



Mitchell E. Daniels, Jr.  
Governor

Thomas W. Easterly  
Commissioner

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

TO: Interested Parties / Applicant  
DATE: January 31, 2006  
RE: Hartford Energy, LLC / 009-21592-00024  
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 1/10/05



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

---

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Mr. Terrence O'Malley  
Hartford Energy, LLC  
700 East Ogden, Suite 308  
Westmont, Illinois 60559

January 31, 2006

Re: FESOP No. F009-21592-00024

Dear Mr. O'Malley:

Hartford Energy, LLC applied for an operating permit on August 3, 2005, for an ethanol manufacturing plant located at 600 North Industrial Park Drive, Hartford City, Indiana 47348. Pursuant to the provisions of 326 IAC 2-8 a FESOP is hereby approved as described in the attached Technical Support Document.

The following construction conditions are applicable to the proposed project:

1. General Construction Conditions  
The data and information supplied with the application shall be considered part of this source modification approval. Prior to any proposed change in construction which may affect the potential to emit (PTE) of the proposed project, the change must be approved by the Office of Air Quality (OAQ).
2. This approval 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.
3. Effective Date of the Permit  
Pursuant to IC 13-15-5-3, this approval becomes effective upon its issuance.
4. Pursuant to 326 IAC 2-1.1-9 (Revocation), the Commissioner may revoke this approval if construction is not commenced within eighteen (18) months after receipt of this approval or if construction is suspended for a continuous period of one (1) year or more.
5. All requirements and conditions of this construction approval shall remain in effect unless modified in a manner consistent with procedures established pursuant to 326 IAC 2.

This decision is subject to the Indiana Administrative Orders and Procedures Act - IC 4-21.5-3-5. If you have any questions on this matter, please contact Lawrence Stapf, OAQ, 100 North Senate Avenue, Indianapolis, Indiana, 46204, or call (800) 451-6027 and ask for Lawrence Stapf extension 2-8427, or directly dial (317) 232-8427.

Sincerely,

Original signed by  
Paul Dubenetzky, Assistant Commissioner  
Office of Air Quality

Attachments

LWS

cc: File - Blackford County  
U.S. EPA, Region V  
Blackford County Health Department  
Air Compliance Section Inspector: Ryan Hillman  
Compliance Data Section  
Administrative and Development



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

**Hartford Energy, L.L.C.  
600 North Industrial Park Drive  
Hartford City, Indiana 47348**

(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.: F009-21592-00024	
Issued by: Original signed by Paul Dubenetzky, Assistant Commissioner Office of Air Quality	Issuance Date: January 31, 2006  Expiration Date:



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- D.5.4 Modification to Construction Conditions [326 IAC 2]

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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:	600 North Industrial Park Drive, Hartford City, Indiana 47348
Mailing Address:	700 East Ogden, Suite 308, Westmont, IL 60559
General Source Phone:	(630) 920-9990
SIC Code:	2869
Source Location Status:	Blackford
Source Status:	Attainment for all criteria pollutants 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)]

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

- (a) One (1) truck dump pit, identified as EU001, to be constructed in 2006, with a maximum throughput rate of 20,000 bushels of grain per hour, controlled by baghouse CE001, and exhausting through stack EP001.
- (b) One (1) rail dump pit, identified as EU002, to be constructed in 2006, with a maximum throughput rate of 20,000 bushels of grain per hour, controlled by baghouse CE002, and exhausting through stack EP002.
- (c) One (1) grain handling process, to be constructed in 2006, with a maximum throughput rate of 40,000 bushels of grain per hour, controlled by baghouse CE003, and exhausting through stack EP003. This process consists of the following:
  - (1) One (1) grain conveyor, identified as EU003.
  - (2) One (1) grain elevator, identified as EU004.
  - (3) Two (2) corn bins/silos, with a total maximum combined capacity of 802,000 bushels, identified as EU005 and EU025.
  - (4) One (1) scalper, identified as EU006.
  - (5) One (1) surge bin, with a total maximum combined capacity of 73,100 bushels identified as EU007.
- (d) One (1) process belt conveyor, identified as EU008, to be constructed in 2006, with a maximum throughput rate of 5,000 bushels of grain per hour, controlled by baghouse CE004, and exhausting through stack EP004.

- (e) One (1) wet milling process, identified as WM and EU009, to be constructed in 2006, with a maximum throughput rate of 5,000 bushels of grain per hour, controlled by thermal oxidizer CE005, and exhausting through stack EP005. This process consists of the following:
  - (1) One (1) soak tank.
  - (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 centrifuge.
  - (8) One (1) liquefaction tank
- (f) One (1) germ dryer and cooling process, identified as GD and EU010, to be constructed in 2006, using natural gas as fuel, with a maximum heat input capacity of 10 MMBtu/hr and the maximum throughput rate of 250 bushels per hour of dry solid (excluding water), controlled by cyclone CE005A and thermal oxidizer CE005, and exhausting through stack EP005.
- (g) One (1) fiber dryer, identified as FD and EU011, to be constructed in 2006, with a maximum heat input capacity of 23 MMBtu per hour and a maximum throughput rate of 500 bushels per hour of dry solid (excluding water), controlled by cyclone CE005B and thermal oxidizer CE005, and exhausting through stack EP005.
- (h) One (1) protein concentration process, identified as PC and EU012, to be constructed in 2006, with a maximum heat input capacity of 47 MMBtu per hour, maximum throughput rate of 200 bushels per hour of dry solids (excluding water), and a storage capacity of 22,500 bushels, controlled by cyclone CE005C and thermal oxidizer CE005, and exhausting through stack EP005. 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 per hour.
  - (4) One (1) evaporator feed tank.
  - (5) One (1) soluble protein concentrator evaporator.
- (i) One (1) distillation and dehydration process, identified as DD and EU013, to be constructed in 2006, with a maximum ethanol production of 6,850 gal/hr, controlled by thermal oxidizer CE005, and exhausting through stack EP005.
- (j) One (1) germ storage tank, identified as GS and EU014, to be constructed in 2006, with a maximum throughput rate of 28,100 bushels of grain per hour, controlled by baghouse CE006, and exhausting through EP006.

- (k) One (1) fiber storage bin, identified as FS and EU011, to be constructed in 2006, with a maximum throughput rate of 22,500 bushels of grain per hour, controlled by baghouse CE007, and exhausting through EP007.
- (l) One (1) protein concentrate storage bins, identified as EU016, to be constructed in 2006, with a maximum throughput rate of 22,500 bushels per hour, controlled by baghouse CE008, and exhausting through EP008.
- (m) One (1) fermentation process, identified as FP and EU017, to be constructed in 2006, with a maximum throughput rate of 68,500 gallons per hour, using wet scrubber CE009 for VOC control and sodium bisulfite injection for HAP control, exhausting through stack EP009. Wet scrubber CE009 may exhaust to the carbon dioxide recovery plant when in operation.
- (n) One (1) beer well, identified as BW and EU018, to be constructed in 2006, with a maximum throughput rate of 10,000 gallons per hour, using wet scrubber CE009 for VOC control and sodium bisulfite injection for HAP control, exhausting through stack EP009. Wet scrubber CE009 may exhaust to the carbon dioxide recovery plant when in operation.
- (o) One (1) truck loadout hood, identified as SS1 and EU019, to be constructed in 2006, with a maximum throughput rate of 7,500 bushels per hour, controlled by baghouse CE010, and exhausting stack EP010.
- (p) One (1) rail loadout hood, identified as SS2 and EU020, to be constructed in 2006, with a maximum throughput rate of 7,500 bushels per hour, controlled by baghouse CE011, and exhausting stack EP011.
- (q) One (1) thermal oxidizer/heat recovery steam generator, identified as CE005, to be constructed in 2006, 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 EP005.
- (r) One (1) ethanol loading rack for truck loading, utilizing submerged loading only, identified as ERT and EU021, to be constructed in 2006, 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 three (3) MMBtu per hour, and exhausting through stack EP012.
- (s) One (1) ethanol loading rack for railcar loading, utilizing submerged loading only, identified as ERR and EU026, to be constructed in 2006, with a maximum throughput rate of 96,000 gallons per hour. The railcar loading process is uncontrolled.
- (t) One (1) natural gas fired trim boiler, identified as EU023, to be constructed in 2006, with a maximum heat input capacity of 96 MMBtu per hour, equipped with a low NOx burner, and exhausting through stack EP014.

