Two (2) corn silos, with a total maximum capacity of 802,000 bushels.

(4) One (1) screen.

(e) One (1) belt conveyor, identified as GH2, constructed in 2004, with a maximum throughput rate of 77 tons/hr, controlled by baghouse CE004, and exhausting through stack EP004.

(f) One (1) germ storage tank, identified as GS, constructed in 2004, with a maximum capacity of 28,100 bushels and a maximum throughput rate of 5.5 tons/hr, controlled by baghouse CE005, and exhausting through EP005.

(g) Two (2) fiber storage bins, identified as FS, constructed in 2004, with a maximum capacity of 22,500 bushels for each bin and a total maximum throughput rate of 6.9 tons/hr, controlled by baghouse CE006, and exhausting through EP006.

(h) Two (2) CPC storage bins, identified as PCS, constructed in 2004, with a maximum capacity of 22,500 bushels for each bin and a total maximum throughput rate of 13.8 tons/hr, controlled by baghouse CE009, and exhausting through EP009.

(i) One (1) truck loadout hood, identified as SS1, constructed in 2004, with a maximum throughput rate of 420 tons/hr, controlled by baghouse CE010, and exhausting stack EP010.

(j) One (1) rail loadout hood, identified as SS2, constructed in 2004, with a maximum throughput rate of 420 tons/hr, controlled by baghouse CE011, and exhausting stack EP011.

(k) One (1) fermentation process, identified as FP, constructed in 2004, with a maximum throughput rate of 77 tons/hr of grain, 45,000 gal/hr of water, and 0.25 tons/hr of yeast, using wet scrubber CE007 for VOC control, and exhausting through stack EP007.

(l) One (1) thermal oxidizer/heat recovery steam generator, identified as CE008E, constructed in 2004, using natural gas and process waste gases from the wet milling process, the dryers, and the distillation and dehydration process, with a maximum heat input capacity of 168 MMBtu/hr, and exhausting through stack EP008.

(m) One (1) wet milling process, identified as WM, constructed in 2004, with a maximum throughput rate of 77 tons/hr of grain and 32.75 tons/hr of water, controlled by thermal oxidizer/heat recovery steam generator CE008E, and exhausting through stack EP008. This process consists of the following:

(1) One (1) soak tank, controlled by baghouse CE008A.

(2) One (1) slurry tank, controlled by baghouse CE008A.

(3) One (1) yeast tank, controlled by baghouse CE008A.

(4) Two (2) grind mills.

(5) Two (2) hydrocyclones.

(6) One (1) germ wash screen and press.

(7) One (1) fiber wash screen and press.

(n) One (1) germ drying and cooling process, identified as GD, constructed in 2004, using natural gas as fuel, with a maximum heat input capacity of 10 MMBtu/hr and the maximum throughput rate of 5.5 tons/hr of dry solid (excluding water), controlled by cyclone CE008B and thermal oxidizer/heat recovery steam generator CE008E, and exhausting through stack EP008.

(o) One (1) fiber dryer, identified as FD, constructed in 2004, with a maximum heat input capacity of 23 MMBtu/hr and the maximum throughput rate of 6.9 tons/hr of dry solid (excluding water), controlled by cyclone CE008C and thermal oxidizer/heat recovery steam generator CE008E, and exhausting through stack EP008.

(p) One (1) protein concentration process, identified as PC, constructed in 2004, with a maximum throughput rate of 13.8 tons/hr of dry solid (excluding water), controlled by thermal oxidizer/heat recovery steam generator CE008E, and exhausting through stack EP008. This process consists of the following:

(1) One (1) decanter feed tank.

(2) One (1) soluble protein decanter.

(3) One (1) corn protein concentration (CPC) dryer, using natural gas as fuel, with a maximum heat input capacity of 47 MMBtu/hr and the maximum throughput rate of 13.8 tons/yr, and controlled by cyclone CE008D.

(4) One (1) evaporator feed tank.

(5) One (1) soluble protein concentrator evaporator.

(q) One (1) distillation and dehydration process, identified as DD, constructed in 2004, with a maximum ethanol production of 6,850 gal/hr, controlled by thermal oxidizer/heat recovery steam generator CE008E, and exhausting through stack EP008.

(r) One (1) ethanol loading rack for both railcar and truck loading, identified as ER, constructed in 2004, with a maximum throughput rate of 96,000 gallons per hour. The truck loading process is controlled by enclosed flare CE012, which is fueled by natural gas and has a maximum heat input capacity of 5.57 MMBtu/hr, and exhausting through stack EP012.

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.

(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) Grinding and machining operations controlled with fabric filters, scrubbers, mist collectors, wet collectors and electrostatic precipitators with a design grain loading of less than or equal to 0.03 grains per actual cubic foot and a gas flow rate less than or equal to 4000 actual cubic feet per minute, including the following: deburring; buffing; polishing; abrasive blasting; pneumatic conveying; and woodworking operations.

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

(1) Two (2) shift tanks, identified as T01 and T02, constructed in 2004, each with a maximum capacity of 85,000 gallons of 200-proof ethanol.

(2) One (1) denaturant tank, identified as T03, constructed in 2004, with a maximum capacity of 35,000 gallons of natural gasoline.

(3) Two (2) denatured ethanol tanks, identified as T04 and T05, constructed in 2004, each with a maximum capacity of 750,000 gallons of denatured ethanol.

(4) One (1) digester for process water, identified as MF, constructed in 2004. This unit has methane emissions and is controlled by thermal oxidizer/heat recovery steam generator CE008E or flare CE013.

Existing Approvals

The following air approval has been issued to this source:

(1) MSOP #133-12915-00003, issued on June 8, 2001. This is a construction permit and was effective for 18 months.

(2) Acid Rain Permit #133-13567-00003, issued on May 29, 2001.

All conditions from previous approvals were not incorporated into this FESOP because the units permitted in the previous permits will not be constructed at this location. These previous permits will be revoked by IDEM, OAQ upon issuance of this FESOP.

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 May 24, 2004. Additional information was received on June 10, 2004, June 17, 2004, July 14, 2004 and July 15, 2004.

There was no notice of completeness letter mailed to the source.

Emission Calculations

See Appendix A of this document for detailed emission calculations (pages 1 through 12). The PTE for equipment leaks is 10.3 tons/yr of VOC. The PTE of storage tanks is 1.92 tons/yr of VOC, which was calculated using EPA TANKS 4.0 software. The emissions calculations for storage tanks and equipment leak were provided by the applicant and have been verified and found to be accurate and correct.

Potential to Emit

Pursuant to 326 IAC 2-1.1-1(16), Potential to Emit is defined as "the maximum capacity of a stationary source or emissions unit to emit any air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of a source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or type or amount of material combusted, stored, or processed shall be treated as part of its design if the limitation is enforceable by the U.S. EPA, the department, or the appropriate local air pollution control agency."

Pollutant	Potential to Emit (tons/yr)
PM	Greater than 250
PM-10	Greater than 250
SO_2	30.5
VOC	Greater than 250
CO	166
NO_x	108

HAPs	Potential to Emit (tons/yr)
Acetaldehyde	48.0
n-Hexane	30.4
Toluene	3.04
Benzene	1.52
Xylene	0.30
Cumene	0.06
Ethyl Benzene	0.03
Carbon Disulfide	0.01
Acrolein	0.52
Methanol	0.36
Formaldehyde	0.23
2-furfuraldehyde	0.09
Total	93.3

(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 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/or the potential to emit (as defined in 326 IAC 2-7-1(29)) of a combination of HAPs 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 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	PM-10	SO_2	VOC	CO	NO_x	HAPs
Boiler B2	3.20	3.20	0.25	2.31	Less than 21.0	21.0	Negligible
Grain Receving, Handling, and Load Out Operations	Less than 17.9	Less than 17.9	-	-	-	-	-
Fermentation Process	-	-	-	Less than 10.7	-	-	Less than 6.57
Wet Milling Operation	Less than 36.4	Less than 36.4	Less than 30.2	Less than 42.1	Less than 66.1	Less than 54.3	Less than 1.10
Germ, Fiber, and CPC Dryers							
Distillation and Dehydration Process							
Ethanol Loading Rack with Flare CE012	Less than 0.01	Less than 0.01	Negligible	Less than 20.7*	Less than 4.10	Less than 2.52	Less than 0.33
Paved Roads (Fugitive)	Less than 19.1	Less than 3.73	-	-	-	-	-
Equipment Leak (Fugitive)	-	-	-	10.3	-	-	Negligible
Cooling Tower (Insignificant)	6.58	6.58	-	-	-	-	-
Storage Tanks (Insignificant)	-	-	-	1.92	-	-	Negligible
Other Insignificant Activities	Less than 1.0	Less than 1.0	-	Less than 1.0	-	-	Negligible
Total PTE of the Entire Source	Less than 84.2	Less than 68.8	Less than 30.5	Less than 89.0	Less than 91.2	Less than 77.8	Less than 8.00
Title V Thresholds	NA	100	100	100	100	100	10 for a single HAP and 25 for total HAPs

Note: "-" pollutant not emitted by the facility.
(*) This is the worst case between loading ethanol to trucks and to railcars.

County Attainment Status

The source is located in Putnam County.

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

(a) Volatile organic compounds (VOC) and Nitrogen Oxides (NOx) are regulated under the Clean Air Act (CAA) for the purposes of attaining and maintaining the National Ambient Air Quality Standards (NAAQS) for ozone. Therefore, VOC emissions and NOx are considered when evaluating the rule applicability relating to ozone. Putnam County has

been designated as attainment or unclassifiable for ozone. Therefore, VOC emissions and NOx were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2.

(b) Putnam County has been classified as attainment or unclassifiable in Indiana for all other criteria pollutants. Therefore, these emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2.

(c) Fugitive Emissions
Since this type of operation is in one of the 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.

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	Less than 84.2
PM-10	Less than 68.8
SO_2	Less than 30.5
VOC	Less than 89.0
CO	Less than 91.2
NO_x	Less than 77.8
Combination HAPs	Less than 8.62

This new source is not a PSD major stationary source because no attainment regulated pollutant is emitted at a rate of 100 tons per year or greater and it is in one of the 28 listed source categories.

Federal Rule Applicability

(a) Boiler B2 has a maximum heat capacity greater than 10 MMBtu/hr and less than 100 MMBtu/hr and will be constructed after the June 9, 1989 applicability date. Therefore, this boiler is subject to the New Source Performance Standards for Small Industrial - Commercial - Institutional Steam generating Units (326 IAC 12, 40 CFR 60.40c-48c, Subpart Dc).

Since this boiler is a natural gas fired boiler, it is subject to only the record keeping requirements in 40 CFR 60.48c, which requires the Permittee to maintain daily records of the amount and type of fuel burned. If the source would like to change the frequency of record keeping from daily recording to monthly recording, then the source must send a letter requesting this change to the following address:

George Czemiak
c/o U.S. Environmental Protection Agency, Region V
Air and Radiation Division
Air Enforcement Branch - Indiana (AE-17J)
77 West Jackson Boulevard
Chicago, Illinois 60604-3590

The request should reference the NSPS requirement and the EPA memorandum from John Rasnic to Jewell Harper (dated February 20, 1992), which provides guidance on obtaining approval for alternative monitoring plans.

(b) This source does not have a grain elevator with a permanent storage capacity greater than 2.5 million bushels. Therefore, this source is not subject to the requirements of the New Source Performance Standards for Grain Elevators (326 IAC 12, 40 CFR 60.300-304, Subpart DD).

(c) The thermal oxidizer/heat recovery steam generator CE008E is also used to produce steam and has a maximum heat input capacity greater than 100 MMBtu/hr and will be constructed after June 19, 1984. Therefore, this unit is subject to the New Source Performance Standards for Industrial-Commercial-Institutional Steam Generating Units (326 IAC 12, 40 CFR 60.40b-49b, Subpart Db).

Since thermal oxidizer/heat recovery steam generator CE008E uses natural gas and VOC as fuels, there are no applicable SO_2 and PM emission limits for this unit in 40 CFR 60, Subpart Db. Pursuant to 40 CFR 60.44b, the NOx emissions from this unit shall not exceed 0.1 lbs/MMBtu.

Since this thermal oxidizer has a maximum heat input capacity less than 250 MMBtu/hr and is using natural gas as fuel, the Permittee shall comply with one of the following monitoring requirements:

(1) Pursuant to 40 CFR 60.48b(b), except for 40 CFR 60.48(b)(g), (h), and (i), the Permittee shall 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.

(2) Pursuant to 40 CFR 60.48b(h)(2), the Permittee shall monitor steam generating unit operating conditions and predict nitrogen oxides emission rates as specified in a plan submitted pursuant to 40 CFR 60.49b(c).

This unit is also required to comply with the NOx testing requirements in 40 CFR 60.46b and the reporting and recordkeeping requirements in 40 CFR 60.49b.

(d) Tanks T01 through T05 have capacities greater than 75 cubic meters (19,813 gallons) and the stored liquids have vapor pressures greater than 3.5 kPa. Therefore, these tanks are subject to the New Source Performance Standards for Volatile Organic Liquid Storage Vessels for which construction, reconstruction, or modification commenced after July 23, 1984 (326 IAC 12, 40 CFR 60.110b - 117b, Subpart Kb).

Tanks T01, T02, T04 and T05 have capacities greater than 151 cubic meters (39,890 gallons) and the stored liquids have vapor pressures greater than 5.2 kPa and less than 76.6 kPa. Tank T03 has a capacity greater than 75 cubic meters (19,813 gallons) but less than 151 cubic meters (39,890 gallons) and the liquid stored has a vapor pressure greater than 27.6 kPa and less than 76.6 kPa. Therefore, these tanks are subject to the requirements in 40 CFR 60.112b(a). The Permittee has elected to install internal floating roofs with these fix roof tanks and shall comply with the following requirements in 40 CFR 60.112b (a)(1):

(1) 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.

(2) 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.

(3) 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.

(4) 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.

(5) 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.

(6) 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.

(7) 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.

(8) 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.

(9) Each penetration of the internal floating roof that allows for passage of a ladder shall have a gasketed sliding cover.

The Permitee shall also comply with the testing requirements in 40 CFR 60.113b(a), the monitoring requirements in 40 CFR 60.116b, and the recordkeeping and reporting requirements in 40 CFR 60.115b.

(e) 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). Therefore, this source shall comply with the requirements in 40 CFR 60, Subpart VV.