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

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 PM<sub>10</sub>, NO<sub>x</sub>, and SO<sub>2</sub> 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 T001 and T002, to be constructed in 2006, each with a maximum capacity of 85,000 gallons of 200-proof ethanol.
  - (2) One (1) denaturant tank, identified as T003, constructed in 2006, with a maximum capacity of 35,000 gallons of denatured gasoline.
  - (3) Two (2) denatured ethanol tanks, identified as T004 and T005, to be constructed in 2006, each with a maximum capacity of 750,000 gallons of denatured ethanol.
  - (4) One (1) digester for process water, identified as MF, to be constructed in 2006. This unit has methane emissions and is controlled by thermal oxidizer CE005 or by methanator 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) deletedby 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  
Indianapolis, Indiana 46204

- (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  
Indianapolis, Indiana 46204

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

- (b) A copy of the PMPs shall be submitted to IDEM, OAQ, upon request and within a reasonable time, and shall be subject to review and approval by IDEM, OAQ. IDEM, OAQ, may require the Permittee to revise its PMPs whenever lack of proper maintenance causes or is the primary contributor to an exceedance of any limitation on emissions or potential to emit. The PMP does not require the certification by the "authorized individual" as defined by 326 IAC 2-1.1-1(1).
- (c) To the extent the Permittee is required by 40 CFR Part 60/63 to have an Operation, Maintenance, and Monitoring (OMM) Plan for a unit, such Plan is deemed to satisfy the PMP requirements of 326 IAC 1-6-3 for that unit.

**B.13 Emergency Provisions [326 IAC 2-8-12]**

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- (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  
Indianapolis, Indiana 46204

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) The Permittee seeking to establish the occurrence of an emergency shall make records available upon request to ensure that failure to implement a PMP did not cause or contribute to an exceedance of any limitations on emissions. However, IDEM, OAQ, may require that the Preventive Maintenance Plans required under 326 IAC 2-8-3(c)(6) be revised in response to an emergency.
- (f) Failure to notify IDEM, OAQ, by telephone or facsimile of an emergency lasting more than one (1) hour in accordance with (b)(4) and (5) of this condition shall constitute a violation of 326 IAC 2-8 and any other applicable rules.
- (g) Operations may continue during an emergency only if the following conditions are met:
- (1) If the emergency situation causes a deviation from a technology-based limit, the Permittee may continue to operate the affected emitting facilities during the emergency provided the Permittee immediately takes all reasonable steps to correct the emergency and minimize emissions.
  - (2) If an emergency situation causes a deviation from a health-based limit, the Permittee may not continue to operate the affected emissions facilities unless:

- (A) The Permittee immediately takes all reasonable steps to correct the emergency situation and to minimize emissions; and
- (B) Continued operation of the facilities is necessary to prevent imminent injury to persons, severe damage to equipment, substantial loss of capital investment, or loss of product or raw material of substantial economic value.

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

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

**B.14 Deviations from Permit Requirements and Conditions [326 IAC 2-8-4(3)(C)(ii)]**

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- (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  
Indianapolis, Indiana 46204

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]**

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- (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)]**

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- (a) The application for renewal shall be submitted using the application form or forms prescribed by IDEM, OAQ and shall include the information specified in 326 IAC 2-8-3. 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  
Indianapolis, Indiana 46204

- (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]**

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- (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  
Indianapolis, Indiana 46204

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 limitations provided in this permit (whether expressed herein as a rate of emissions or in terms of total emissions);
- (4) The Permittee notifies the:

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

and

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

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

- (5) The Permittee maintains records on-site, on a five (5) year basis, which document all such changes and emission trades that are subject to 326 IAC 2-8-15(b) through (d). The Permittee shall make such records available, upon reasonable request, 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) The Permittee may make Section 502(b)(10) of the Clean Air Act changes (this term is defined at 326 IAC 2-7-1(36)) without a permit revision, subject to the constraint of 326 IAC 2-8-15(a). For each such Section 502(b)(10) of the Clean Air Act change, the required written notification shall include the following:

- (1) A brief description of the change within the source;
- (2) The date on which the change will occur;
- (3) Any change in emissions; and
- (4) Any permit term or condition that is no longer applicable as a result of the change.

The notification which shall be submitted is not considered an application form, report or compliance certification. Therefore, the notification by the Permittee does not require the certification by the "responsible official" as defined by 326 IAC 2-7-1(34).

- (c) 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).
- (d) 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.
- (e) 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]**

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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]**

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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]**

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- (a) The Permittee must comply with the requirements of 326 IAC 2-8-10 whenever the Permittee seeks to change the ownership or operational control of the source and no other change in the permit is necessary.
- (b) Any application requesting a change in the ownership or operational control of the source shall contain a written agreement containing a specific date for transfer of permit responsibility, coverage and liability between the current and new Permittee. The application shall be submitted to:  
  
Indiana Department of Environmental Management  
Permits Branch, Office of Air Quality  
100 North Senate Avenue  
Indianapolis, Indiana 46204  
  
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]**

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- (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 2-8-4(3)][326 IAC 2-8-5][62 FR 8314][326 IAC 1-1-6]**

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

## SECTION C SOURCE OPERATION CONDITIONS

Entire Source

### 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 [326 IAC 6-3-2]

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

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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)]

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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]

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

C.7 Stack Height [326 IAC 1-7]

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

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

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

All required notifications shall be submitted to:

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

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

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

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

Indiana Department of Environmental Management  
Compliance Data Section, Office of Air Quality  
100 North Senate Avenue  
Indianapolis, Indiana 46204

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

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The commissioner may require stack testing, monitoring, or reporting at any time to assure compliance with all applicable requirements by issuing an order under 326 IAC 2-1.1-11. Any

monitoring or testing shall be performed in accordance with 326 IAC 3 or other methods approved by the commissioner or the U. S. EPA.

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

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

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

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- (a) The Permittee shall install, calibrate, maintain, and operate all necessary continuous emission monitoring systems (CEMS) and related equipment.
- (b) In the event that a breakdown of a continuous emission monitoring system occurs, a record shall be made of the times and reasons of the breakdown and efforts made to correct the problem.
- (c) Whenever a continuous emission monitor other than an opacity monitor is malfunctioning or will be down for calibration, maintenance, or repairs for a period of four (4) hours or more, a calibrated backup CEMS shall be brought online within four (4) hours of shutdown of the primary CEMS, and shall be operated until such time as the primary CEMS is back in operation.
- (d) Nothing in this permit shall excuse the Permittee from complying with the requirements to operate a continuous emission monitoring system pursuant to 40 CFR 60, Subpart Db.

#### **C.13 Monitoring Methods [326 IAC 3] [40 CFR 60] [40 CFR 63]**

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

#### **C.14 Instrument Specifications [326 IAC 2-1.1-11] [326 IAC 2-8-4(3)] [326 IAC 2-8-5(1)]**

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

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

#### **C.15 Risk Management Plan [326 IAC 2-8-4] [40 CFR 68]**

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

C.16 Response to Excursions or Exceedances [326 IAC 2-8-4] [326 IAC 2-8-5]

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

C.17 Actions Related to Noncompliance Demonstrated by a Stack Test [326 IAC 2-8-4][326 IAC 2-8-5]

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

The response action documents submitted pursuant to this condition do require the certification by 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.18 General Record Keeping Requirements [326 IAC 2-8-4(3)] [326 IAC 2-8-5]**

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- (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.19 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 IAC 2-1.1-1(1).
- (b) The report required in (a) of this condition and reports required by conditions in Section D of this permit shall be submitted to:  
  
Indiana Department of Environmental Management  
Compliance Branch, Office of Air Quality  
100 North Senate Avenue  
Indianapolis, Indiana 46204
- (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.20 Compliance with 40 CFR 82 and 326 IAC 22-1**

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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 – Boilers

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

- (a) One (1) natural gas fired trim boiler, identified as EU023, to be constructed in 2006, with a maximum heat input capacity of 96 MMBtu per hour, 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 Nitrogen Oxides (NOx) [326 IAC 2-8-4] [326 IAC 2-2]

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

- (a) The boiler shall only burn natural gas.
- (b) The input of the natural gas to the trim boiler shall be limited to less than 627.6 MMCF per 12 consecutive month period, with compliance determined at the end of each month.
- (c) NOx emissions shall not exceed 51 pounds per MMCF.
- (d) Total NOx emissions from fuel combustion shall be limited to 42.9 tons per year.

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

#### D.1.6 CO Emissions [326 IAC 2-8-4] [326 IAC 2-2]

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

- (a) The boiler shall only burn natural gas.
- (b) The input of natural gas to the trim boiler shall be limited to less than 627.6 MMCF per 12 consecutive month period, with compliance determined at the end of each month.
- (c) CO emissions from the trim boiler shall not exceed 51 pounds per MMCF.
- (d) Total CO emissions from fuel combustion shall be limited to 16.0 tons per year.

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

#### D.1.7 VOC Emissions [326 IAC 2-8-4] [326 IAC 2-2]

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Pursuant to 326 IAC 2-8-4, and in order to render the requirements of 326 IAC 2-2 (PSD) not applicable, the VOC emissions from the trim boiler shall not exceed 5.5 lbs/MMCF. Total VOC emissions from fuel combustion shall be limited to 1.73 tons per year. Combined with the VOC emissions from other units, the VOC emissions from the entire source are limited to less than one hundred (100) tons per year. Therefore, the requirements of 326 IAC 2-7 (Part 70 Program) and 326 IAC 2-2 (PSD) are not applicable.

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

---

- (a) Pursuant to 326 IAC 6-2-4 (Particulate Emission Limitations for Sources of Indirect Heating: Emission Limitations for facilities specified in 326 IAC 6-2-1(d)), the PM emissions from the boiler shall not exceed 0.256 pounds per million Btu heat input (lb/MMBtu). This limitation was calculated using the following equation:

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

For this unit,  $Q = 264$  MMBtu/hr.

- (b) Pursuant to 326 IAC 2-8-4, and in order to render the requirements of 326 IAC 2-2 (PSD) not applicable, the PM and PM10 emissions from the trim boiler shall not exceed 7.6 pounds per MMCF. Total PM and PM10 emissions from fuel combustion shall be limited to 2.38 tons per year. Combined with the particulate matter emissions from other units, the particulate matter emissions from the entire source are limited to less than one hundred (100) tons per year. Therefore, the requirements of 326 IAC 2-7 (Part 70 Program) and 326 IAC 2-2 (PSD) are not applicable.

#### D.1.9 SO2 Emissions [326 IAC 2-8-4] [326 IAC 2-2]

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Pursuant to 326 IAC 2-8-4, and in order to render the requirements of 326 IAC 2-2 (PSD) not applicable, the SO2 emissions from the trim boiler shall not exceed 1.5 pounds per MMCF. Total SO2 emissions from fuel combustion shall be limited to 3.39 tons per year. Combined with the SO2 emissions from other units, the SO2 emissions from the entire source are limited to less than one hundred (100) tons per year. Therefore, the requirements of 326 IAC 2-7 (Part 70 Program) and 326 IAC 2-2 (PSD) are not applicable.

**D.1.10 HAP Emissions [326 IAC 2-8-4] [326 IAC 2-2]**

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Pursuant to 326 IAC 2-8-4, the HAP emissions from the trim boiler shall not exceed 0.0147 pounds acetaldehyde per MMCF. The annual emissions shall not exceed 0.0046 tons acetaldehyde per year. Combined with the single HAP and total HAPs emissions from other units, the single HAP emissions and total HAPs emissions from the entire source are limited to less than ten (10) tons per year and twenty-five (25) tons per year, respectively. Therefore, the requirements of 326 IAC 2-7 (Part 70 Program) are not applicable.

**D.1.11 General Provisions Relating to NSPS [326 IAC 12-1][40 CFR Part 60, Subpart A]**

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

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

**D.1.13 Preventive Maintenance Plan [326 IAC 2-8-4(9)]**

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

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In order to demonstrate compliance with Conditions D.1.5, D.1.6, D.1.7, D.1.8(b), D.1.9, and D.1.10, the Permittee shall perform NO<sub>x</sub>, CO, VOC, PM, PM<sub>10</sub>, SO<sub>2</sub> and acetaldehyde testing for the trim boiler, within sixty (60) days after achieving the maximum capacity, but not later than one hundred eighty (180) days after initial startup, utilizing methods as approved by the Commissioner. These tests shall be repeated at least once every five (5) years from the date of this valid compliance demonstration. Testing shall be conducted in accordance with Section C - Performance Testing.

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

**D.1.15 Record Keeping Requirements**

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- (a) To document compliance with Condition D.1.12, the Permittee shall maintain daily records of the amount and type of fuel combusted in the trim boiler.
- (b) In order to demonstrate compliance with Conditions D.1.5 and D.1.6 the Permittee shall record the quantity of natural gas combusted at the trim boiler.
- (c) All records shall be maintained in accordance with Section C - General Record Keeping Requirements, of this permit.

**D.1.16 Reporting Requirements**

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A quarterly summary of the information to document compliance with Conditions D.1.5 and D.1.6 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.2 FACILITY OPERATION CONDITIONS – Grain Receiving and Handling Processes

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

- (a) One (1) truck dump pit, identified as EU001, to be constructed in 2006, with a maximum throughput rate of 20,000 bushels of grain per hour, controlled by baghouse CE001, and exhausting through stack EP001.
- (b) One (1) rail dump pit, identified as EU002, to be constructed in 2006, with a maximum throughput rate of 20,000 bushels of grain per hour, controlled by baghouse CE002, and exhausting through stack EP002.
- (c) One (1) grain handling process, to be constructed in 2006, with a maximum throughput rate of 40,000 bushels of grain per hour, controlled by baghouse CE003, and exhausting through stack EP003. This process consists of the following:
  - (1) One (1) grain conveyor, identified as EU003.
  - (2) One (1) grain elevator, identified as EU004.
  - (3) Two (2) corn bins/silos, with a total maximum combined capacity of 802,000 bushels, identified as EU005 and EU025.
  - (4) One (1) scalper, identified as EU006.
  - (5) One (1) surge bin, with a total maximum combined capacity of 73,100 bushels identified as EU007.
- (d) One (1) process belt conveyor, identified as EU008, to be constructed in 2006, with a maximum throughput rate of 5,000 bushels of grain per hour, controlled by baghouse CE004, and exhausting through stack EP004.
- (e) One (1) germ storage tank, identified as GS and EU014, to be constructed in 2006, with a maximum throughput rate of 28,100 bushels of grain per hour, controlled by baghouse CE006, and exhausting through EP006.
- (f) One (1) fiber storage bin, identified as FS and EU015, to be constructed in 2006, with a maximum throughput rate of 22,500 bushels of grain per hour, controlled by baghouse CE007, and exhausting through EP007.
- (g) One (1) protein concentrate storage bins, identified as EU016, to be constructed in 2006, with a maximum throughput rate of 22,500 bushels per hour, controlled by baghouse CE008, and exhausting through EP008.
- (h) One (1) truck loadout hood, identified as SS1 and EU019, to be constructed in 2006, with a maximum throughput rate of 7,500 bushels per hour, controlled by baghouse CE010, and exhausting stack EP010.
- (i) One (1) rail loadout hood, identified as SS2 and EU020, to be constructed in 2006, with a maximum throughput rate of 7,500 bushels per hour, 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**