Pursuant to 40 CFR 60.480(a)(2), the affected facilities are the process units, which are defined as components assembled to produce ethanol (as intermediate or final products). Pursuant to 40 CFR 60.482-1, the Permittee shall comply with the following general requirements:

(1) The Permittee shall demonstrate compliance with the requirements of 40 CFR 60.482–1 through 60.482–10 or 40 CFR 60.480(e) for all equipment within 180 days of initial startup.

(2) Compliance with 40 CFR 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 40 CFR 60.485.

(3) The Permittee may request a determination of equivalence of a means of emission limitation to the requirements of 40 CFR 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 40 CFR 60.484.

(4) Equipment that is in vacuum service is excluded from the requirements of 40 CFR 60.482–2 to 60.482–10 if it is identified as required in 40 CFR 60.486(e)(5).

The specific requirements for pumps, compressors, pressure relief devices, sampling connection systems, and valves are listed in the permit. The Permittee shall also comply with the testing requirements in 40 CFR 60.485, the recordkeeping requirements in 40 CFR 60.486, and the reporting requirements in 40 CFR 60.487.

(f) Ethanol is one of the chemicals listed in 40 CFR 60.667. However, according to the EPA memo from Mr. George T. Czerniak dated December 6, 2002, creation of ethanol by fermentation process (biological synthesis) 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).

(g) There are no National Emission Standards for Hazardous Air Pollutants (NESHAPs) (326 IAC 14 and 20, and 40 CFR Part 61 and 63) applicable to this source.

(h) This source will limit the 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 boiler and the thermal oxidizer/heat recovery steam generation unit at this source are not subject to the National Emission Standards for Hazardous Air Pollutants - Industrial/Commercial/Institutional Boilers and Process Heaters (40 CFR 63, Subpart DDDDD).

(i) This ethanol production plant is not subject to the requirements of 40 CFR 63, Subpart F, G, and H – National Emission Standards for Organic Hazardous Air Pollutants from the Synthetic Organic Chemical Manufacturing Industry. To be subject to the requirements of these NESHAP, this source must consist of chemical manufacturing process units that meet all of the criteria in 40 CFR 63.100(b)(1), (b)(2) and (b)(3). Since this source only produces ethanol, which is not one of the chemicals listed in Table 1 of 40 CFR 63, Subpart F or in 40 CFR 63.100(b)(1)(i) and (b)(1)(ii), this source is not subject to the requirements of these NESHAP.

(j) This ethanol production plant is not subject to 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 because this source does not manufacture any of the materials listed in 40 CFR 63.190(b)(1) through (b)(6).

State Rule Applicability – Entire Source

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

The source will be constructed in 2004. The source is in 1 of 28 source categories as defined in 326 IAC 2-2-1(y)(1) and the potential to emit PM, PM10, VOC, CO, and NOx from the entire source before control is greater than 100 tons/yr.

In order to make the requirement of 326 IAC 2-2 (PSD) not applicable, the source shall comply with the following emission limitations:

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

Unit ID	Unit Description	Baghouse ID	PM Emission Limit (lbs/hr)
TDP	Truck Dump Pit	CE001	0.86
RDP	Rail Dump Pit	CE002	1.29
GH1	Grain Handling	CE003	0.30
GH2	Belt Conveyor	CE004	0.04
GS	Germ Storage Tank	CE005	0.43
FS	Fiber Storage Tanks	CE006	0.05
PCS	CPC Storage Bin	CE009	0.09
SS1	Truck Loadout Hood	CE010	0.69
SS2	Rail Loadout Hood	CE011	0.34

This is equivalent to 17.9 tons/yr of PM emissions. The use of baghouses ensures compliance with the PM limits above.

(b) The PM emissions from thermal oxidizer/heat recovery steam generator CE008E, which is used to control the wet milling operation, the dryers, and distillation and dehydration process, shall not exceed 8.30 lbs/hr. This is equivalent to 36.4 tons/yr of PM emissions.

Combined with the PM emissions from boiler B2, flare CE012, paved road, and insignificant activities, at this source, the PM emissions from the entire source are limited to less than 100 tons/yr.

The source also accepted FESOP limits to limit the PM10, VOC, CO, and NOx emissions from the entire source to less than 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 than 10 tons/yr for a single HAP and less than 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 control of the entire source is greater than 100 tons/yr. In addition, the potential to emit HAP before control from this source is greater than 10 tons/yr for a single HAP (Acetaldehyde) and greater than 25 tons/yr for total HAPs. Pursuant to 326 IAC 2-8-4 (FESOP), the source shall comply with the following:

(a) The CO emissions from boiler B2 shall not exceed 50 lbs/MMCF. This is equivalent to 21.0 tons/yr of CO emissions.

(b) The PM10 emissions from the grain receiving, 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)
TDP	Truck Dump Pit	CE001	0.86
RDP	Rail Dump Pit	CE002	1.29
GH1	Grain Handling	CE003	0.30
GH2	Belt Conveyor	CE004	0.04
GS	Germ Storage Tank	CE005	0.43
FS	Fiber Storage Tanks	CE006	0.05
PCS	CPC Storage Bin	CE009	0.09

Unit ID	Unit Description	Baghouse ID	PM10 Emission Limit (lbs/hr)
SS1	Truck Loadout Hood	CE010	0.69
SS2	Rail Loadout Hood	CE011	0.34

This is equivalent to 17.9 tons/yr of PM10 emissions. The use of baghouses ensures compliance with the PM10 limits above.

(c) The emissions from the fermentation process, which is controlled by wet scrubber CE007, shall comply with the following:

(1) VOC emissions shall not exceed 2.44 lbs/hr. This is equivalent to 10.7 tons/yr of VOC emissions.

(2) Total HAP emissions shall not exceed 1.5 lbs/hr. This is equivalent to 6.57 tons/yr of HAP emissions.

(d) The emissions from thermal oxidizer/heat recovery steam generator CE008E, which is used to control the wet milling operation, the dryers, and distillation and dehydration process, shall not exceed the following:

(1) PM10 emissions shall not exceed 8.30 lbs/hr. This is equivalent to 36.4 tons/yr of PM10 emissions.

(2) VOC emissions shall not exceed 9.61 lbs/hr. This is equivalent to 42.1 tons/yr of VOC emissions.

(3) CO emissions shall not exceed 15.1 lbs/hr. This is equivalent to 66.1 tons/yr of CO emissions.

(4) NOx emissions shall not exceed 12.4 lbs/hr. This is equivalent to 54.3 tons/yr of NOx emissions.

(5) Total HAP emissions shall not exceed 0.25 lbs/hr. This is equivalent to 1.10 tons/yr of Acetaldehyde emissions.

(6) SO_2 emissions shall not exceed 1.0 pounds per 1,000 gallon of ethanol produced. This is equivalent to 30.0 tons/yr of SO_2 emissions.

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

(1) The denatured ethanol load-out rate shall not exceed 63,000,000 gallons per twelve (12) consecutive month period with compliance determined at the end of each month.

(2) The Permittee shall use flare CE012 to control the emissions from the loading rack when loading denatured ethanol to trucks.

(3) VOC emissions from flare CE012 shall not exceed 0.18 lbs/kgal. Combined with the throughput limit of 63,000,000 gal/yr, this is equivalent to 5.64 tons/yr of VOC emissions. This limit also ensures that the HAP emissions from flare CE012 are less than 5.64 tons/yr.

(4) CO emissions from flare CE012 shall not exceed 0.13 lbs/kgal. Combined with the throughput limit of 63,000,000 gal/yr, this is equivalent to 4.10 tons/yr of CO emissions.

(5) NOx emissions from flare CE012 shall not exceed 0.08 lbs/kgal. Combined with the throughput limit of 63,000,000 gal/yr, this is equivalent to 2.52 tons/yr of NOx emissions.

Combined with the PM10, VOC, SO_2, CO, NOx, and HAP emission units, the emissions from the entire source are limited to less than 100 tons/yr for PM10, VOC, SO_2, CO and NOx, and less than 10 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.

326 IAC 2-6 (Emission Reporting)

This source is located in Putnam County and is not required to operate under a Part 70 permit. 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.

State Rule Applicability – Boiler B2

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 96+168 = 264 MMBtu/hr. Therefore, the PM emission limit for boiler B2 is:

$$Pt = \frac{1.09}{264^{0.26}} = 0.26 \text{ lbs/MMBtu.}$$

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 is in compliance with the PM emission limit of 0.33 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)
TDP	Truck Dump Pit	560	70.3
RDP	Rail Dump Pit	560	70.3
GH1	Grain Handling	1,120	79.1
GH2	Belt Conveyor	77	48.7
GS	Germ Storage Tank	5.5	12.8
FS	Each of Fiber Storage Tank	6.9	15.0
PCS	Each of CPC Storage Bin	13.8	23.8

Unit ID	Unit Description	Max. Throughput Rate (tons/hr)	Particulate Emission Limit (lbs/hr)
SS1	Truck Loadout Hood	420	66.9
SS2	Rail Loadout Hood	420	66.9

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 are in compliance with 326 IAC 6-3-2. The use of the baghouses with these operations ensures compliance with these limits.

State Rule Applicability – Fermentation Process (FP)

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 25 tons per year. Therefore, this fermentation process is subject to 326 IAC 8-1-6 and the Permitteee is required to control VOC emissions with the Best Available Control Technologies (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 (FP) shall be controlled by wet scrubber CE007.

(b) The control efficiency for the wet scrubber shall be at least 97%.

(c) The VOC emissions from wet scrubber CE007 shall not exceed 2.44 lbs/hr.

State Rule Applicability – Thermal Oxidizer/Heat Recovery Steam Generator CE008E

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 96 + 168 = 264 MMBtu/hr. Therefore, the PM emission limit for thermal oxidizer/heat recovery steam generator CE008E is:

$$Pt = \frac{1.09}{264^{0.26}} = 0.26 \text{ lbs/MMBtu.}$$

This unit has a maximum heat input capacity of 168 MMBtu/hr. A PM emission limit of 0.26 lbs/MMBtu is equivalent to 43.7 lbs/hr (0.26 lbs/MMBtu x 168 MMBtu/hr = 43.7 lbs/hr). The

source has accepted FESOP limits to limit the PM emissions from this unit to less than 8.3 lbs/hr. Therefore, compliance with the FESOP limit for PM ensures compliance with the PM requirements in 326 IAC 6-2-4.

State Rule Applicability – Wet Milling Process (WM)

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

Pursuant to 326 IAC 6-3-2, particulate emissions from each of the soak tank, slurry tank, and yeast tank shall be limited to 48.7 lbs/hr when the process weight rate is 77 tons/hr.

The pounds per hour limitation was calculated with the following equation:

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

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

The use of baghouse CE008A with these tanks ensures compliance with these limits.

State Rule Applicability – Germ Drying and Cooling Process (GD), Fiber Dryer (FD), Protein Concentration Process (PC)

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)
GD	Germ Drying and Cooling Process	5.5	12.8
FD	Fiber Dryer	6.9	15.0
CPC	Protein Concentration Process	13.8	23.8

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

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

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

The use of cyclones CE008B, CE008C, and CE008D with these processes ensures compliance with the limits above.

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

The germ drying and cooling process (GD), the fiber dryer (FD), and the protein concentration process (PC) at this source will be constructed after January 1, 1980 and each has potential VOC emissions greater than 25 tons per year. Therefore, these processes are subject to 326 IAC 8-1-6 and the Permittee is required to control VOC emissions with the Best Available Control Technologies (BACT). According to the BACT analysis in Appendix B, BACT for these processes has been determined to be the following:

(a) The VOC emissions from the germ drying and cooling process (GD), the fiber dryer (FD), and the protein concentration process (PC) shall be controlled by thermal oxidizer/heat recovery steam generator CE008E.

(b) The control efficiency for thermal oxidizer CE008E shall be at least 98%.

(c) The VOC emissions from thermal oxidizer CE008E shall not exceed 9.61 lbs/hr.

State Rule Applicability – Distillation and Dehydration Process (DD)

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

The distillation and dehydration process at this source will be constructed after January 1, 1980 and has potential VOC emissions greater than 25 tons per year. Therefore, this process is subject to 326 IAC 8-1-6 and the Permittee is required to control VOC emissions with the Best Available Control Technologies (BACT). According to the BACT analysis in Appendix B, BACT for this process has been determined to be the following:

(a) The VOC emissions from the distillation and dehydration process (DD) shall be controlled by thermal oxidizer/heat recovery steam generator CE008E.

(b) The control efficiency for thermal oxidizer CE008E shall be at least 98%.

(c) The VOC emissions from thermal oxidizer CE008E shall not exceed 9.61 lbs/hr. This is equivalent to 42.1 tons/yr of VOC emissions.

State Rule Applicability – Ethanol Loading Rack (ER)

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. Therefore, this unit is subject to 326 IAC 8-1-6 and the Permittee is required to control VOC emissions with the Best Available Control Technologies (BACT). According to the BACT analysis in Appendix B, BACT for this ethanol lading rack has been determined to be the following:

(a) The VOC emissions from the ethanol loading rack shall be collected and controlled by enclosed flare CE012 when loading denatured ethanol to trucks.

(b) The control efficiency for the vapor collection system and enclosed flare CE012 shall be at least 98%.

(c) The VOC emissions from enclosed flare CE012 shall not exceed 0.18 pounds per kilo gallons of denatured ethanol loaded.

State Rule Applicability – Paved Roads (Insignificant Activities)

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 – Storage Tanks T1 through T5 (Insignificant Activities)

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

The storage tanks at this source will not be used to store petroleum. Therefore, the requirements of 326 IAC 8-4-3 are not applicable to these tanks.

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

The thermal oxidizer/heat recovery steam generator CE008E is subject to the requirements of 40 CFR 60, Subpart Db and shall conduct initial performance test for NOx emissions, pursuant to 40 CFR 60.46b (c).

In order to demonstrate compliance with the FESOP and PSD minor limits, the Permittee shall perform the following tests within 60 days after achieving the maximum production but not later than 180 days after initial startup of this ethanol production plant:

(a) CO test for boiler B2.

(b) VOC and HAP tests for scrubber CE007, which is used to control the fermentation process. These tests shall be repeated at least once every five (5) years from the date of this valid compliance demonstration.

(c) PM, PM10, VOC, SO_2, CO, and HAP tests for thermal oxidizer/heat recovery steam generator CE008E, which is used to control wet milling operation, germ, fiber, and CPC dryers, and distillation and dehydration process. VOC tests shall be repeated at least once every five (5) years from the date of this valid compliance demonstration.

(d) VOC, NOx and CO emissions from enclosed flare CE012, which is used to control the emissions from the ethanol loading rack when loading to trucks.