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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]**

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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]**

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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]**

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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]**

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Pursuant to 326 IAC 2-8-4 (FESOP), and in order to render the requirements of 326 IAC 2-2 (PSD) not applicable, 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

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

**D.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	5.3	12.5
FS	Each of Fiber Storage Tank	6.6	14.5
PCS	Each of CPC Storage Bin	13.2	23.1
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:

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

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:

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

**D.2.7 VOC Emissions [326 IAC 2-8-4] [326 IAC 2-2]**

Pursuant to 326 IAC 2-8-4, and in order to render the requirements of 326 IAC 2-2 (PSD) not applicable, the VOC emissions from the emission units EU014, EU015 and EU016 shall not exceed 0.280, 0.0337, and 1.79 pounds per hour, respectively. The annual VOC emissions from the emission units EU014, EU015 and EU016 shall not exceed 1.23, 0.148, and 7.93 tons per year, respectively. Combined with the VOC emissions from other units, the VOC emissions from the entire source are limited to less than one hundred (100) tons per year. Therefore, the requirements of 326 IAC 2-7 (Part 70 Program) and 326 IAC 2-2 (PSD) are not applicable.

**D.2.8 HAP Emissions [326 IAC 2-8-4] [326 IAC 2-2]**

Pursuant to 326 IAC 2-8-4, the HAP emissions from the emission units EU014, EU015 and EU016 shall not exceed 0.0040, 0.00046, and 0.0256 pounds acetaldehyde per hour, respectively. The annual emissions from the emission units EU014, EU015 and EU016 shall not exceed 0.0175, 0.0020, and 0.112 tons acetaldehyde per year, respectively. Combined with the single HAP and total HAPs emissions from other units, the single HAP emissions and total HAPs emissions from the entire source are limited to less than ten (10) tons per year and twenty-five (25) tons per year, respectively. Therefore, the requirements of 326 IAC 2-7 (Part 70 Program) are not applicable.

**D.2.9 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 any control devices.

## Compliance Determination Requirements

### D.2.10 Particulate Control

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- (a) In order to comply with Conditions D.2.5 and D.2.6, the baghouse for particulate control shall be in operation and control emissions from the emission units at all times that the emission units are in operation 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

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

### D.2.11 Testing Requirements [326 IAC 2-8-5(a)(1), (4)] [326 IAC 2-1.1-11]

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In order to demonstrate compliance with Conditions D.2.5 through D.2.8, the Permittee shall perform PM, PM10, VOC (including emission rate, destruction efficiency, and capture efficiency) and acetaldehyde testing, within sixty (60) days after achieving the maximum capacity, but not later than one hundred eighty (180) days after initial startup, utilizing methods as approved by the Commissioner. These tests shall be repeated at least once every five (5) years from the date of this valid compliance demonstration. Testing shall be conducted in accordance with Section C - Performance Testing.

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

### D.2.12 Visible Emissions Notations

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- (a) Visible emission notations of the baghouse stack exhausts (stacks EP001 through EP006, and EP009 through EP011) shall be performed once per day during normal daylight operations when exhausting to the atmosphere. A trained employee shall record whether emissions are normal or abnormal.
- (b) For processes operated continuously, "normal" means those conditions prevailing, or expected to prevail, eighty percent (80%) of the time the process is in operation, not counting startup or shut down time.
- (c) In the case of batch or discontinuous operations, readings shall be taken during that part of the operation that would normally be expected to cause the greatest emissions.
- (d) A trained employee is an employee who has worked at the plant at least one (1) month and has been trained in the appearance and characteristics of normal visible emissions for that specific process.
- (e) If abnormal emissions are observed, the Permittee shall take reasonable steps in accordance with Section C – Response to Excursions or Exceedances. Failure to take response steps in accordance with Section C - Response to Excursions or Exceedances shall be considered a deviation from this permit.

#### D.2.13 Baghouse Parametric Monitoring

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- (a) The Permittee shall record the 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 day when these units are in operation. When for any one reading, the pressure drop across the baghouse is outside the normal range of 1.0 to 6.0 inches of water or a range established during the latest stack test, the Permittee shall take reasonable response steps in accordance with Section C- Response to Excursions or Exceedances. A pressure reading that is outside the above mentioned range is not a deviation from this permit. Failure to take response steps in accordance with Section C - Response to Excursions or Exceedances shall be considered a deviation from this permit.
- (b) The instrument used for determining the pressure shall comply with Section C - Instrument Specifications, of this permit, shall be subject to approval by IDEM, OAQ and shall be calibrated at least once every six (6) months.

#### D.2.14 Broken or Failed Bag Detection [326 IAC 2-8-5(1)] [326 IAC 2-8-4(1)]

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

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

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

#### D.2.15 Record Keeping Requirements

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- (a) To document compliance with Condition D.2.12, the Permittee shall maintain records of once per day visible emission notations of the baghouse stack exhausts.
- (b) To document compliance with Condition D.2.13, the Permittee shall maintain once per day records of the pressure drop across each baghouse.
- (c) 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)]:

- (a) One (1) fermentation process, identified as FP and EU017, to be constructed in 2006, with a maximum throughput rate of 68,500 gallons per hour, using wet scrubber CE009 for VOC control and sodium bisulfite injection for HAP control, exhausting through stack EP009. Wet scrubber CE009 may exhaust to the carbon dioxide recovery plant when in operation.
- (b) One (1) beer well, identified as BW and EU018, to be constructed in 2006, with a maximum throughput rate of 10,000 gallons per hour, using wet scrubber CE009 for VOC control and sodium bisulfite injection for HAP control, exhausting through stack EP009. Wet scrubber CE009 may exhaust to the carbon dioxide recovery plant when in operation.

(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), and in order to render the requirements of 326 IAC 2-2 (PSD) and 326 IAC 2-4.1 (MACT) not applicable, the VOC and HAP emissions from scrubber CE009 controlling the fermentation process and beer well shall not exceed the following:

- (a) 2.22 pounds per hour for VOC.
- (b) 0.904 pound per hour for total HAPs.

- (c) 0.858 pound per hour for acetaldehyde (HAP).

Combined with the VOC emissions from other units, the VOC emissions from the entire source are limited to less than one hundred (100) tons per year, and the total HAP emissions from the entire source are limited to less than ten (10) tons per year for a single HAP and less than twenty-five (25) tons per year for any combination of HAPs. Therefore, the requirements of 326 IAC 2-7 (Part 70 Program), 326 IAC 2-2 (PSD), and 326 IAC 2-4.1 (MACT) are not applicable.

#### D.3.6 VOC Emissions [326 IAC 8-1-6]

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

- (a) The VOC emissions from the fermentation process (FP) and beer well shall be controlled by wet scrubber CE009.
- (b) The overall control efficiency for the wet scrubber shall be at least 98%.
- (c) The VOC emissions from wet scrubber CE007 shall not exceed 2.22 pounds per hour.

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

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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

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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 and beer well at all times that this process is in operation.

#### D.3.9 HAP Control

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In order to comply with Condition D.3.5(c), the sodium bisulfite injection system shall be in operation, and injecting sodium bisulfite into scrubber CE009, at all times that the fermentation process and beer well are in operation.

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

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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 acetaldehyde testing for scrubber CE009, within sixty (60) days after achieving the maximum capacity, but not later than one hundred eighty (180) days after initial startup, utilizing methods as approved by the Commissioner. These tests shall be repeated at least once every five (5) years from the date of this valid compliance demonstration. Testing shall be conducted in accordance with Section C - Performance Testing.

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

#### D.3.11 Parametric Monitoring

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The Permittee shall monitor and record the flow rate of scrubber CE009 at least once per day when the fermentation process and beer well are 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 - Response to Excursions or Exceedances. A flow rate that is below the above mentioned minimum is not a deviation from this permit. Failure to take response steps in accordance with Section C - Response to Excursions or Exceedances shall be considered a deviation from this permit.

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

#### D.3.12 Sodium Bisulfite Injection System

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- (a) A continuous monitoring system shall be calibrated, maintained, and operated on fermentation scrubber (CE009) for measuring the sodium bisulfite injection rate. For the purpose of this condition, continuous means no less than once per minute. The output of this system shall be recorded as a one-hour average. From the date of issuance of this permit until the approved stack test results are available, the Permittee shall inject sodium bisulfite at a rate of 12 milliliters per minute.
- (b) The Permittee shall determine the one-hour average injection rate from the most recent valid stack test that demonstrates compliance with limits in condition D.3.5(c), as approved by IDEM.
- (c) On and after the date the approved stack test results are available, the Permittee shall inject sodium bisulfite at or above the one-hour average injection rate as observed during the compliant stack test.

#### D.3.13 Scrubber Detection

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In the event that a scrubber malfunction has been observed:

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

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

#### D.3.14 Record Keeping Requirements

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- (a) To document compliance with Condition D.3.11, the Permittee shall maintain once per day records of flow rate for scrubber CE009 during normal operation.
- (b) To document compliance with D.3.5(c), the Permittee shall maintain records of the sodium bisulfite injection rate at scrubber CE009.
- (c) 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)]:**

- (a) One (1) thermal oxidizer/heat recovery steam generator, identified as CE005, to be constructed in 2006, 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 per hour, and exhausting through stack EP005.
- (b) One (1) wet milling process, identified as WM and EU009, to be constructed in 2006, with a maximum throughput rate of 5,000 bushels of grain per hour, controlled by thermal oxidizer CE005, and exhausting through stack EP005. This process consists of the following:
  - (1) One (1) soak tank.
  - (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.
  - (8) One (1) liquefaction tank
- (c) One (1) germ dryer and cooling process, identified as GD and EU010, to be constructed in 2006, using natural gas as fuel, with a maximum heat input capacity of 10 MMBtu per hour and the maximum throughput rate of 250 bushels per hour of dry solid (excluding water), controlled by a cyclone CE005A and the thermal oxidizer CE005, and exhausting through stack EP005.
- (d) One (1) fiber dryer, identified as FD and EU011, to be constructed in 2006, with a maximum heat input capacity of 23 MMBtu per hour and the maximum throughput rate of 500 bushels per hour of dry solid (excluding water), controlled by a cyclone CE005B and the thermal oxidizer CE005, and exhausting through stack EP005.
- (e) One (1) protein concentration process, identified as PC and EU012, to be constructed in 2006, with a maximum heat input capacity of 47 MMBtu per hour and the maximum throughput rate of 200 bushels per hour of dry solids (excluding water), with a storage capacity of 22,500 bushels, controlled by a cyclone CE005C and the thermal oxidizer CE005, and exhausting through stack EP005. 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 per hour.

**Facility Description: (Continued)**

- (4) One (1) evaporator feed tank.
- (5) One (1) soluble protein concentrator evaporator.
- (f) One (1) distillation and dehydration process, identified as DD and EU013, to be constructed in 2006, with a maximum ethanol production of 6,850 gallons per hour, controlled by thermal oxidizer CE005, and exhausting through stack EP005.

(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 Thermal Oxidizer FESOP Limits [326 IAC 2-2] [326 IAC 2-8-4] [326 IAC 2-4.1]**

Pursuant to 326 IAC 2-8-4 (FESOP), and in order to render the requirements of 326 IAC 2-2 (PSD) and 326 IAC 2-4.1 (MACT) not applicable, the Permittee shall comply with the following emission limits for thermal oxidizer/heat recovery steam generator CE005 which is used to control the wet milling process (WM), the germ dryer 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 8.89 pounds per hour.
- (b) VOC emissions shall not exceed 10.56 pounds per hour.

- (c) CO emissions shall not exceed 18.20 pounds per hour.
- (d) NOx emissions shall not exceed 12.49 pounds per hour.
- (e) Acetaldehyde emissions shall not exceed 0.230 pound per hour.
- (f) SO<sub>2</sub> emissions shall not exceed 7.51 pounds per hour.

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

#### D.4.6 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 CE005.
- (b) The overall control efficiency for the thermal oxidizer CE005 shall be at least 98%.
- (c) The VOC emissions from thermal oxidizer CE005 shall not exceed 10.56 pounds per hour.

#### 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 CE005 except when otherwise specified in 40 CFR Part 60, Subpart Db.

#### D.4.8 General Provisions Relating to NSPS [326 IAC 12-1][40 CFR Part 60]

- (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.
- (b) Pursuant to 40 CFR 60.48c, the Permittee shall maintain daily records of the amount and type of fuel burned in the thermal oxidizer/heat recovery steam generator, CE005.
- (c) Pursuant to 40 CFR 60.44b, Subpart Db, the NOx emissions from thermal oxidizer/heat recovery steam generator CE005 shall not exceed 0.1 pound per MMBtu.
- (d) Pursuant to 40 CFR 60.48b, the Permittee shall comply with the following monitoring condition for the thermal oxidizer/heat recovery steam generator CE005:
  - (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.

#### 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: Emission Limitations for facilities specified in 326 IAC 6-2-1(d)), the PM emissions from the boiler shall not exceed 0.256 pound per MMBTU heat input. This limitation was calculated using the following equation:

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

For this unit, Q = 264 MMBtu 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 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:

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

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:

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

**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 the 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 CE005 shall be in operation and control emissions from the wet milling processes, the

germ dryer and cooling process, the fiber dryer, the corn protein concentrator (CPC) dryer, 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]**

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- (a) Pursuant to 40 CFR 60.46(b)(c) and in order to demonstrate compliance with Condition D.4.8, the Permittee shall perform NO<sub>x</sub> testing for thermal oxidizer/heat recovery steam generator CE005, within sixty (60) days after achieving the maximum capacity, but not later than one hundred eighty (180) days after initial startup, utilizing methods as approved by the Commissioner.
- (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, PM<sub>10</sub>, VOC (including emission rate, destruction efficiency, and capture efficiency), SO<sub>2</sub>, CO, and acetaldehyde testing for thermal oxidizer/heat recovery steam generator CE005, within sixty (60) days after achieving the maximum capacity, but not later than one hundred eighty (180) days after initial startup, utilizing methods as approved by the Commissioner. PM-10 includes filterable and condensable 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 sixty (60) days after achieving the maximum capacity, but not later than one hundred eighty (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)]**

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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 NO<sub>x</sub> emissions discharged to the atmosphere from the thermal oxidizer/heat recovery steam generator CE005. 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.

**D.4.18 Visible Emissions Notations**

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- (a) Visible emission notations of the stack exhaust from stack EP005 shall be performed once per day during normal daylight operations when exhausting to the atmosphere. A trained employee shall record whether emissions are normal or abnormal.
- (b) For processes operated continuously, "normal" means those conditions prevailing, or expected to prevail, eighty percent (80%) of the time the process is in operation, not counting startup or shut down time.
- (c) In the case of batch or discontinuous operations, readings shall be taken during that part of the operation that would normally be expected to cause the greatest emissions.
- (d) A trained employee is an employee who has worked at the plant at least one (1) month and has been trained in the appearance and characteristics of normal visible emissions for that specific process.
- (e) If abnormal emissions are observed, the Permittee shall take reasonable steps in accordance with Section C - Response to Excursions or Exceedances. Failure to take response steps in accordance with Section C - Response to Excursions or Exceedances shall be considered a deviation from this permit.