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. Boiler B2 is a natural gas fired boiler. Therefore, there are no specific compliance monitoring requirements for this unit.

2. The grain receiving operations (TDP and RDP), the grain handling process (GH1), the belt conveyor (GH2), the germ storage tank (GS), the fiber storage bins (FS), the CPC storage bins (PCS), and the loadout hoods (SS1 and SS2) have applicable compliance monitoring conditions as specified below. These units are controlled by baghouses CE001 through CE006, and CE009 through CE011).

    (a) Visible emission notations of the baghouse stack exhausts (stacks EP001 through EP006, and EP009 through EP011) shall be performed once per shift during normal daylight. A trained employee shall record whether emissions are normal or abnormal. 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. 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. 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. The Compliance Response Plan for this unit shall contain troubleshooting contingency and response steps for when an abnormal emission is observed. Failure to take response steps in accordance with Section C - Compliance Response Plan – Preparation, Implementation, Records and Reports shall be considered a deviation from this permit.

(b) The Permittee shall record the total static pressure drop across the baghouses at least once per shift when the grain receiving operations (TDP and RDP), the grain handling process (GH1), the belt conveyor (GH2), the germ storage tank (GS), the fiber storage bins (FS), the CPC storage bins (PCS), and the loadout hoods (SS1 and SS2) are in operation. Unless operated under conditions for which the Compliance Response Plan specifies otherwise, the pressure drop across the baghouses shall be maintained within the range of 1.0 to 6.0 inches of water or a range established during the latest stack test. The Compliance Response Plan for this unit shall contain troubleshooting contingency and response steps for when the pressure reading is outside of the above mentioned range for any one reading.

(c) An inspection shall be performed each calendar quarter of all bags controlling the grain receiving operations (TDP and RDP), the grain handling process (GH1), the belt conveyor (GH2), the germ storage tank (GS), the fiber storage bins (FS), the CPC storage bins (PCS), and the loadout hoods (SS1 and SS2). Inspections required by this condition shall not be performed in consecutive months. All defective bags shall be replaced. In the event that bag failure has been observed:

(1) For multi-compartment units, the affected compartments will be shut down immediately until the failed units have been repaired or replaced. Within eight (8) business hours of the determination of failure, response steps according to the timetable described in the Compliance Response Plan shall be initiated. For any failure with corresponding response steps and timetable not described in the Compliance Response Plan, response steps shall be devised within eight (8) business hours of discovery of the failure and shall include a timetable for completion. If operations continue after bag failure is observed and it will be 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.

(2) For single compartment baghouses, 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.

These monitoring conditions are necessary because the grain receiving operations (TDP and RDP), the grain handling process (GH1), the belt conveyor (GH2), the germ storage tank (GS), the fiber storage bins (FS), the CPC storage bins (PCS), and the loadout hoods (SS1 and SS2) 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).

3. The fermentation process, which is controlled by wet scrubber CE007, has applicable compliance monitoring conditions as specified below:

   (a) The Permittee shall monitor and record the flow rate of scrubber CE007 at least once per shift when the associated fermentation process is in operation. When for any one reading, the flow rate of the scrubber is less than the normal minimum of 40 gallons per minute, or the ranges established during the latest stack test, the Permittee shall take reasonable response steps in accordance with Section C - Compliance Response Plan - Implementation, Preparation, Records, and Reports.

   (b) An inspection shall be performed each calendar quarter of the scrubber controlling the operation. Inspections required by this condition shall not be performed in consecutive months. A scrubber inspection shall be performed within three months of redirecting vents to the atmosphere and every three months thereafter. 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.

   These monitoring conditions are necessary because scrubber CE007 for fermentation process must operate properly to ensure compliance with 326 IAC 2-2 (PSD), 326 IAC 2-8-4 (FESOP), and 326 IAC 8-1-6 (BACT).

4. The wet milling process, germ, fiber, and CPC dryers, and the distillation and dehydration process (which are controlled by thermal oxidizer/heat recovery steam generator CE008E, baghouse CE008A, and cyclones CE008B through CE008D) have applicable compliance monitoring conditions as specified below:

   (a) Pursuant to 326 IAC 3-5 (Continuous Monitoring of Emissions) and 40 CFR 60.48b(b), the Permittee shall Install, calibrate, maintain, and operate a NOx Continuous Emission Monitor (CEM). The continuous monitoring systems shall meet the performance specifications of 326 IAC 3-5-2 and 40 CFR 60.13(h). 326 IAC 3-5 is not federally enforceable.

   (b) The continuous monitors shall be operated according to Section C - Maintenance of Continuous Emission Monitoring Equipment. In the event that the nitrogen oxide continuous emissions monitor fails, the Permittee shall monitor the oxygen content and temperature once per hour. If the oxygen content or temperature is outside the range established in the latest compliance stack test, the Permittee shall take reasonable response steps in accordance with Section C - Compliance Response Plan - Preparation, Implementation, Records, and Reports. Failure to take response steps in accordance with Section C - Compliance Response Plan - Preparation, Implementation, Records, and Reports, shall be considered a deviation from this permit.

   (c) Visible emission notations of the stack exhaust of stack EP008 shall be performed once per shift during normal daylight. A trained employee shall record whether emissions are normal or abnormal. 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. 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. 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. The Compliance Response Plan for this unit shall contain troubleshooting contingency and response steps for when an abnormal emission is observed. Failure to take response steps in accordance with Section C - Compliance Response Plan – Preparation, Implementation, Records and Reports shall be considered a deviation from this permit.

(d) A continuous temperature monitoring system shall be calibrated, maintained, and operated on the thermal oxidizer for measuring operating temperature. For purposes of this condition, continuous means no less than once per minute. The output of this system shall be recorded as an hourly average. From the date of issuance of this permit until the approved stack test results are available, the Permittee shall take appropriate response steps in accordance with Section C - Compliance Response Plan - Preparation, Implementation, Records, and Reports whenever the hourly average temperature of the thermal oxidizer is below 1,500°F. An hourly average temperature that is below 1,500°F is not a deviation from this permit. Failure to take response steps in accordance with Section C - Compliance Response Plan - Preparation, Implementation, Records, and Reports shall be considered a deviation from this permit.

(e) The Permittee shall determine the hourly average temperature from the most recent valid stack test that demonstrates compliance with limits in this permit, as approved by IDEM.

(f) On and after the date the approved stack test results are available, the Permittee shall take appropriate response steps in accordance with Section C - Compliance Response Plan - Preparation, Implementation, Records, and Reports whenever the hourly average temperature of the thermal oxidizer/heat recovery steam generator is below the hourly average temperature as observed during the compliant stack test. An hourly average temperature that is below the hourly average temperature as observed during the compliant stack test is not a deviation from this permit. Failure to take response steps in accordance with Section C - Compliance Response Plan - Preparation, Implementation, Records, and Reports shall be considered a deviation from this permit.

(g) 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.

(h) The duct pressure or fan amperage shall be observed at least once per day when the thermal oxidizer/heat recovery steam generator is in operation. When for any one reading, the duct pressure or fan amperage is outside the normal range as established in most recent compliant stack test, the Permittee shall take reasonable response steps in accordance with Section C -Compliance Response Plan - Preparation, Implementation, Records, and Reports. A reading that is outside the range as established in the most recent compliant stack test is not a deviation from this permit. Failure to take response steps in accordance with Section C - Compliance Response Plan - Preparation, Implementation, Records, and Reports shall be considered a deviation from this permit.

(i) The Permittee shall record the total static pressure drop across the baghouse CE008A at least once per shift when the wet milling process (WM) is in operation. Unless operated under conditions for which the Compliance Response Plan specifies otherwise, the pressure drop across the baghouse shall be maintained within the range of 1.0 to 6.0 inches of water or a range established during the latest stack test. The Compliance Response Plan for this unit shall contain troubleshooting contingency and response steps for when the pressure reading is outside of the above mentioned range for any one reading.

(j) An inspection shall be performed each calendar quarter of all bags controlling the wet milling process (WM). Inspections required by this condition shall not be performed in consecutive months. All defective bags shall be replaced. In the event that bag failure has been observed:

(1) For multi-compartment units, the affected compartments will be shut down immediately until the failed units have been repaired or replaced. Within eight (8) business hours of the determination of failure, response steps according to the timetable described in the Compliance Response Plan shall be initiated. For any failure with corresponding response steps and timetable not described in the Compliance Response Plan, response steps shall be devised within eight (8) business hours of discovery of the failure and shall include a timetable for completion. If operations continue after bag failure is observed and it will be 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.

(2) For single compartment baghouses, 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.

(k) An inspection shall be performed each calendar quarter of all cyclones controlling the germ drying and cooling process (GD), the fiber dryer (FD), and the protein concentration process (PC). Inspections required by this condition shall not be performed in consecutive months. In the event that cyclone failure 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 - Compliance Response Plan -Preparation, Implementation, Records, and Reports, shall be considered a deviation from this permit.

These monitoring conditions are necessary because thermal oxidizer/heat recovery steam generator CE008E, baghouse CE008A, and cyclones CE008B through CE008D must operate properly at all times the wet milling process, the germ, fiber, and CPC dryers, and the distillation and dehydration process are in operation to ensure compliance with 40 CFR 60, Subpart Db, 326 IAC 2-2 (PSD), 326 IAC 2-8-4 (FESOP), 326 IAC 6-2-4 (PM Emissions for Sources of Indirect Heating), and 326 IAC 8-1-6 (BACT).

5. The ethanol loading rack, which is controlled by flare CE012, has applicable compliance monitoring conditions as specified below:

(a) Visible emissions notations of the stack exhaust of flare CE012 shall be performed once per shift during normal daylight operations when the ethanol loading rack is loading denatured ethanol to trucks. A trained employee will record whether emissions are normal or abnormal. 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. 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. 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. The Preventive Maintenance Plan for this unit shall contain troubleshooting contingency and corrective actions for when an abnormal emission is observed.

(b) 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 CE012 must operate properly at all times that the ethanol loading rack is loading denatured ethanol to trucks to ensure compliance with 326 IAC 2-2 (PSD), 326 IAC 2-8-4 (FESOP), and 326 IAC 8-1-6 (BACT).

Conclusion

The construction and operation of this ethanol production plant shall be subject to the conditions of FESOP 133-19169-00003.

Indiana Department of Environmental Management
Office of Air Quality

Addendum to the Technical Support Document
for a Federally Enforceable State Operating Permit (FESOP)

Source Background and Description

Source Name:	Putnam Ethanol, L.L.C.
Source Location:	7816 South US 231, Cloverdale, Indiana 46120
County:	Putnam
SIC Code:	2869
Operation Permit No.:	F133-19163-00003
Permit Reviewer:	ERG/YC

On August 9, 2004, the Office of Air Quality (OAQ) had a notice published in the Banner Graphic, Greencastle, Indiana, stating that Putnam Ethanol, L.L.C. had applied for a Federally Enforceable State Operating Permit (FESOP) to construct and operate an ethanol production plant 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.

On September 9, 2004, Putnam Ethanol, L.L.C. submitted comments on the proposed FESOP. The summary of the comments is as follows. Bolded language has been added and the language with a line through it has been deleted. The Table of Contents has been modified, if applicable, to reflect these changes.

Comment 1

The Permittee stated that Baghouse CE008A will control the soak tank only. The slurry and yeast tanks will not be controlled by a baghouse. These units are vented directly to the thermal oxidizer CE008E. The language "controlled by baghouse CE008A" should be removed from the unit description for these tanks.

Response to Comment 1

Conditions A.2 and D.4 have been revised as follows as a result of this comment:

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:

(m) One (1) wet milling process, identified as WM, constructed in 2004, with a maximum throughput rate of 77 tons/hr of grain and 32.75 tons/hr of water, controlled by thermal oxidizer/heat recovery steam generator CE008E, and exhausting through stack EP008. This process consists of the following:

. . . .

(2) One (1) slurry tank~~, controlled by baghouse CE008A~~.

(3) One (1) yeast tank~~, controlled by baghouse CE008A~~.

. . . .

SECTION D.4 FACILITY OPERATION CONDITIONS - Wet Milling Process, Dryers, and Distillation Process

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

. . . . .

(m) One (1) wet milling process, identified as WM, constructed in 2004, with a maximum throughput rate of 77 tons/hr of grain and 32.75 tons/hr of water, controlled by thermal oxidizer/heat recovery steam generator CE008E, and exhausting through stack EP008. This process consists of the following:

. . .

(2) One (1) slurry tank~~, controlled by baghouse CE008A~~.

(3) One (1) yeast tank~~, controlled by baghouse CE008A~~.

. . . .

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

Comment 2

The Permittee stated that they have not constructed the source and do not expect to commence operation until October 2005. However, the following conditions require Putnam Ethanol to prepare and maintain a PMP, implement all monitoring and record keeping requirements, install and operate compliance monitoring equipment, and prepare a Compliance Response Plan within 90 days after issuance of this permit.

B.11 (a) - Annual Compliance Certification;
B.12 (a) - Preventive Maintenance Plan;
C.12 - Compliance Monitoring;
C.17 - Compliance Response Plan;
C.19 (b) - General Record Keeping Requirements; and
C.20 (e) - General Reporting Requirements

The Permittee stated that the FESOP regulations do not mandate compliance with these requirements prior to commencement of operation at a new source. Furthermore, it is not supported by regulatory authority, unfair, and unnecessarily burdensome to require the recording and reporting of the “not in operation” status for this period of time during which a new source has not had the opportunity to startup and even debug its operations. It is also unfair and not supported by regulatory authority to require an earlier compliance

date for a new source than the 90 days allowed for an existing operating source receiving a first time FESOP or Part 70 Permit.

The Permittee requested that these dates be changed to state that the PMP, compliance monitoring and record keeping, compliance monitoring equipment, and CRP in these conditions must be prepared/maintained/implemented/installed/operated within 90 days following startup or at the earliest upon commencement of operation. The Permittee also requested that the reporting requirements (Conditions B.11(a) and C.20(e)) not begin until commencement of operation.

Response to Comment 2

IDEM has made the following revisions to Conditions B.11, B.12, C.12, C.17, C.19, and C.20 to state that the Permittee shall implement these requirements when operation begins.

B.11 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 **initial start-up** ~~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 in letter form no later than July 1 of each year to:

. . . .

B.12 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) **when operation begins** ~~within ninety (90) days after issuance of this permit~~, including the following information on each facility:

C.12 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 **when operation begins** ~~within ninety (90) days of permit issuance~~. If required by Section D, the Permittee shall be responsible for installing any necessary equipment and initiating any required monitoring related to that equipment. ~~If due to circumstances beyond its control, that equipment cannot be installed and operated within ninety (90) days, the Permittee may extend the compliance schedule related to the equipment for an additional ninety (90) days provided the Permittee notifies:~~

~~Indiana Department of Environmental Management~~
~~Compliance Branch, Office of Air Quality~~
~~100 North Senate Avenue, P.O. Box 6015~~
~~Indianapolis, Indiana 46206-6015~~

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

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

…

C.17 Compliance Response Plan - Preparation, Implementation, Records, and Reports [326 IAC 2-8-4] [326 IAC 2-8-5]

(a) The Permittee is required to prepare a Compliance Response Plan (CRP) for each compliance monitoring condition of this permit. If a Permittee is required to have an Operation, Maintenance and Monitoring (OMM) Plan under 40 CFR 60, such plans shall be deemed to satisfy the requirements for a CRP for those compliance monitoring conditions. A CRP shall be submitted to IDEM, OAQ upon request. The CRP shall be prepared **prior to commencing operation of the new facilities**~~within ninety (90) days after issuance of this permit~~ by the Permittee, supplemented from time to time by the Permittee, maintained on site, and is comprised of:

C.19 General Record Keeping Requirements [326 IAC 2-8-4(3)] [326 IAC 2-8-5]

. . .

(b) Unless otherwise specified in this permit, all record keeping requirements ~~not already legally required~~ shall be implemented **when operation begins**~~within ninety (90) days of permit issuance~~.

C.20 General Reporting Requirements [326 IAC 2-8-4(3)(C)] [326 IAC 2-1.1-11]

. . . .

(e) The first report **shall** cover~~ed~~ the period commencing on the date of **initial start-up**~~issuance of the original FESOP~~ and end**ing**~~ed~~ on the last day of the reporting period. All subsequent reporting periods shall be 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.**

Comment 3

The Permittee commented that once per shift visible emission notation requirements for baghouses (Condition D.2.9) are redundant since the Permittee is required to perform once per shift pressure drop monitoring for these baghouses. The Permittee stated that VE notations are not a performance enhancing compliance monitoring requirement for these types of grain receiving, handling, and storage operations. The Permittee stated that VE notations would burden Putnam Ethanol unnecessarily with additional time consuming and costly inspection and record keeping requirements beyond what is necessary and exceeding the intentions of compliance monitoring requirements.

The Permittee requested the removal of Condition D.2.9 due to the superior and governing measurements of pressure drop for the baghouses. The removal of Condition D.2.9 would also necessitate the removal of the associated record keeping requirement in Condition D.2.13(a).

Response to Comment 3

IDEM, OAQ believes that Condition D.2.9 is necessary to ensure continuous compliance with 326 IAC 5-1 (Opacity Limitations) and particulate emission limits in Conditions D.2.5 and D.2.6. The pressure drop monitoring for baghouses only ensures proper operation of the baghouse, which may not necessarily ensure the visible emissions or particulate emissions from the emission units are in compliance with 326 IAC 5-1, 326 IAC 2-2, 326 IAC 2-8, and 326 IAC 6-3. This requirement is designed as a trigger for the source to perform some corrective action on the facility if visible emissions are abnormal, to ensure

continuous compliance with 326 IAC 5-1, 326 IAC 2-2, 326 IAC 2-8, and 326 IAC 6-3. Therefore, no change has been made as the result of this comment.

Comment 4

The Permittee stated that all references to the thermal oxidizer CE008E control efficiency for the VOC emissions from the dryers should be 96%, not 98%. The overall control efficiency of the device accounting for the dryer and distillation VOC emissions will be 96.2% (98% of distillation emissions - 2.15 tons/yr of the 107 tons/yr; 96% of dryer emissions - 39.9 tons/yr of 996 tons/yr; for a total of 42.1 tpy of the 1103 tpy equals 96.2% control). The Permittee requested the following specific changes to the draft permit and TSD:

(a) Condition D.4.6(b) - change the control efficiency to 96.2% as this is the level that will be demonstrated in compliance testing for the total VOC reduction of all sources venting to the thermal oxidizer.

(b) TSD, Page 15, 326 IAC 8-1-6 - change the control efficiency in (b) to 96%.

(c) Appendix B.4, Page 13, (Dryer BACT Step 3) - control ranking table should be changed to 96%.

(d) Appendix B.4, Page 14 (Dryer BACT Step 5) - change the control efficiency with respect to the dryers (in the first sentence) to 96%.

Response to Comment 4

The Permittee did not submit sufficient information to substantiate their claim that 96% is the maximum efficiency attainable using a thermal oxidizer to control VOC emissions from the dryer. According to recent stack testing performed at New Energy Company of Indiana, LP, an existing ethanol production plant in Indiana, the control efficiency for thermal oxidizers used to control the VOC emissions from similar dryers, exceeds 98%. The Permittee did not submit any information to show that the control efficiency requirement of 98% for the proposed thermal oxidizer CE008E is technically infeasible or economically infeasible. Therefore, no change has been made as a result of this comment.

Comment 5

The Permittee stated that the rule reference in Condition D.4.8(b)(2) should be 40 CFR 60.48b(g)(2), not 60.48b(h)(2).

Response to Comment 5

Condition D.4.8(b) has been corrected as follows as a result of this comment:

D.4.8 NOx Emissions [326 IAC 12-1][40 CFR 60, Subpart Db]

(b) Pursuant to 40 CFR 60.48b, the Permittee shall comply with one of the following monitoring conditions for the thermal oxidizer/heat recovery steam generator CE008E:

. . . .

(2) Pursuant to 40 CFR 60.48b(**g**~~h~~)(2), the Permittee shall monitor the operating conditions for CE008E and predict nitrogen oxides emission rates as specified in a plan submitted pursuant to 40 CFR 60.49b(c).

Comment 6

The Permittee stated that Condition D.4.8 allows them to operate a NOx CEM, or to monitor the operating conditions for the thermal oxidizer/heat recovery steam generator (CE008E) and predict NOx emission rates to demonstrate compliance with 40 CFR 60, Subpart Db. The Permittee requested that Condition D.4.17 be revised as follows to expressly allow the alternative monitoring option:

(a) If compliance is to be demonstrated pursuant to Condition D.4.8 (b)(1), the following applies:

(1) The Permittee shall install, calibrate, maintain, and operate a continuous monitoring system for measuring NOx ....

(2) The continuous monitors shall be operated according to Section C ...

(b) If compliance is to be demonstrated pursuant to Condition D.4.8 (b)(2), a continuous monitoring system for measuring NOx is not required.

Response to Comment 6

Since the Permittee is still undecided about the specific compliance monitoring option they will select, Condition D.4.8(b) states clearly that the Permittee shall comply with one of the monitoring requirements listed under D.4.8(b). Condition D.4.17 only regulates the operation of CEMs. If the Permittee chooses to comply with 40 CFR 60, Subpart Db by monitoring the operation conditions of the thermal oxidizer/heat recovery steam generator (Condition D.4.8(b)(2)), the requirements in Condition D.4.17 are not applicable. IDEM, OAQ believes that it is unnecessary to specifically list the inapplicable situations in Condition D.4.17. Therefore, no change has been made as a result of this comment.

Comment 7

The Permittee stated that the VOC emission limit listed in Condition D.5.5(c) – FESOP Limits, for flare CE012 should be 0.18 lbs/kgal to be consistent with the BACT determined for this flare in Condition D.5.6.

Response to Comment 7

According to the technical support document, the VOC emission limit for flare CE012 is 0.18 lbs/kgal. This can be found under the discussion for State Rule Applicability – 326 IAC 2-8-4 (FESOP) and 326 IAC 8-1-6 (BACT). Therefore, Condition D.5.5 (c) has been corrected as follows:

D.5.5 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 rack:

. . . .

(c) VOC emissions from flare CE012 shall not exceed 0.~~03~~**18** lbs/kgal.

. . . .

Comment 8

The Permittee stated that the fugitive dust emissions for the grain receiving, handling, and load out operations were missing in the table for Potential to Emit After Issuance in the technical support document. To account for all the PM emissions from these units, the Permittee stated that the total (fugitive and non-fugitive) PTE of PM and PM-10 for grain receiving, handling, and load out operations should be changed to 22.3 and 18.8 tons/yr, respectively.

Response to Comment 8

According to the permit application received on May 24, 2004, the Permittee estimated the fugitive particulate emissions from the grain receiving and load out operations to be 4.60 tons/yr for PM and 1.08 tons/yr for PM10. Since this source is in one of the twenty-eight (28) listed source categories under 326 IAC 2-2, the fugitive particulate emissions are counted toward determination of PSD applicability and the fugitive emission shall be included in the PTE of the entire source. The revised table of Potential to Emit After Issuance is shown below:

	Potential To Emit (tons/year)						
Process/Emission Unit	PM	PM-10	SO_2	VOC	CO	NO_x	HAPs
Boiler B2	3.20	3.20	0.25	2.31	Less than 21.0	21.0	Negligible
Grain Receving, Handling, and Load Out Operations	Less than 17.9	Less than 17.9	-	-	-	-	-
Fermentation Process	-	-	-	Less than 10.7	-	-	Less than 6.57
Wet Milling Operation	Less than 36.4	Less than 36.4	Less than 30.2	Less than 42.1	Less than 66.1	Less than 54.3	Less than 1.10
Germ, Fiber, and CPC Dryers							
Distillation and Dehydration Process							
Ethanol Loading Rack with Flare CE012	Less than 0.01	Less than 0.01	Negligible	Less than 20.7*	Less than 4.10	Less than 2.52	Less than 0.33
Paved Roads (Fugitive)	Less than 19.1	Less than 3.73	-	-	-	-	-
Equipment Leak (Fugitive)	-	-	-	10.3	-	-	Negligible
Fugitive Emissions from Grain Receiving and Load Out Operations	**4.60**	**1.08**	**-**	**-**	**-**	**-**	**-**
Cooling Tower (Insignificant)	6.58	6.58	-	-	-	-	-
Storage Tanks (Insignificant)	-	-	-	1.92	-	-	Negligible
Other Insignificant Activities	Less than 1.0	Less than 1.0	-	Less than 1.0	-	-	Negligible
Total PTE of the Entire Source	Less than ~~84.2~~ **88.8**	Less than ~~68.8~~ **69.9**	Less than 30.5	Less than 89.0	Less than 91.2	Less than 77.8	Less than 8.00
Title V Thresholds	NA	100	100	100	100	100	10 for a single HAP and 25 for total HAPs

Note: "-" pollutant not emitted by the facility.
(*) This is the worst case between loading ethanol to trucks and to railcars.

However, no changes have been made to the TSD because the OAQ prefers that the Technical Support Document reflect the permit that was on public notice. Changes to the permit or technical support material that occur after the public notice are documented in this Addendum to the Technical Support Document. This accomplishes the desired result of ensuring that these types of concerns are documented and part of the record regarding this permit decision.

Upon further review, the OAQ has decided to make the following revisions to the permit.

1. A statement was added to Condition B.10 in order to clarify that the certification form may cover more than one document that is submitted.

B.10 Certification [326 IAC 2-7-4(f)] [326 IAC 2-7-6(1)] [326 IAC 2-7-5(3)(C)]

…

(b) One (1) certification shall be included, using the attached Certification Form, with each submittal requiring certification. **One certification may cover multiple forms in one (1) submittal.**

2. A statement concerning backup fuel switches was added to Condition B.18.

B.18 Operational Flexibility [326 IAC 2-7-20] [326 IAC 2-7-10.5]

…

(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.

3. In accordance with the credible evidence rule (62 Fed. Reg. 8314, Feb 24, 1997); Section 113(a) of the Clean Air Act, 42 U.S. C. § 7413 (a); and a letter from the United States Environmental Protection Agency (USEPA) to IDEM, OAQ dated May 18, 2004, all permits must address the use of credible evidence. The following language has been incorporated into the permit to address credible evidence:

B.23 Credible Evidence [326 IAC 2-7-5(3)][326 IAC 2-7-6][62 FR 8314]

Notwithstanding the conditions of this permit that state specific methods that may be used to demonstrate compliance with, or a violation of, applicable requirements, any person (including the Permittee) may also use other credible evidence to demonstrate compliance with, or a violation of, any term or condition of this permit.

4. "Pounds" and "Hour" were capitalized in Condition C.1.

C.1 Particulate Emission Limitations For Processes with Process Weight Rates Less Than One Hundred (100) ~~p~~**P**ounds per ~~h~~**H**our [40 CFR 52 Subpart P][326 IAC 6-3-2]

5. The term "calendar year" in Condition C.20 has been defined.

C.20 General Reporting Requirements [326 IAC 2-8-4(3)(C)] [326 IAC 2-1.1-11]

…

(e) The first report **shall** cover~~ed~~ the period commencing on the date of **initial start-up**~~issuance of the original FESOP~~ and end**ing**~~ed~~ on the last day of the reporting

period. All subsequent reporting periods shall be 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.**

6. IDEM, OAQ has made the following corrections to Conditions D.2.6, D.4.12, and D.4.14.

D.2.6 Particulate Emission Limitations [326 IAC 6-3-2]

Pursuant to 326 IAC 6-3-2 (Particulate Emission Limitations for Manufacturing
. . . .

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

D.4.12 Particulate Emission Limitations [326 IAC 6-3-2]

Pursuant to 326 IAC 6-3-2 (Particulate Emission Limitations for Manufacturing
. . . .

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

D.4.14 PM and PM10 Control

In order to comply with Conditions D.4.5(a), ~~and~~ D.4.11**, and D.4.12** baghouse and cyclones shall be in operation and control emissions from the wet milling process and dryers at all times that these units are in operation.

7. For clarification purposes, IDEM, OAQ has made the following revisions to Conditions D.3.5, D.4.5, and D.4.15:

D.3.5 VOC and HAP Emissions [326 IAC 2-2] [326 IAC 2-8-4] [326 IAC 2-4.1]

Pursuant to 326 IAC 2-8-4 (FESOP), the VOC and HAP emissions from ~~the~~ **scrubber CE007 controlling the** fermentation process shall not exceed the following:

. . . .

D.4.5 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 thermal oxidizer/heat recovery steam generator CE008E **which is used to control the wet milling process (WM), the germ drying and cooling process (GD), the fiber dryer (FD), the protein concentration process (PC), and the distillation and dehydration process (DD):**

. . . .