#### D.4.19 Thermal Oxidizer Temperature

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- (a) A continuous monitoring system shall be calibrated, maintained, and operated on the thermal oxidizer (CE005) for measuring operating temperature. For the purpose of this condition, continuous means no less than once per minute. The output of this system shall be recorded as a three-hour 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 three-hour average temperature of 1,500°F.
- (b) The Permittee shall determine the three-hour 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 three-hour average temperature as observed during the compliant stack test.

#### D.4.20 Parametric Monitoring

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- (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 Cyclone Failure Detection

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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 - Response to Excursions or Exceedances shall be considered a deviation from this permit

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

#### D.4.22 Record Keeping Requirements

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- (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 day visible emission notations of the stack EP005 (or EP013 when operating as the emergency backup).
- (c) To document compliance with Condition D.4.19, the Permittee shall maintain continuous temperature records for the thermal oxidizer and the three hour average temperature 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) All records shall be maintained in accordance with Section C - General Record Keeping Requirements, of this permit.

D.4.23 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 twelve (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<sub>2</sub>) (ng/J or lb/million Btu heat input) measured or predicted.
  - (3) The thirty (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 thirty (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 Record Keeping Requirements, of this permit.

D.4.24 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 NO<sub>x</sub> 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 thirty (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)]:

- (a) One (1) ethanol loading rack for truck loading, utilizing submerged loading only, identified as ERT and EU021, to be constructed in 2006, 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 three (3) MMBtu per hour, and exhausting through stack EP012.
- (b) One (1) ethanol loading rack for railcar loading, utilizing submerged loading only, identified as ERR and EU026, to be constructed in 2006, with a maximum throughput rate of 96,000 gallons per hour. The railcar loading process is uncontrolled.

(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), and in order to render the requirements of 326 IAC 2-2 (PSD) not applicable, the Permittee shall comply with the following emission limits for the truck (E021) and railcar (EU026) loading racks:

- (a) The denatured ethanol load-out rate associated with the truck loading rack (EU021) and the railcar loading rack (EU026) combined 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 truck loading rack (EU021) when loading denatured ethanol to trucks.
- (c) VOC emissions from flare CE012 exhaust associated with the truck loading rack (EU021) shall not exceed 0.0224 pounds per thousand gallons, and 0.70 tons per year.
- (d) The total NOx emissions from the flare CE012 exhaust associated with the truck loading rack (EU021) shall not exceed 0.077 pounds per thousand gallons, and 2.43 tons per year.
- (e) The total CO emissions from the flare CE012 exhaust associated with the truck loading rack (EU021) shall not exceed 0.129 pounds per thousand gallons, and 4.06 tons per year.
- (f) The VOC emissions from the railcar loading rack (EU026) shall not exceed 0.453 pounds per thousand gallons, and 14.26 tons per year.

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 one hundred (100) tons per year and the total HAP emissions from the entire source are limited to less than ten (10) tons per year for a single HAP and less than twenty-five (25) tons per year for any combination of HAPs. 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]

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- (a) In order to render the requirements of 326 IAC 8-1-6 (BACT) not applicable to the railcar loading rack (EU026), the following conditions shall apply:

- (1) The railcar ethanol loading rack (EU026) shall utilize only submerged fill loading and railcars that use non-vapor balance (normal) service; and
- (2) Railcar loading shall utilize only dedicated service railcars, which consists of transportation of only ethanol in the cargo carriers.

Compliance with these requirements is necessary to render 326 IAC 8-1-6 (BACT) not applicable to the railcar loading rack (EU026).

- (b) Pursuant to 326 IAC 8-1-6 (BACT), 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:
  - (1) The VOC emissions from the truck loading rack (EU021) shall be collected and controlled by enclosed flare CE012 when loading denatured ethanol to trucks.
  - (2) The overall control efficiency for the vapor collection system and enclosed flare CE012 associated with the truck loading rack (EU021) shall be at least 98%.
  - (3) The VOC emissions from enclosed flare CE012 associated with the truck loading rack (EU021) shall not exceed 0.0224 pounds per thousand gallons of denatured ethanol loaded, and 0.70 tons per year.
  - (4) The truck loading rack (EU021) shall utilize only submerged fill loading and trucks that use non-vapor balance (normal) service.

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

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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)]**

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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**

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In order to comply with Conditions D.5.5 and D.5.6(b), the enclosed flare CE012 shall be in operation and control emissions from the truck loading rack (EU021) at all times when ethanol is being loaded 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]**

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In order to demonstrate compliance with Conditions D.5.5(c), (d), (e), (f) and D.5.6 associated with the truck loading rack (EU021), the Permittee shall perform VOC (including emission rate, destruction efficiency, and capture efficiency), CO, and NOx testing for enclosed flare CE012, within sixty (60) days after achieving the maximum capacity, but not later than one hundred eighty (180) days after initial startup, utilizing methods as approved by the Commissioner. These tests shall be repeated at least once every five (5) years from the date of this valid compliance demonstration. Testing shall be conducted in accordance with Section C - Performance Testing.

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

**D.5.11 Visible Emissions Notations**

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- (a) Visible emission notations of the stack exhaust from stack EP012 shall be performed once per day during normal daylight operations when exhausting to the atmosphere. A trained employee shall record whether emissions are normal or abnormal.
- (b) For processes operated continuously, "normal" means those conditions prevailing, or expected to prevail, eighty percent (80%) of the time the process is in operation, not counting startup or shut down time.
- (c) In the case of batch or discontinuous operations, readings shall be taken during that part of the operation that would normally be expected to cause the greatest emissions.
- (d) A trained employee is an employee who has worked at the plant at least one (1) month and has been trained in the appearance and characteristics of normal visible emissions for that specific process.
- (e) If abnormal emissions are observed, the Permittee shall take reasonable steps in accordance with Section C – Response to Excursions or Exceedances. Failure to take response steps in accordance with Section C - Response to Excursions or Exceedances shall be considered a deviation from this permit.

**D.5.12 Flare Pilot Flame**

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In order to comply with Conditions D.5.5 and D.5.6(b), 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 truck loading rack (EU021) 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**

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- (a) To document compliance with Condition D.5.5(a), the Permittee shall maintain monthly records of the amount of denatured ethanol loaded out at both the truck loading rack (EU021) and the railcar loading rack (EU026) combined.
- (b) To document compliance with Condition D.5.11, the Permittee shall maintain records of once per day visible emission notations of stack EP012.
- (c) 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.
- (d) All records shall be maintained in accordance with Section C - General Record Keeping Requirements, of this permit.

### **D.5.14 Reporting Requirements**

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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 PM<sub>10</sub>, NO<sub>x</sub>, and SO<sub>2</sub> 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 T001 and T002, to be constructed in 2006, each with a maximum capacity of 85,000 gallons of 200-proof ethanol.
  - (2) One (1) denaturant tank, identified as T003, to be constructed in 2006, with a maximum capacity of 35,000 gallons of natural gasoline.
  - (3) Two (2) denatured ethanol tanks, identified as T004 and T005, to be constructed in 2006, 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 T001 through T005 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 ninety percent (90%) 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 FESOP Limits [326 IAC 2-2] [326 IAC 2-8-4]

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Pursuant to 326 IAC 2-8-4 (FESOP), and in order to render the requirements of 326 IAC 2-2 (PSD) not applicable, the Permittee shall comply with the following emission limits for the storage tanks (T001 through T005):

- (a) VOC emissions shall not exceed 2.42 pounds per hour.
- (b) The total HAPs emissions shall not exceed 0.0333 pound per hour.
- (c) The acetaldehyde emissions shall not exceed 0.0301 pound per hour.