D.4.15 VOC and HAP Control

In order to comply with Conditions D.4.5(b) and D.4.5(e), thermal oxidizer/heat recovery steam generator CE008E shall be in operation and control emissions from the **wet milling processes, the germ drying and cooling process, the fiber dryer, the corn protein concentrator (CPC) dryer,** ~~dryers~~ and the distillation and dehydration process at all times that these units are in operation.

8. The control efficiency referred to in the draft permit is the overall control efficiency. The Permitttee shall meet the 100% capture efficiency, which is defined using EPA Method 204, and the destruction efficiency required in the permit. In addition, the Permittee shall perform a one-time test for the uncontrolled VOC emissions from each of the germ dryer, the fiber dryer, the CPC dryer, and the distillation and dehydration process to confirm the emission factor used in the potential to emit calculations since these units vent to the same control device (thermal oxidizer CE008E). Therefore, Conditions D.3.6, D.3.9, D.4.6, D.4.16, D.5.6, and D.5.10 have been revised as follows:

D.3.6 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 process with a Best Available Control Technology (BACT), which has been determined to be the following:

(a) The VOC emissions from the fermentation process (FP) shall be controlled by wet scrubber CE007.

(b) The ~~control~~ **destruction** efficiency for the wet scrubber shall be at least 97%.

(c) The capture efficiency shall be 100% as defined in EPA Method 204.

~~(c)~~**(d)** The VOC emissions from wet scrubber CE007 shall not exceed 2.44 lbs/hr.

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 Condition**s** D.3.5 **and D.3.6**, the Permittee shall perform VOC **(including emission rate, destruction efficiency, and capture efficiency)** and HAP testing for scrubber CE007, 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.

D.4.6 VOC Emissions [326 IAC 8-1-6]

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

(a) The VOC emissions from the germ drying and cooling process (GD), the fiber dryer (FD), the protein concentration process (PC), and the distillation and dehydration process (DD) shall be controlled by thermal oxidizer/heat recovery steam generator CE008E.

(b) The ~~control~~ **destruction** efficiency for thermal oxidizer CE008E shall be at least 98%.

(c) The capture efficiency shall be 100% as defined in EPA Method 204.

~~(c)~~**(d)** The VOC emissions from thermal oxidizer CE008E shall not exceed 9.61 lbs/hr.

D.4.16 Testing Requirements [326 IAC 2-8-5(a)(1), (4)] [326 IAC 2-1.1-11] [40 CFR 60, Subpart Db] [326 IAC 2-2]

(a) Pursuant to 40 CFR 60.46(b)(c) and in order to demonstrate compliance with Condition D.4.8, the Permittee shall perform NOx testing for thermal oxidizer/heat recovery steam generator CE008E, within 60 days after achieving the maximum production, but not later than 180 days after initial startup, utilizing methods as approved by the Commissioner.

(b) In order to demonstrate compliance with Conditions D.4.5, D.4.6, ~~and~~ D.4.11, **and D.4.12** the Permittee shall perform PM, PM10, VOC **(including emission rate, destruction efficiency, and capture efficiency)**, SO_2, CO, and HAP testing for thermal oxidizer/heat recovery steam generator CE008E, within 60 days after achieving the maximum production, but not later than 180 days after initial startup, utilizing methods as approved by the Commissioner. PM-10 includes filterable and condensible PM-10. The VOC test 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.

(c) Within 60 days after achieving the maximum production, but not later than 180 days after initial startup, the Permittee shall perform an initial one time test for the uncontrolled VOC emissions from each of the following emission units: the germ dryer; the fiber dryer; the CPC dryer; and the distillation and dehydration process. Testing shall be conducted in accordance with Section C - Performance Testing.

D.5.6 VOC Emissions [326 IAC 8-1-6]

The potential VOC emissions from the truck loading process are greater than 25 tons/yr. Pursuant to 326 IAC 8-1-6 (BACT), and the Permittee shall collect and control the VOC emissions from the ethanol loading rack, when loading ethanol to trucks, 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 shall be collected and controlled by enclosed flare CE012 when loading denatured ethanol to trucks.

(b) The ~~control~~ **destruction** efficiency for the vapor collection system and enclosed flare CE012 shall be at least 98%.

(c) The capture efficiency shall be 100% as defined in EPA Method 204.

~~(c)~~**(d)** The VOC emissions from enclosed flare CE012 shall not exceed 0.18 pounds per kilo gallons of denatured ethanol loaded.

D.5.10 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.5.5(c), (d), (e) **and D.5.6**, the Permittee shall perform VOC **(including emission rate, destruction efficiency, and capture efficiency)**, CO, and NOx testing for enclosed flare CE012, within 60 days after achieving the maximum production, but not later than 180 days after initial startup, utilizing methods as approved by the Commissioner. Testing shall be conducted in accordance with Section C - Performance Testing.

Appendix A: Emission Calculations
Natural Gas Combustion
(MMBtu/hr < 100)
From 96 MMBtu/hr Boiler

Company Name: Putnam Ethanol, LLC
Address: 7816 S. US 231, Cloverdale, IN 46120
FESOP: 133-19163-00003
Reviewer: ERG/YC
Date: July 15, 2004

Heat Input Capacity MMBtu/hr	Potential Throughput MMCF/yr
96.0	841.0

	Pollutant					
	PM*	PM10*	SO_2	**NO_x	VOC	***CO
Emission Factor in lbs/MMCF	7.6	7.6	0.6	50	5.5	50.0
Potential to Emit in tons/yr	**3.20**	**3.20**	**0.25**	**21.0**	**2.31**	**21.0**

Emission factors, except the one for CO, are from AP-42, Chapter 1.4, Tables 1.4-1, 1.4-2, and 1.4-3 (AP-42, 3/98)
*PM and PM10 emission factors are condensable and filterable PM10 combined.
**Emission factors for NO_x: Uncontrolled = 50 lbs/MMCF for low NOx burners.
*** CO emission factor is from the manufacturer. The source will perform stack tests to demonstrate compliance with this factor.

Methodology

All emission factors are based on normal firing.
MMBtu = 1,000,000 Btu
MMCF = 1,000,000 Cubic Feet of Gas

Potential Throughput (MMCF/yr) = Heat Input Capacity (MMBtu/hr) x 8,760 hrs/yr x 1 MMCF/1,000 MMBtu
Potential to Emit (tons/yr) = Potential Throughput (MMCF/yr) x Emission Factor (lbs/MMCF) x 1 ton/2000 lbs

Appendix A: Emission Calculations
PM10 and PM10 Emissions
From Grain Loading, Handling, and Storage Operations

Company Name: Putnam Ethanol, LLC
Address: 7816 S. US 231, Cloverdale, IN 46120
FESOP: 133-19163-00003
Reviewer: ERG/YC
Date: July 15, 2004

Process	Control Device ID	Control Device	Outlet Grain Loading (gr/dscf)	Maximum Air Flow Rate (scfm)	Control Efficiency (%)	PTE of PM/PM10 after Control (lbs/hr)	PTE of PM/PM10 after Control (tons/yr)	PTE of PM/PM10 before Control (lbs/hr)	PTE of PM/PM10 before Control (tons/yr)
truck dump pit	CE001	Baghouse	0.005	20,000	99.0%	0.86	3.75	85.7	375
rail dump pit	CE002	Baghouse	0.005	30,000	99.0%	1.29	5.63	129	563
grain handling	CE003	Baghouse	0.005	7,000	99.0%	0.30	1.31	30.0	131
belt conveyor	CE004	Baghouse	0.005	1,000	99.0%	0.04	0.19	4.29	19
storage tank	CE005	Baghouse	0.005	10,000	99.0%	0.43	1.88	42.9	188
storage tanks	CE006	Baghouse	0.005	1,200	99.0%	0.05	0.23	5.14	22.5
tanks	CE008A	Baghouse	0.01	18,300	99.0%	1.57	6.87	156.86	687
storage bins	CE009	Baghouse	0.005	2,000	99.0%	0.09	0.38	8.57	37.5
truck loadout	CE010	Baghouse	0.005	16,000	99.0%	0.69	3.00	68.6	300
rail loadout	CE011	Baghouse	0.005	8,000	99.0%	0.34	1.50	34.3	150
Total							**24.7**		**2,474**

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 (lbs/hr) = PTE of PM/PM10 after Control (lbs/hr) / (1-Control Efficiency)
PTE of PM/PM10 before Control (tons/yr) = PTE of PM/PM10 after Control (tons/yr) / (1-Control Efficiency)

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

Company Name: Putnam Ethanol, LLC
Address: 7816 S. US 231, Cloverdale, IN 46120
FESOP: 133-19163-00003
Reviewer: ERG/YC
Date: July 15, 2004

1. Process Description:

Max. Throughput Rate: 45,000 gal/hr of water and 77 tons/hr of grain
Control Equipement: Wet Scrubber CE007

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

Pollutant	*Emission Rate after Control (lbs/hr)	PTE after Control (tons/yr)	**Control Efficiency (%)	PTE before Control (tons/yr)
VOC	2.45	**10.7**	97%	**358**
HAP				
2-furfuraldehyde	0.02	0.09	0%	0.09
Acetaldehyde	0.95	4.16	50%	8.32
Acrolein	0.02	0.09	0%	0.09
Formaldehyde	0.005	0.02	0%	0.02
Methanol	0.01	0.04	0%	0.04
Total		**4.40**		**8.56**

* This is provided by the source based on the test results for Glacial Lakes Energy, Watertown, South Dakota performed on 02/11/03.
** The control efficiency is provided by the source, based on the information from other similar plants.

Methodology

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

Appendix A: Emission Calculations
PM10 and PM10 Emissions before Control
From Germ, Fiber and CPC Dryers

Company Name: Putnam Ethanol, LLC
Address: 7816 S. US 231, Cloverdale, IN 46120
FESOP: 133-19163-00003
Reviewer: ERG/YC
Date: July 15, 2004

PM/PM10 emissions from the dryers are each controlled by cyclones which vent to thermal oxidizer CE008E.

Unit Description	Max. Throughput Rate (tons/hr)	Uncontrolled PM Emission Factor (lbs/ton)	PTE of PM before Control (lbs/hr)	PTE of PM before Control (tons/yr)	Uncontrolled PM10 Emission Factor (lbs/ton)	PTE of PM10 before Control (lbs/hr)	PTE of PM10 before Control (tons/yr)
Germ Dryer	5.5	3.00	16.5	72.3	0.75	4.13	18.1
Fiber Dryer	6.9	3.00	20.7	90.7	0.75	5.18	22.7
CPC Dryer	13.8	3.00	41.4	181	0.75	10.4	45.3
Total				**272**			**68.0**

Note: Emission factors are from AP-42, Chapter 9.9.1 - Grain Elevators, Table 9.9.1-1 (03/03).

Methodology

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

Appendix A: Emission Calculations
VOC and HAP Emissions
From Germ, Fiber and CPC Dryers

Company Name: Putnam Ethanol, LLC
Address: 7816 S. US 231, Cloverdale, IN 46120
FESOP: 133-19163-00003
Reviewer: ERG/YC
Date: July 15, 2004

VOC and HAP emissions from the dryers are controlled by thermal oxidizer CE008E.

Unit Description	*VOC Emission Rate (lbs/hr)	**HAP Emission Rate (lbs/hr)	PTE of VOC after Control (tons/yr)	PTE of HAP (Acetaldehyde) after Control (tons/yr)	***Control Efficiency	PTE of VOC before Control (tons/yr)	PTE of HAP (Acetaldehyde) before Control (tons/yr)
Germ Dryer	1.70	0.04	7.45	0.18	96%	186	4.38
Fiber Dryer	3.20	0.00	14.0	0.00	96%	350	0.00
CPC Dryer	4.20	0.09	18.4	0.39	96%	460	9.9
Total			**39.9**	**0.57**		**996**	**14.2**

* VOC emission rates were provided by the source and were estimated based on the test results from Pro-Corn, Minnesota, and Grain Processing Corporation, Indiana.

** HAP emission rates were provided by the source and were estimated based on the test results from a wet mill in Indiana. The only HAP detected from this process is acetaldehyde.

*** Control efficiency is provided by the source based on the testing results from other plants.

Methodology

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

Appendix A: Emission Calculations
Natural Gas Combustion
(MMBtu/hr < 100)
From Germ, Fiber and CPC Dryers

Company Name: Putnam Ethanol, LLC
Address: 7816 S. US 231, Cloverdale, IN 46120
FESOP: 133-19163-00003
Reviewer: ERG/YC
Date: July 15, 2004

Heat Input Capacity MMBtu/hr		Potential Throughput MMCF/yr
80.0	(3 units total)	700.8

	Pollutant					
	PM*	PM10*	SO_2	**NO_x	VOC	CO
Emission Factor in M	-	-	0.6	50	-	84.0
Potential to Emit in tons/yr	**NA**	**NA**	**0.21**	**17.5**	**NA**	**29.4**

*PTE of PM, PM10, and VOC were calculated on pages 4 and 5 of this appendix.
**Emission factors for NO_x: Uncontrolled = 50 lbs/MMCF for low NOx burners.
Emission factors are from AP-42, Chapter 1.4, Tables 1.4-1, 1.4-2, and 1.4-3, SCC #1-02-006-02, 1-01-006-02, 1-03-006-02, and 1-03-006-03 (AP-42 Supplement D 3/98)

Methodology

All emission factors are based on normal firing.
MMBtu = 1,000,000 Btu
MMCF = 1,000,000 Cubic Feet of Gas

Potential Throughput (MMCF/yr) = Heat Input Capacity (MMBtu/hr) x 8,760 hrs/yr x 1 MMCF/1,000 MMBtu
Potential to Emit (tons/yr) = Potential Throughput (MMCF/yr) x Emission Factor (lbs/MMCF) x 1 ton/2000 lbs

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

Company Name: Putnam Ethanol, LLC
Address: 7816 S. US 231, Cloverdale, IN 46120
FESOP: 133-19163-00003
Reviewer: ERG/YC
Date: July 15, 2004

1. Process Description:

Max. Throughput Rate: 6,850 gal/hr
VOC Emission Rate: 0.49 lbs/hr (provided by the source and based on the test results from Al-Corn Clean Feul, Claremont, Minnesota on 01/21/03 - 01/23/03)
Control Equipement: Thermal Oxidizer CE008E
Control Efficiency: 98% for VOC and HAPs (provided by the source)

2. Potential to Emit (PTE) of VOC:

PTE of VOC after Control (tons/yr) = 0.49 lbs/hr x 8760 hr/yr x 1 tons/2000 lbs = **2.15 tons/yr**

PTE of VOC before Control (tons/yr) = 2.15 tons/yr / (1-98%) = **107 tons/yr**

3. Potential to Emit (PTE) of HAP:

Pollutant	*Weight % of HAP	PTE after Control (tons/yr)	PTE before Control (tons/yr)
Acetaldehyde	18.6%	0.399	20.0
Acrolein	0.40%	0.009	0.43
Formaldehyde	0.20%	0.004	0.21
Methanol	0.30%	0.006	0.32
Total		**0.42**	**20.9**

* This is provided by the source based on the test results from Al-Corn Clean Feul, Claremont, Minnesoda on 01/21/03 - 01/23/03.

Methodology

PTE of HAP after Control (Tons/yr) = PTE of VOC after Control (tons/yr) x HAP %
PTE of HAP before Control (Tons/yr) = PTE of VOC before Control (tons/yr) x HAP %

Appendix A: Emission Calculations
Natural Gas Combustion
(MMBtu/hr < 100)
From the NG Combustion in Thermal Oxidizer CE008E

Company Name: Putnam Ethanol, LLC
Address: 7816 S. US 231, Cloverdale, IN 46120
FESOP: 133-19163-00003
Reviewer: ERG/YC
Date: July 15, 2004

Heat Input Capacity MMBtu/hr	Max. Ethanol Production Rate (gal/hr)
168	6,850

	Pollutant					
	PM*	PM10*	***SO_2	**NO_x	VOC	CO
Emission Factor	7.6 (lbs/MMCF)	7.6 (lbs/MMCF)	0.001 (lbs/gal)	50 (lbs/MMCF)	5.5 (lbs/MMCF)	84.0 (lbs/MMCF)
Potential to Emit in tons/yr	**5.59**	**5.59**	**30.0**	**36.8**	**4.05**	**61.8**

Emission factors for PM/PM10, NOx, VOC, and CO are from AP-42, Chapter 1.4, Tables 1.4-1, 1.4-2, and 1.4-3 (AP-42, 03/98).
*PM and PM10 emission factors are condensable and filterable PM10 combined.
**Emission factors for NO_x: Uncontrolled = 50 lbs/MMCF for low NOx burners.
*** SO_2 emission factor is provided by the source based on estimated sulfur that enters thermal oxidizer as feul in the bio-digester gas.

Methodology

PTE of PM/PM10, NOx, VOC, and CO (tons/yr) = Heat Input Capacity (MMBtu/hr) x 1 MMCF/1,000 MMBtu x Emission Factor (lbs/MMCF) x 8760 hr/yr x 1 ton/2000 lbs

PTE of SO_2 = Max. Ethanol Production Rate (gal/hr) x Emission Factor (lbs/gal) x 8760 hr/yr x 1 ton/2000 lbs

Appendix A: Emission Calculations
VOC and HAP Emissions from Ethanol Loading Rack

Company Name: Putnam Ethanol, LLC
Address: 7816 S. US 231, Cloverdale, IN 46120
FESOP: 133-19163-00003
Reviewer: ERG/YC
Date: July 15, 2004

1. Emission Factors: AP-42

Ethanol will be shipped by truck and by rail. Railcars will be dedicated fleets, but the trucks may be used to carry gasoline prior to filling with ethanol. Railcars and trucks will be filled by submerged loading process and the truck loading process is controlled by flare CE012, 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 rack 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 (vapor balance)	1.0	5.72	66	525	8.96
Gasoline (clean cargo)	0.5	5.72	66	525	4.48
Denatured Ethanol (normal)	0.6	0.93	49.7	525	0.66
Denatured Ethanol (clean cargo)	0.5	0.93	49.7	525	0.55

Therefore, the emission factor for loading denatured ethanol to the trucks which stored gasoline previously
= L (gasoline, normal) - L (gasoline, clean cargo) + L (denatured ethanol, clean cargo) = 5.03 (lba/kgal)

2. Unlimited Potential to Emit VOC Before Control:

The worst case scenario is assuming that all the trucks are used to ship gasoline before filling with denatured ethanol and all the denatured ethanol is shipped by trucks.

Max. Loading Rate = 96 kgal/hr

PTE of VOC before Control (tons/yr) = 96 lbs/kgal x 5.03 lbs/kgal x 8760 hr/yr x 1 ton/2000 lbs = **2,114 tons/yr**

3. Limited Potential to Emit VOC after Control:

Annual Production Limit: 63,000 kgal/yr
Flare Control Efficiency: 98% (for truck loading only)

Limited PTE of VOC by Trucks (tons/yr) = 8.96 lbs/kgal x 63,000 kgal/yr x (1-98%) x 1 tons/2000 lbs = **5.64 tons/yr**
Limited PTE of VOC by Railcars (tons/yr) = 0.66 lbs/kgal x 63,000 kgal/yr x 1 tons/2000 lbs = **20.7 tons/yr**

4. Potential to Emit HAPs:

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

HAP	*HAP Fraction	PTE of HAP before Control (tons/yr)	Limited PTE of HAP after Control (tons/yr)
Benzene	2.50E-03	5.29	1.41E-02
Carbon Disulfide	2.00E-05	0.04	1.13E-04
Cumene	1.00E-04	0.21	5.64E-04
Ethyl benzene	5.00E-05	0.11	2.82E-04
n-Hexane	5.00E-02	105.7	2.82E-01
Toluene	5.00E-03	10.57	2.82E-02
Xylene	5.00E-04	1.06	2.82E-03
Total	**0.06**	123.0	0.33

* This is the HAP fraction for gasoline vapors.

Methodology

PTE of HAP before Control (Tons/yr) = PTE of VOC before Control (tons/yr) x HAP %
Limited PTE of HAP after Control (Tons/yr) = Limited PTE of VOC by Trucks (tons/yr) x HAP %

Appendix A: Emission Calculations
Combustion Emissions
From Flare CE012 for Ethanol Loading Rack (ER)

Company Name: Putnam Ethanol, LLC
Address: 7816 S. US 231, Cloverdale, IN 46120
FESOP: 133-19163-00003
Reviewer: ERG/YC
Date: July 15, 2004

Heat Input Capacity MMBtu/hr	Max. Load-out Rate kgal/hr	Annual Production Limit kgal/yr
5.57	96.0	63,000

	Pollutant					
	*PM	*PM10	*SO_2	**NO_x	***VOC	**CO
Emission Factor	7.6 (lbs/MMCF)	7.6 (lbs/MMCF)	0.6 (lbs/MMCF)	0.077 (lbs/kgal)	-	0.129 (lbs/kgal)
Unlimited Potential to Emit in tons/yr	**0.19**	**0.19**	**0.01**	**32.4**	**NA**	**54.2**
Limited Potential to Emit in tons/yr	**0.01**	**0.01**	**1.10E-03**	**2.43**	**NA**	**4.06**

*PM, PM10, and SO_2 emission factors are from AP-42, Chapter 1.4, Tables 1.4-1, 1.4-2, and 1.4-3 (AP-42, 03/98).
PM and PM10 emission factors are condensable and filterable PM10 combined.
**Emission factors for NO_x and CO are provided by the source based on the test results for similar sources.
*** VOC emissions can be found in page 9 of this appendix.

Methodology

PTE of PM/PM10 and SO_2 (tons/yr) = Max. Heat Input (MMBtu/hr) x 1 MMCF/1,000 MMBtu x Emission Factor (lbs/MMCF) x 8760 hr/yr x 1 ton/2000 lbs
Unlimited PTE of NOx and CO (tons/yr) = Max. Load-out Rate (kgal/hr) x Emission Factor (lbs/kgal) x 8760 hr/yr x 1 ton/2000 lbs
Limited PTE of NOx and CO (tons/yr) = Annual Production Limit (kgal/yr) x Emission Factor (lbs/kgal) x 1 ton/2000 lbs
Limited PTE of PM/PM10 and SO_2 (tons/yr) = Unlimited PTE (tons/yr) x Annual Production Limit (kgal/yr) / (Max. Load-out Rate kgal/hr x 8760 hr/yr)

Appendix A: Emission Calculations
Fugitive Emissions From Paved Roads

Company Name: Putnam Ethanol, LLC
Address: 7816 S. US 231, Cloverdale, IN 46120
FESOP: 133-19163-00003
Reviewer: ERG/YC
Date: July 15, 2004

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) =	29.0	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 = $(0.082 \times (7.4/2)^{0.65} \times (29/3)^{1.5} - 0.00047) \times (1 - 120/1460)$ = **1.03** lbs/mile

PM10 Emission Factor = $(0.016 \times (7.4/2)^{0.65} \times (29/3)^{1.5} - 0.00047) \times (1 - 120/1460)$ = **0.20** 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/day)	* Round Trip Distance (mile/trip)	Vehicle Mile Traveled (VMT) (miles/yr)	Traffic Component (%)	Component Vehicle Weight (tons)	PTE of PM before Control (tons/yr)	PTE of PM10 before Control (tons/yr)
Grain Receiving	29	72	1.90	49,932	67.5%	19.6	25.8	5.03
Germ/Fiber/CPC Hau	29	32	1.20	14,016	18.9%	5.49	7.24	1.41
Ethanol Load Out	29	22	1.20	9,636	13.0%	3.78	4.98	0.97
Denaturant Delivery	29	1	1.20	438	0.59%	0.17	0.23	0.04
Total				**74,022**	**100%**	**29.0**	**38.3**	**7.45**

* This information is provided by the source.

Methodology

Vehicle Mile Traveled (miles/yr) = Trip Number (trips/hr) x Round-Trip Distance (mile/trip) x 8760 hrs/yr
Traffic Component (%) = VMT / Total VMT
Component Vehicle Weight = Ave. Weight of Vehicles (ton) x Traffic Component (%)
PTE of PM/PM10 before Control (tons/yr) = VMT (miles/yr) x PM/PM10 Emission Factors x 1 ton/2000 lbs

3. Potential to Emit (PTE) of PM/PM10 after Control from Paved Roads:

The source proposed to use periodic sweeping to control the fugitive dust emissions.
The control efficiency from sweeping is assumed to be 50%.

PTE of PM after Control = 38.3 tons/yr x (1-50%) = **19.1 tons/yr**

PTE of PM10 after Control = 7.45 tons/yr x (1-50%) = **3.73 tons/yr**

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

Company Name: Putnam Ethanol, LLC
Address: 7816 S. US 231, Cloverdale, IN 46120
FESOP: 133-19163-00003
Reviewer: ERG/YC
Date: July 15, 2004

1. Process Description:

Type of Cooling Tower:	Induced Draft	
Circulation Flow Rate:	24,000	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 loacated at a similar source.

2. Potential to Emit PM/PM10:

Assume all the disolved solids become PM10 emissions and assume PM emissions are equal to PM10 emissions.

PTE of PM/PM10 (lbs/hr) = 24,000 gal/min x 60 min/hr x 0.005% x 8.345 lbs/gal x 2,500 ppm x 1/1,000,000 ppm = **1.50 lbs/hr**

PTE of PM/PM (tons/yr) = 1.50 lbs/hr x 8760 hr/yr x 1 ton/2000 lbs = **6.58 tons/yr**

Appendix B
Best Available Control Technology (BACT) Determinations

Source Background and Description

Source Name:	Putnam Ethanol, L.L.C.
Source Location:	7816 South US 231, Cloverdale, Indiana 46120
County:	Putnam
SIC Code:	2869
Operation Permit No.:	F133-19163-00003
Permit Reviewer:	ERG/YC

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 manufacturing 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 (FP);
- Germ Drying and Cooling Process (GD);
- Fiber Drying Process (FD);
- Protein Concentration Process (PC);
- Distillation and Dehydration Process (DD); and
- Ethanol Loading Rack (ER).

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 (FP) is provided in Section B.1, the BACT review for the Ethanol Loading Rack (ER) is provided in Section B.2, the BACT review for the Distillation and Dehydration Process (DD) is provided in Section B.3, and the BACT review for the Germ Drying, Fiber Drying, and Protein Concentration processes is provided in Section B.4. These BACT determinations are based on the following information:

(a) The BACT analysis submitted by Putnam Ethanol, L.L.C. on May 24, 2004;
(b) Information from vendors/suppliers;
(c) The EPA RACT/BACT/LAER (RBLC) Clearinghouse; and
(d) State and local air quality permits.

Appendix B.1
Best Available Control Technology (BACT) Determination
For the Fermentation Process (FP)

Introduction:

Putnam Ethanol 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, Putnam Ethanol is required to implement BACT to comply with 326 IAC 8-1-6. The following is a summary of the BACT review submitted by the Putnam Ethanol.

Step 1 – Identify Control Options

To control VOC emissions from the fermentation process, Putnam Ethanol reviewed the following six control technologies:

1. Carbon Adsorption;

2. Wet Scrubbers;*

3. Thermal Oxidation;

4. Catalytic Oxidation;

5. Flare; and

6. Refrigeration Condenser.

* Putnam Ethanol proposes to use a wet scrubber with a packed bed contact tower. The high surface area created by the mass transfer material results in an increase in VOC removal efficiency of the wet scrubber. The scrubbing liquid will be sprayed down the tower covering the mass transfer material as waste gas is blown in from the bottom of the tower, creating intimate contact between the liquid and gas.

Step 2 – Eliminate Technically Infeasible Control Options

After reviewing the above technologies, Putnam Ethanol eliminated carbon adsorption as not technically feasible for this type of operation. 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, Putnam Ethanol has ranked the remaining control technologies as follows:

Control Technology	Control Efficiency (%)
Thermal Oxidizer	98
Catalytic Oxidizer	98
Wet Scrubber	97
Flaring	95
Refrigeration Condenser	90

The control efficiency of the wet scrubber is based on recent stack tests performed at similar sources that indicate 97.3% and 97.5% control efficiency can be achieved using a scrubber. The data available on the EPA RACT/BACT/LAER Clearinghouse (RBLC) database indicates that a control efficiency of 98% may be achievable. However, compliance testing has not been completed to confirm this control efficiency and Putnam Ethanol has used the more conservative 97% control efficiency for their analysis. Thermal oxidation has been used at other ethanol plants as a secondary technology for fermentation when the thermal oxidation unit is large enough to handle the fermentation scrubber exhaust in addition to the primary emission source (spent grain dryers). The control efficiency of these thermal oxidation units has not been determined for the fermentation VOC alone but rather for total VOC emissions entering the thermal oxidizer. For this reason, the control efficiency included in the table is based on engineering judgment. If a thermal oxidation unit were designed for controlling the fermentation emissions in place of a wet scrubber, it would likely be capable of up to 98% control of VOC emissions.