#### D.6.4 Preventive Maintenance Plan [326 IAC 2-8-4(9)]

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

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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 twelve (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 forty-five (45) days. If a failure that is detected during inspections required in this paragraph cannot be repaired within forty-five (45) days and if the vessel cannot be emptied within forty-five (45) days, a thirty (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 five (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 ten percent (10%) 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 ten (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 five (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 thirty (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 thirty (30) days in advance or refilling the tank, the Permittee 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.6.6 Record Keeping Requirements**

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- (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) 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 one hundred (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:
  - (1) One (1) digester for process water, identified as MF, to be constructed in 2006. This unit has methane emissions and is controlled by thermal oxidizer CE005 or by methanator flare CE013.

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

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

#### D.7.1 Flare FESOP Limits [326 IAC 2-2] [326 IAC 2-8-4]

Pursuant to 326 IAC 2-8-4 (FESOP), and in order to render the requirements of 326 IAC 2-2 (PSD) not applicable, the following conditions shall apply to methanator flare (CE013) which is used to control the digester gasses from process water:

- (a) The flare shall be designed as a smokeless flare.
- (b) The flare shall have a soot concentration value of 0 mg per liter.

**D.7.2 Cooling Tower FESOP Limits [326 IAC 2-2] [326 IAC 2-8-4]**

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Pursuant to 326 IAC 2-8-4 (FESOP), and in order to render the requirements of 326 IAC 2-2 (PSD) not applicable, PM/PM10 emissions from the cooling towers shall not exceed 1.50 pounds per hour, and 6.58 tons per year.

## **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 fifteen (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 five (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 fifteen (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 five (5) calendar days after each leak is detected.
- (e) Any pump that is designated, as described in Condition E.1. 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 fifteen (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 five (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 five (5) calendar days after the pressure release, except as provided in Condition E.1.9. No later than five (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 five (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]**

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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]**

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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 fifteen (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 five (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. 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 three percent (3%) 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]**

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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 five (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 fifteen (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 five (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 ninety-five percent (95%) 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 ninety-five percent (95%) or greater, or to an exit concentration of 20 parts per million by volume, on a dry basis, corrected to three percent (3%) 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 five (5) calendar days after the leak is detected.
  - (2) Repair shall be completed no later than fifteen (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 three percent (3%) 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 five (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 fifteen (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 ten percent (10%) 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<sub>2</sub>O 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<sub>2</sub>O at 68 °F) is equal to or greater than twenty percent (20%) 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<sup>4</sup>/(MJ-sec) (metric units) = 0.087 ft<sup>4</sup>/(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<sup>7</sup> (g-mole)(MJ)/ (ppm-scm-kcal) (metric units) = 4.674 × 10<sup>8</sup> [(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 fifteen (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 fifteen (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 60.482-1 shall be recorded in a log that is kept in a readily accessible location:
- (1) A list of identification numbers for equipment subject to the requirements of 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]**

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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: Hartford Energy, L.L.C.  
Source Address: 600 North Industrial Park Drive, Hartford City, Indiana 47348  
Mailing Address: 700 East Ogden, Suite 308, Westmont, IL 60559  
FESOP No.: 009-21592-00024

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

Please check what document is being certified:

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

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

Signature:

Printed Name:

Title/Position:

Date:

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

**100 North Senate Avenue  
Indianapolis, Indiana 46204  
Phone: 317-233-5674  
Fax: 317-233-5967**

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

Source Name: Hartford Energy, L.L.C.  
Source Address: 600 North Industrial Park Drive, Hartford City, Indiana 47348  
Mailing Address: 700 East Ogden, Suite 308, Westmont, IL 60559  
FESOP No.: 009-21592-00024

**This form consists of 2 pages**

**Page 1 of 2**

- |   |
|---|
| <input type="checkbox"/> This is an emergency as defined in 326 IAC 2-7-1(12) <ul style="list-style-type: none"><li>• 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</li><li>• 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</li></ul> |
|---|

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 <sub>2</sub> , VOC, NO <sub>x</sub> , 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: Hartford Energy, L.L.C.  
Source Address: 600 North Industrial Park Drive, Hartford City, Indiana 47348  
Mailing Address: 700 East Ogden, Suite 308, Westmont, IL 60559  
FESOP No.: 009-21592-00024  
Facility: Ethanol Loading Racks  
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**

**FESOP Quarterly Report**

Source Name: Hartford Energy, L.L.C.  
Source Address: 600 North Industrial Park Drive, Hartford City, Indiana 47348  
Mailing Address: 700 East Ogden, Suite 308, Westmont, IL 60559  
FESOP No.: 009-21592-00024  
Facility: Trim Boiler (EU023)  
Parameter: Natural gas combustion  
Limit: Less than 627.6 MMCF of natural gas per twelve (12) consecutive month period with compliance determined at the end of each month.

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

Month	This Month	Previous 11 Months	12 Consecutive Month Period Total
	Natural Gas (MMCF)	Natural Gas (MMCF)	Natural Gas (MMCF)

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

Submitted by: \_\_\_\_\_  
Title / Position: \_\_\_\_\_  
Signature: \_\_\_\_\_  
Date: \_\_\_\_\_  
Phone: \_\_\_\_\_

Attach a signed certification to complete this report.



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

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

Source Name: Hartford Energy, L.L.C.  
 Source Address: 600 North Industrial Park Drive, Hartford City, Indiana 47348  
 Mailing Address: 700 East Ogden, Suite 308, Westmont, IL 60559  
 FESOP No.: 009-21592-00024

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 <input type="checkbox"/> No deviations occurred this reporting period.	
<input type="checkbox"/> NO DEVIATIONS OCCURRED THIS REPORTING PERIOD.	
<input type="checkbox"/> THE FOLLOWING DEVIATIONS OCCURRED THIS REPORTING PERIOD	
<b>Permit Requirement</b> (specify permit condition #)	
<b>Date of Deviation:</b>	<b>Duration of Deviation:</b>
<b>Number of Deviations:</b>	
<b>Probable Cause of Deviation:</b>	
<b>Response Steps Taken:</b>	
<b>Permit Requirement</b> (specify permit condition #)	
<b>Date of Deviation:</b>	<b>Duration of Deviation:</b>
<b>Number of Deviations:</b>	
<b>Probable Cause of Deviation:</b>	
<b>Response Steps Taken:</b>	



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

Form Completed By: \_\_\_\_\_

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

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

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

Attach a signed certification to complete this report.

Mail to: Permit Administration & Development Section  
Office Of Air Quality  
100 North Senate Avenue  
Indianapolis, Indiana 46204

Hartford Energy, L.L.C  
600 North Industrial Park Drive  
Harford City, Indiana 47348

**Affidavit of Construction**

I, \_\_\_\_\_, being duly sworn upon my oath, depose and say:  
(Name of the Authorized Representative)

1. I live in \_\_\_\_\_ County, Indiana and being of sound mind and over twenty-one (21) years of age, I am competent to give this affidavit.
2. I hold the position of \_\_\_\_\_ for \_\_\_\_\_.  
(Title) (Company Name)
3. By virtue of my position with \_\_\_\_\_, I have personal  
(Company Name)  
knowledge of the representations contained in this affidavit and am authorized to make these representations on behalf of \_\_\_\_\_.  
(Company Name)
4. I hereby certify that Hartford Energy, L.L.C, 600 North Industrial Park Drive, Harford City, Indiana 47348, completed construction of \_\_\_\_\_ of their ethanol manufacturing plant on \_\_\_\_\_ in conformity with the requirements and intent of the construction permit application received by the IDEM Office of Air Quality on August 3, 2005, and as permitted pursuant to **FESOP No. F009-21592-00024, Plant ID No. 009-00024** issued on \_\_\_\_\_.

Further Affiant said not.

I affirm under penalties of perjury that the representations contained in this affidavit are true, to the best of my information and belief.