The following table shows the results of a review of the RBLC database performed by Putnam Ethanol and IDEM, OAQ:

Plant	RBLC I.D.	Facility	Control Technology and Permit Date
United Wisconsin Grain Producers, Friesland, WI	WI-0204	Fermentation	Wet scrubber (packed tower) with 98.7% control efficiency. Permit issued: August 14, 2003.
Michigan Ethanol, Caro, MI	MI-0359	Fermentation	BACT determined to be a scrubber with 97% control efficiency. Permit issued: November 4, 2002
Cargill, Inc., Blair, NE	NE-0016	Fermentation	BACT determined to be a wet scrubber with emission limit of 11.8 pounds per hour. Permit issued: April 25, 1996
Grain Processing Corporation, Washington, IN	IN-0075	Fermentation	Scrubber with 95% control efficiency. Permit issued: June 10, 1997

In addition to the RBLC data, Putnam Ethanol submitted the following information collected from consent decrees issued for fermentation processes similar to that proposed by Putnam Ethanol:

Source	Pollutant Controlled	Control Technology	Emission Limits
Agri-Energy	VOC	Wet scrubber and thermal oxidizer	95% removal or 10 ppm
Al-Corn	VOC	Wet scrubber	95% removal or 20 ppm for less than 200 ppm inlet
Central MN Ethanol	VOC	Wet scrubber	95% removal or 20 ppm for less than 200 ppm inlet
Corn Plus	VOC	Wet scrubber	95% removal or 20 ppm for less than 200 ppm inlet
CVEC	VOC	Wet scrubber	95% removal or 20 ppm for less than 200 ppm inlet
Diversified Energy Co.	VOC	Wet scrubber	95% removal or 20 ppm for less than 200 ppm inlet
Ethanol 2000	VOC	Wet scrubber	95% removal or 20 ppm for less than 200 ppm inlet
Agra Resources Coop. (dba EXOL)	VOC	Wet scrubber	95% removal or 20 ppm for less than 200 ppm inlet
Pro-Corn	VOC	Wet scrubber	95% removal or 20 ppm for less than 200 ppm inlet

Based on control efficiency, the thermal oxidizer and catalytic oxidizer are the best control technologies. However, both these technologies and the flare destroy the product rather than recovering it and generate their own emissions.* Based on information provided by Met-Pro Corporation and Environmental

Resource Group, LLC, Putnam Ethanol believes that catalysts used for VOC control typically do not work well with alcohol.

* Putnam Ethanol plans to recover the carbon dioxide from the fermentation process, which can only be achieved using the wet scrubber. Carbon dioxide generated by the fermentation process will be routed to a CO_2 recovery plant that compresses and cools the CO_2 until it is liquified. Thermal oxidation would result in additional moisture as well as the addition of other pollutants that would contaminate the CO_2 and add to the expense of CO_2 purification.

Step 4 – Evaluate the Most Effective Controls and Document Results

Putnam Ethanol has prepared the following cost analysis for regenerative thermal oxidation:

Total Capital and Annual Cost for Thermal Regenerative Oxidizer[a]		**Factor**	**Cost**
Total Capital Cost:			
Direct Costs:			
Purchased Equipment Cost:			
	Oxidizer + auxiliary equipment cost[b]	A	$327,322.34
	Instrumentation	10% A	$32,732.23
	Sales Taxes	3% A	$9,819.67
	Freight	5% A	$16,366.12
	Total Purchased Equipment Cost	B=118% A	$386,240.37
Direct Installation Costs:			
	Foundation and supports	8% B	$30,899.23
	Handling and erection	14% B	$54,073.65
	Electrical	4% B	$15,449.61
	Piping	2% B	$15,449.61
	Insulation for ductwork	1% B	$7,724.81
	Painting	1% B	$3,862.40
	Total Direct Installation Costs	30% B	$115, 872.11
	Site Preparation		$0.00
	Buildings		$0.00
Total Direct Cost			**$502,112.47**
Indirect Cost:			
	Engineering	10% B	$38,624.04
	Construction and Field Expenses	5% B	$19,312.02
	Contractor Fee	10% B	$38,624.04
	Start-up	2% B	$7,724.81
	Performance Testing	1% B	$3,862.40
	Contingencies	3% B	$11,587.21
Total Indirect Cost			**$119,734.51**
Total Capital Investment			**$621,846.99**
Total Annual Cost			
Direct Annual Cost:			
Operating Labor			
	Operator ($25/hr, 3 shifts/day, and 365 days/year	0.5 hours/shift	$13,687.50
	Supervisor	15% of Operator	$2,053.13
Operating Materials			0.00
Maintenance Costs			
	Labor ($25/hr, 3 shifts/day, and 365 days/year	0.5 hour/shift	$13,687.50
	Maintenance Materials	100% of maint. Labor	$13,687.50
Utilities			
	Natural Gas (1.4 MMBtu/hour)	$4.73/MMBtu	$58,008.72
	Electricity (14 kW)	$0.0349/kW-hr	$4,280.14
Total Direct Annual Cost			**$105,404.48**
Indirect Annual Cost			
	Overhead	60% (oper. + main.)	$16,425.00
	Administrative	2% (TCI)[c]	$12,436.94
	Insurance	1% (TCI)[c]	$6,218.47
	Property Tax	1% (TCI)[c]	$6,218.47
	Capital Recovery (7%, 15 years)	10.98% * TCI	$68,275.46
Total Indirect Annual Cost			**$109,574.34**
Total Annual Cost			**$214,978.82**

a – Costs are based on OAQPS Control Cost Manual – Sixth Edition (EPA 452-02-001), Section 3.2.

b – The equipment cost is derived from a budget estimate from CECO Abatement Systems sent on 7/13/03 to Dustin Hamari, Environmental Resource Group for an ambient temperature exhaust of 10,000 DSCFM. The cost estimate was adjusted based on the exhaust flow rate of the fermentation process (6,600 CFM) using $Cost_{6,600} = Cost_{21,00} * (6,600/10,000)^{0.6}$.
c – TCI means Total Capital Investment.

Putnam Ethanol has prepared the following cost analysis for the wet scrubber:

Total Capital and Annual Cost for Wet Scrubber[a]		**Factor**	**Cost**
Total Capital Cost:			
Direct Costs:			
Purchased Equipment Cost:			
	Oxidizer + auxiliary equipment cost[b]	A	$44,000.00
	Instrumentation	10% A	$4,400.00
	Sales Taxes	3% A	$1,320.00
	Freight	5% A	$2,200.00
	Total Purchased Equipment Cost	B=118% A	$51,920.00
Direct Installation Costs:			
	Foundation and supports	12% B	$6,230.40
	Handling and erection	40% B	$20,768.00
	Electrical	1% B	$519.20
	Piping	30% B	$15,576.00
	Ductwork	1% B	$519.20
	Painting	1% B	$519.20
	Total Direct Installation Costs	85% B	$44,132.00
	Site Preparation		$0.00
	Buildings		$0.00
Total Direct Cost			**$96,052.00**
Indirect Cost:			
	Engineering	10% B	$5,192.00
	Construction and Field Expenses	10% B	$5,192.00
	Contractor Fee	10% B	$5,192.00
	Start-up	1% B	$519.20
	Performance Testing	1% B	$519.20
	Contingencies	3% B	$1,557.60
Total Indirect Cost			**$18,172.00**
Total Capital Investment			**$114,224.00**
Total Annual Cost			
Direct Annual Cost:			
Operating Labor			
	Operator ($25/hr, 3 shifts/day, and 365 days/year	0.5 hours/shift	$13,687.50
	Supervisor	15% of Operator	$2053.13
Operating Materials Water (40 gallons per minute, makeup)		$0.68/1,000 gallons	$14,296.32
Maintenance Costs			
	Labor ($25/hr, 3 shifts/day, and 365 days/year	0.5 hour/shift	$13,687.50
	Maintenance Materials	100% of maint. Labor	$13,687.50
Utilities			
	Electricity (5HP)	$0.0349/kW-hr	$1,222.90
Total Direct Annual Cost			**$58,634.84**
Indirect Annual Cost			
	Overhead	60% (oper. + main.)	$16,425.00
	Administrative	2% (TCI)[c]	$2,284.48
	Insurance	1% (TCI)[c]	$1,142.24
	Property Tax	1% (TCI)[c]	$1,142.24
	Capital Recovery (7%, 15 years)	10.98% * TCI	$12,541.18
Total Indirect Annual Cost			**$33,535.14**
Total Annual Cost			**$92,169.98**

a – Costs are based on OAQPS Control Cost Manual – Sixth Edition (EPA 452-02-001), Section 5.2.
b – The equipment cost is based on a July 12, 2004 budget estimate from Scott Feller, AMG, Inc.
c – TCI means Total Capital Investment.

Putnam Ethanol calculated the cost effectiveness for the regenerative thermal oxidizer and wet scrubber as follows:

	Regenerative Thermal Oxidizer	Wet Scrubber
Uncontrolled Emissions (ton/yr)	357.0	357.0
Control Efficiency (%)	98.0	97.0
VOC Removal by Thermal Oxidizer (ton/yr)	349.8	346.3
Total Annual Cost of Thermal Oxidizer ($)	214,979	92,169.98
Cost Effectiveness ($/ton VOC removed)	614.52	266.19

Putnam Ethanol also calculated the incremental cost of the regenerative thermal oxidizer versus the wet scrubber. The results are shown in the following table:

Incremental Reduction in Emissions (ton/yr)	3.6
Incremental Increase in Annual Cost ($)	122,809
Incremental Cost Effectiveness of the Regenerative Thermal Oxidizer ($/ton VOC removed)	34,403

Based on the fact that the thermal oxidizer would prevent the plant from recovering the CO_2, Putnam Ethanol concluded that the thermal oxidation was not economically feasible.

Step 5 – Select BACT

Based on the cost analysis provided by Putnam Ethanol, the thermal oxidizer and the wet scrubber both represent cost effective control technologies for the fermentation system. Although the thermal oxidizer costs $348 per ton of VOC more than the wet scrubber, IDEM, OAQ believes this cost difference to be insignificant. Although the thermal oxidizer has slightly higher control efficiency than the wet scrubber, the two technologies provide comparable VOC control, with the thermal oxidizer able to control only 3.6 tons of VOC per year more than is believed to be achievable using the wet scrubber. Putnam Ethanol, however, plans to recover carbon dioxide from the fermentation process for purification and re-sale as a product. Since only the wet scrubber will allow the carbon dioxide to be collected and purified, and since the two control technologies are comparable in cost and control efficiency, IDEM, OAQ agrees to accept the wet scrubber as BACT for the fermentation process. The capture efficiency for the control will be 99%, with a small amount of VOC lost as fugitive emissions through leaking valves, flanges, and connectors). Fugitive VOC emissions from leaks in the collection system should be minimal, because the source is subject to the equipment leaks monitoring and repair requirements of 40 CFR 60, Subpart VV.

Pursuant to 326 IAC 8-1-6, IDEM, OAQ has determined that the following requirements represent BACT for the fermentation process:

(a) The VOC emissions shall be controlled by a wet scrubber;

(b) The control efficiency of the wet scrubber shall be at least 97%; and

(c) The VOC emissions from the wet scrubber shall not exceed 2.44 pounds per hour.

Appendix B.2
Best Available Control Technology (BACT) Determination
For the Ethanol Loading Rack (ER)

Introduction:

Putnam Ethanol will ship ethanol using either tank trucks or railcars. During the loading of the truck and rail tanks, VOC 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 when loading to trucks (see the calculations in Appendix A). This source will have a production limit of 63 million gallons per year of denatured ethanol production. With this production limit, the potential VOC emissions from railcar loading are less than 25 tons/yr (see the calculations in Appendix A). Since the ethanol truck loading facility will be constructed after the January 1, 1980 applicability date, this facility is required to implement BACT when loading ethanol to trucks. The following is a summary of the BACT review submitted by the Putnam Ethanol.

Step 1 – Identify Control Options

To control VOC emissions form the ethanol truck loading facility, Putnam Ethanol reviewed the following five control technologies:

1. Carbon Adsorption;

2. Wet Scrubbers;

3. Thermal Oxidation;

4. Flare; and

5. Refrigeration Condenser.

Step 2 – Eliminate Technically Infeasible Control Options

After reviewing the above technologies, Putnam Ethanol eliminated carbon adsorption and wet scrubbers as not technically feasible for this type of operation. 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 loading 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; therefore, potentially affect the control efficiency of the scrubber. A significant amount of VOC emissions emitted during the loading of tank trucks 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, Putnam believes the VOC emissions resulting from the displacement of gasoline or petroleum vapors would not be effectively controlled by a wet scrubber. In recent telephone conversations with Bionomic Industries, Putnam Ethanol was told that wet scrubbing is not a reasonable solution for a

loading operation at an ethanol plant that will need to control emissions of ethanol and petroleum-derived gasoline vapors because the scrubber would only be effective for the ethanol and a small portion of the gasoline vapors. Other controls, such as flares, are more effective at controlling VOC emissions from sources of this type.

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 loading facility. Putnam Ethanol reviewed industry data to determine the VOC control efficiency of each of these 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

From their search of consent decrees, Putnam Ethanol provided the following information:

Source/Emission Unit	Pollutants Controlled	Control Technology	Emission Limits
Agri-Energy/ Loading Rack	VOC	Emissions from the loading rack are routed to the thermal oxidizer that is also used to control emissions from the DDGS dryer.	Truck: 95% Destruction or 10ppm of VOC emissions from the thermal oxidizer. Railcar: dedicated ethanol vessels only
Al-Corn/Loading Rack	VOC	Emissions from the loading rack are routed to the thermal oxidizer that is also used to control emissions from the DDGS dryer.	Truck: 95% Destruction or 10ppm of VOC emissions from the thermal oxidizer. Railcar: dedicated ethanol vessels only
Central MN Ethanol/Loading Rack	VOC	Emissions are routed to the control device used on the DDGS Dryer.	Truck: Route to dryer control equipment Railcar: dedicated ethanol vessels only
Corn Plus/Loading Rack	VOC	Boiler/Thermal Oxidizer	95% destruction or 10 ppm limit for boiler
CVEC/Loading Rack	VOC	Emissions are routed to the control device used on the DDGS Dryer.	Truck: Route to dryer control equipment (95% reduction or 10 ppm) Railcar: Dedicated ethanol vessels only
Diversified Energy Co./Loading Rack	VOC	Flare	95% destruction
Ethanol 2000	VOC	Flare	95% destruction
Agra Resources Coop. (dba EXOL)/Loading Rack	VOC	Emissions are routed to the control device used on the DDGS Dryer.	Truck: 95% destruction or 10 ppm limit for VOC emissions from the thermal oxidizer.
Pro-Corn/Loading Rack	VOC	Flare	95% destruction

Although Putnam Ethanol searched the EPA RACT/BACT/LAER Clearinghouse (RBLC) on April 9, 2004, they did not provide any information for the loading rack. As a result, IDEM, OAQ searched the RBLC database on June 22, 2004 to identify previous BACT determinations for similar loading racks at ethanol, gasoline bulk terminals, and chemical plants. The results are summarized below. The loading racks located at United Wisconsin Grain Producers plant in Wisconsin and the Archer Daniels Midland Co. plant in Illinois represent loading operations identical to that planned by Putnam Ethanol.

Plant	RBLC I.D.	Facility	Control Technology and Permit Date
United Wisconsin Grain Producers, Friesland, WI	WI-0204	Ethanol Loading Rack	Vapor collection system with flare. Control efficiency 94%. Permit issued: August 14, 2003.
Archer Daniels Midland Co., Decatur, IL	IL-0090	Ethanol Loading Rack	Flare with control efficiency of 95%. Permit issued: March 28, 2003.
Motiva Enterprises, L.L.C., Bridgeport, CT	CT-0149	Fuel Loading Rack	Vapor recovery unit with carbon absorption unit determined to be BACT. Control efficiency of 99.7%
Van Waters & Rogers, Commerce, CA	CA-0894	Truck Loading Stations	BACT determined to be a thermal oxidizer with 95% efficiency and limits on types of materials allowed to be loaded.

Although carbon adsorption was identified as BACT for the Motiva Enterprises, L.L.C. loading rack, this facility is used to load petroleum products, not ethanol. As previously discussed, carbon adsorption is not an effective control for denatured ethanol loading racks.

Step 4 – Evaluate the Most Effective Controls and Document Results

The two most effective control technologies are thermal oxidizers and flares. Based on the capital cost estimates provided by Putnam Ethanol, a thermal oxidizer for this application would cost $194,110 more than a flare, and would achieve approximately the same control efficiency. Therefore, the flare represents the most cost effective control technology for the ethanol loading rack.

Step 5 – Select BACT

Since flares achieve the highest control efficiency, are the most cost effective, and have been used to control VOC emissions from other ethanol loading racks, Putnam Ethanol believes that this control technology represents BACT for this type of operation. Based on IDEM, OAQ's review of the RBLC database and the information provided by Putnam Ethanol, IDEM, OAQ agrees that the flare represents BACT for this type of operation. Putnam Ethanol estimates that fugitive VOC emissions from the tank rack collection system will be 2.73 tons per year based on 63,000,000 gallons per year throughput. This makes the collection efficiency greater than 99%. The source will be subject to 40 CFR 60, Subpart VV which requires the collection system to be monitored for fugitive VOC emissions from equipment leaks and make timely repairs. This ensures that the fugitives emissions will be kept at a minimum.

Pursuant to 326 IAC 8-1-6, IDEM, OAQ has determined that the following requirements represent BACT for the tank truck loading facility:

(a) The VOC emissions from the loading rack shall be collected and controlled by an enclosed flare (CE012) when loading denatured ethanol to trucks.

(b) The overall control efficiency for the vapor collection system and enclosed flare CE012 shall be at least 98%.

(c) The VOC emissions from the enclosed flare CE012 shall not exceed 0.18 pounds per 1,000 gallons of denatured ethanol located.

Appendix B.3
Best Available Control Technology (BACT) Determination
For Distillation and Dehydration Process (DD)

Introduction:

Putnam Ethanol will use distillation to concentrate the ethanol produced in the fermentation process. The potential VOC emissions from the distillation and dehydration process are estimated to be greater than 25 tons per year. Since this facility will be constructed after the January 1, 1980 applicability date, Putnam Ethanol is required to implement BACT to comply with 326 IAC 8-1-6. The following is a summary of the BACT review submitted by the Putnam Ethanol.

Step 1 – Identify Control Options

To control VOC emissions from the distillation and dehydration process, Putnam Ethanol reviewed the following six (6) control technologies:

1. Carbon Adsorption;

2. Wet Scrubbers (packed tower);

3. Thermal Oxidation;

4. Catalytic Oxidation;

5. Flare; and

6. Refrigeration Condenser.

Step 2 – Eliminate Technically Infeasible Control Options

Putnam Ethanol believes that carbon adsorption is not technically feasible for the control of VOC emissions from the distillation and dehydration 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

Putnam Ethanol has ranked the remaining control technologies as follows:

Control Technology	Control Efficiency (%)
Thermal Oxidizer	98
Catalytic Oxidizer	98
Wet Scrubber	98
Flare	98
Refrigeration Condenser	90

The following table shows the results of a review of the RBLC database performed by Putnam Ethanol and IDEM, OAQ:

Plant	RBLC I.D.	Facility	Control Technology and Permit Date
Cargill, Inc., Blair, NE	NE-0016	Distillation	BACT determined to be a wet scrubber with emission limit of 2.22 pounds of VOC per hour. Permit issued: April 25, 1996
Michigan Ethanol, Caro, MI	MI-0359	Distillation	BACT determined to be a scrubber with 98% control efficiency. Permit issued: November 4, 2002

Plant	RBLC I.D.	Facility	Control Technology and Permit Date
Cargill, Inc., Eddyville, IA	IA-0029	Distillation	BACT determined to be a wet scrubber with 95% control efficiency. Permit issued: April 25, 1996
Grain Processing Corporation, Washington, IN	IN-0075	Distillation	BACT determined to be a wet scrubber with 95% control efficiency. Permit issued: June 10, 1997

In addition to the RBLC data, Putnam Ethanol submitted the following information collected from consent decrees issued for distillation processes similar to that proposed by Putnam Ethanol:

Source	Pollutant Controlled	Control Technology	Emission Limits
Agri-Energy	VOC	Wet scrubber	95% removal
Al-Corn	VOC	Wet scrubber	95% removal
Central MN Ethanol	VOC	Wet scrubber	95% removal
Corn Plus	VOC	Wet scrubber	95% removal
CVEC	VOC	Wet scrubber	95% removal
Diversified Energy Co.	VOC	Wet scrubber	95% removal
Ethanol 2000	VOC	Wet scrubber	95% removal
Agra Resources Coop. (dba EXOL)	VOC	Wet scrubber	95% removal
Pro-Corn	VOC	Wet scrubber	95% removal

Step 4 – Evaluate the Most Effective Controls and Document Results

Putnam Ethanol did not provide any cost data for the control technologies identified above.

Step 5 – Select BACT

Putnam Ethanol will use a thermal oxidizer as BACT for the distillation and dehydration process. Putnam Ethanol plans to use the same thermal oxidizer used to control emissions from the dryer system. Based on the control efficiencies of the various control technologies considered and the information obtained from the RBLC database, IDEM, OAQ agrees that a thermal oxidizer represents BACT for this type of operation. The thermal oxidizer selected by Putnam Ethanol is equipped with a heat recovery steam generator. This unit is identified as CE008E in the draft permit and will be used to control emissions from the dryers, distillation and dehydration process, and wet milling process. Although there is likely to be some fugitive VOC emissions from equipment leaks (e.g., valves, flanges, and various connectors), these emissions are believed to be small. Therefore, Putnam Ethanol believes the capture efficiency for the distillation process will be very high at 99% or greater because Putnam Ethanol will be subject to the monitoring and repair requirements in 40 CFR 60, Subpart VV.

Pursuant to 326 IAC 8-1-6, IDEM, OAQ has determined that the following requirements represent BACT for the distillation process:

(a) The VOC emissions shall be controlled by the thermal oxidizer/heat recovery steam generator CE008E;

(b) The control efficiency for CE008E shall be at least 98%; and

(c) The VOC emissions from CE008E shall not exceed 9.61 pounds per hour.

Appendix B.4
Best Available Control Technology (BACT) Determination
For the Germ Dryer (GD), Fiber Dryer (FD), and Corn Protein Concentrate Dryer (CPC)

Introduction:

Putnam Ethanol plans to use dryers for the germ, fiber, and corn protein concentrate. VOC emissions from the corn protein concentration dryer (CPC) come from trace quantities of alcohol remaining from the fermentation process and VOC emitted from fuel combustion. Although the germ and fiber are removed from the corn prior to fermentation, VOC are also emitted from the germ and fiber dryers. Sources of VOC emissions result from the combustion of fuel in the dryers and the partial oxidation of organic material during the drying process. The potential VOC emissions from each of these activities are estimated to be greater than 25 tons per year (see the calculations in Appendix A). Since these facilities will be constructed after the January 1, 1980 applicability date, Putnam Ethanol is required to implement BACT to comply with 326 IAC 8-1-6. Although the Putnam Ethanol presented individual BACT analyses for each of these emissions units, the results of these analyses are presented here in a single section because the emissions, control technologies and conclusions of the BACT analyses are identical for these units.

Step 1 – Identify Control Options

To control VOC emissions from the germ, fiber, and corn protein concentrate dryers, Putnam Ethanol reviewed the following six (6) control technologies:

1. Carbon Adsorption;

2. Wet Scrubbers (packed tower);

3. Thermal Oxidation;

4. Catalytic Oxidation;

5. Flare; and

6. Refrigeration Condenser.

Step 2 – Eliminate Technically Infeasible Control Options

After reviewing the above technologies, Putnam Ethanol eliminated flares, carbon adsorption, refrigeration condensers, and catalytic oxidation as not technically feasible for this type of operation. Their reasons for eliminating these control technologies are as follows:

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 dryers, natural gas must be added to the exhaust gasses prior to the flare. In order to increase the heat value of the Corn Protein Concentrate dryer to 300 Btu per cubic foot, as much as 920 MMBtu of natural gas per hour would need to be added to the exhaust gases prior to the flare. In order to increase the heat value of the germ dryer exhaust to 300 Btu per cubic foot, as much as 592 MMBtu of natural gas per hour would have to be added to the exhaust gases. In order to increase the heat value of the fiber dryer exhaust to 300 Btu per cubic foot, as much as 461 MMBtu of natural gas per hour would have to be added to the exhaust gasses. In each of these cases, thermal oxidation would provide similar control and eliminate the need for enrichment. In addition, the thermal oxidizer will enable Putnam Ethanol to recover most of the heat generated.

Refrigeration Condensers: Putnam Ethanol believes that condensers would be not technically feasible because the dryer exhaust characteristics of low VOC concentration and high volumetric flow rate would make condensers ineffective.

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, Putnam Ethanol concludes that carbon adsorption is not an effective control for the dryers due to the characteristics of the dryer exhaust gasses.

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, Putnam Ethanol has concluded that catalytic oxidation is an unreliable control technology for the dryers because of the presence of particulates in the exhaust gasses. Note that a baghouse could not be used to prevent fouling of the catalytic oxidizer because the high moisture content (typically 30 to 35%) of the exhaust from the dryer would result in filter caking problems in the baghouse.

Step 3 – Rank Remaining Control Technologies by Control Effectiveness

Putnam Ethanol has ranked the remaining control technologies by control efficiency as follows:

Control Technology	Control Efficiency (%)
Thermal Oxidation	98
Wet Scrubber	70

Putnam Ethanol believes that the wet scrubber will not achieve the same level of control as the thermal oxidizer due to the large flow rate and dilute VOC concentrations in the exhaust gasses from the dryers. The control efficiency of the wet scrubber would be impaired by the low VOC concentration, elevated temperature, and presence of particulates in the waste stream. The control efficiency provided in the table above is based on a wet scrubber used to control emissions from a spent grain dryer at an ethanol plant in Luverne, Minnesota.

The following table shows the results of a review of the RBLC database performed by Putnam Ethanol and IDEM, OAQ:

Plant	RBLC I.D.	Facility	Control Technology and Permit Date
Michigan Ethanol, Caro, MI	MI-0359	Dryer	BACT determined to be a Thermal Oxidizer with 95% control efficiency. Permit issued: November 4, 2002
Archer Daniels Midland Co., Decatur, IL	IL-0087	Feed Dryer #7	BACT determined to be Regenerative Thermal Oxidizer 95% with a 10 ppm limit Permit issued: December 27, 2002

In addition to the RBLC data, Putnam Ethanol submitted the following information collected from consent decrees issued for dryers similar to those proposed by Putnam Ethanol:

Source	Pollutant Controlled	Control Technology	Emission Limits
Agri-Energy	VOC	Thermal Oxidizer	95% destruction or 10 ppm
Al-Corn	VOC	Thermal Oxidizer	95% destruction or 10 ppm
Central MN Ethanol	VOC	Unknown	95% destruction or 10 ppm
Corn Plus	VOC	Thermal Oxidizer or boiler	95% destruction or 10 ppm
CVEC	VOC	Thermal Oxidizer	95% destruction or 10 ppm
Diversified Energy Co.	VOC	Regenerative Thermal Oxidizer	95% destruction or 10 ppm
Ethanol 2000	VOC	Regenerative Thermal Oxidizer	95% destruction or 10 ppm
Agra Resources Coop. (dba EXOL)	VOC	Thermal Oxidizer	95% destruction or 10 ppm

Pro-Corn	VOC	Regenerative Thermal Oxidizer	95% destruction or 10 ppm

Step 4 – Evaluate the Most Effective Controls and Document Results

The cost effectiveness of the thermal oxidation and wet scrubbing at the dryer exhaust system has been estimated using EPA cost estimates to be $343 per ton and $382 per ton, respectively. The thermal oxidizer economic analysis does not include the cost of natural gas because the heat from the waste gas is used to generate process steam for the plant.

Step 5 – Select BACT

Putnam Ethanol has selected a thermal oxidizer as BACT for the dryers and believes that the thermal oxidizer will achieve a 98% control efficiency for VOC emissions and a maximum VOC emissions rate of 9.61 pounds per hour. The capture efficiency for the dryers will be very high at 99% or greater. Fugitive VOC emissions from equipment leaks should be minimal because the source will be subject to the monitoring and repair requirements of 40 CFR 60, Subpart VV. Since this determination is consistent with the current information available from the RBLC database and emission limitations established in recent consent decrees, IDEM, OAQ agrees that a thermal oxidizer represents BACT for this type of operation. The thermal oxidizer selected by Putnam Ethanol is equipped with a heat recovery steam generator. This unit is identified as CE008E in the draft permit and will be used to control emissions from the dryers, distillation and dehydration process, and wet milling process.