Signature

Date

STATE OF INDIANA)  
)SS  
COUNTY OF \_\_\_\_\_ )

Subscribed and sworn to me, a notary public in and for \_\_\_\_\_ County and State of Indiana on this \_\_\_\_\_ day of \_\_\_\_\_, 20 \_\_\_\_\_.

My Commission expires:

Signature

Name (typed or printed)

# 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: Hartford Energy, L.L.C.  
Source Location: 600 North Industrial Park Drive, Hartford City, Indiana 47348  
County: Blackford  
SIC Code: 2869  
Operation Permit No.: F009-21592-00024  
Permit Reviewer: L. Stapf

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

### History

Hartford Energy, L.L.C. submitted an application on August 3, 2005, to IDEM, OAQ applying for a Federally Enforceable State Operating Permit to construct and operate a new ethanol production plant at 600 North Industrial Park Drive, Hartford City, Indiana 47348. This is the first permit approval for this source.

### 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) truck dump pit, identified as EU001, to be constructed in 2005, with a maximum throughput rate of 20,000 bushels of grain per hour, controlled by baghouse CE001, and exhausting through stack EP001.
- (b) One (1) rail dump pit, identified as EU002, to be constructed in 2005, with a maximum throughput rate of 20,000 bushels of grain per hour, controlled by baghouse CE002, and exhausting through stack EP002.
- (c) One (1) grain handling process, to be constructed in 2005, with a maximum throughput rate of 40,000 bushels of grain per hour, controlled by baghouse CE003, and exhausting through stack EP003. This process consists of the following:
  - (1) One (1) grain conveyor, identified as EU003.

- (2) One (1) grain elevator, identified as EU004.
  - (3) Two (2) corn bins/silos, with a total maximum combined capacity of 802,000 bushels, identified as EU005 and EU025.
  - (4) One (1) scalper, identified as EU006.
  - (5) One (1) surge bin, with a total maximum combined capacity of 73,100 bushels identified as EU007.
- (d) One (1) process belt conveyor, identified as EU008, to be constructed in 2005, with a maximum throughput rate of 5,000 bushels of grain per hour, controlled by baghouse CE004, and exhausting through stack EP004.
- (e) One (1) wet milling process, identified as WM and EU009, to be constructed in 2005, with a maximum throughput rate of 5,000 bushels of grain per hour, controlled by thermal oxidizer CE005, and exhausting through stack EP005. This process consists of the following:
- (1) One (1) soak tank.
  - (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 centrifuge.
  - (8) One (1) liquefaction tank
- (f) One (1) germ dryer and cooling process, identified as GD and EU010, to be constructed in 2005, using natural gas as fuel, with a maximum heat input capacity of 10 MMBtu/hr and the maximum throughput rate of 250 bushels per hour of dry solid (excluding water), controlled by cyclone CE005A and thermal oxidizer CE005, and exhausting through stack EP005.
- (g) One (1) fiber dryer, identified as FD and EU011, to be constructed in 2005, with a maximum heat input capacity of 23 MMBtu/hr and a maximum throughput rate of 500 bushels per hour of dry solid (excluding water), controlled by cyclone CE005B and thermal oxidizer CE005, and exhausting through stack EP005.
- (h) One (1) protein concentration process, identified as PC and EU012, to be constructed in 2005, with a maximum heat input capacity of 47 MMBtu/hr, maximum throughput rate of 200 bushels per hour of dry solids (excluding water), and a storage capacity of 22,500 bushels, controlled by cyclone CE005C and thermal oxidizer CE005, and exhausting through stack EP005. 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.
  - (4) One (1) evaporator feed tank.

- (5) One (1) soluble protein concentrator evaporator.
- (i) One (1) distillation and dehydration process, identified as DD and EU013, to be constructed in 2005, with a maximum ethanol production of 6,850 gal/hr, controlled by thermal oxidizer CE005, and exhausting through stack EP005.
  - (j) One (1) germ storage tank, identified as GS and EU014, to be constructed in 2005, with a maximum throughput rate of 28,100 bushels of grain per hour, controlled by baghouse CE006, and exhausting through EP006.
  - (k) Two (2) fiber storage bins, identified as FS and EU011, to be constructed in 2005, with a maximum throughput rate of 22,500 bushels of grain per hour, controlled by baghouse CE007, and exhausting through EP007.
  - (l) One (1) protein concentrate storage bins, identified as EU016, to be constructed in 2005, with a maximum throughput rate of 22,500 bushels per hour, controlled by baghouse CE008, and exhausting through EP008.
  - (m) One (1) fermentation process, identified as FP and EU017, to be constructed in 2005, with a maximum throughput rate of 68,500 gal/hr, using wet scrubber CE009 for VOC control, and exhausting through stack EP009.
  - (n) One (1) beer well, identified as BW and EU018, to be constructed in 2005, with a maximum throughput rate of 10,000 gal/hr, using wet scrubber CE009 for VOC control, and exhausting through stack EP009.
  - (o) One (1) truck loadout hood, identified as SS1 and EU019, constructed in 2005, with a maximum throughput rate of 7,500 bushels per hour, controlled by baghouse CE010, and exhausting stack EP010.
  - (p) One (1) rail loadout hood, identified as SS2 and EU020, to be constructed in 2005, with a maximum throughput rate of 7,500 bushels per hour, controlled by baghouse CE011, and exhausting stack EP011.
  - (q) One (1) thermal oxidizer/heat recovery steam generator, identified as EU024, to be constructed in 2005, 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 EP005.
  - (r) One (1) ethanol loading rack for both railcar and truck loading, identified as ER and EU021, to be constructed in 2005, 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 three (3) MMBtu/hr, and exhausting through stack EP012.
  - (s) One (1) Methanator flare, identified as EU022, to be constructed in 2005, using natural gas and process waste gases from those operations controlled by thermal oxidizer (TO), EU024, when the TO is out of service, with a maximum heat input capacity of six (6) MMBtu/hr, and exhausting through stack EP013.
  - (t) One (1) natural gas fired trim boiler, identified as EU023, to be constructed in 2005, with a maximum heat input capacity of 96 MMBtu/hr, equipped with a low NOx burner, and exhausting through stack EP014.

### 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 PM<sub>10</sub>, NO<sub>x</sub>, and SO<sub>2</sub> 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 T001 and T002, constructed in 2005, each with a maximum capacity of 85,000 gallons of 200-proof ethanol.
  - (2) One (1) denaturant tank, identified as T003, constructed in 2005, with a maximum capacity of 35,000 gallons of gasoline.
  - (3) Two (2) denatured ethanol tanks, identified as T004 and T005, constructed in 2005, each with a maximum capacity of 750,000 gallons of denatured ethanol.
  - (4) One (1) digester for process water, identified as MF, constructed in 2005. This unit has methane emissions and is controlled by thermal oxidizer CE005 or flare CE013.

### Existing Approvals

No air approvals have been issued to this source. No conditions from previous approvals were incorporated into 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 August 3, 2005. Additional information was received on September 14, 2005.

### Emission Calculations

See Appendix A of this document for detailed emission calculations (pages 1 through 16). The PTE for equipment leaks is 10.31 tons per year (tons/yr) of VOC. The PTE of storage tanks is 1.41 tons/yr of VOC, which was calculated using EPA TANKS 4.0 software. The emissions calculations for storage tanks and equipment leaks were provided by the applicant and have been verified and found to be accurate and correct.

### Potential to Emit

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

This table reflects the PTE before controls for the new emission units. Control equipment is not considered federally enforceable until it has been required in a federally enforceable permit.

Pollutant	Potential to Emit (tons/yr)
PM	Greater than 100
PM-10	Greater than 100
SO <sub>2</sub>	Less than 100
VOC	Greater than 100
CO	Greater than 100
NO <sub>x</sub>	Greater than 100

HAPs	Potential to Emit (tons/yr)
Acetaldehyde	48.2
n-hexane	20.6
2-furfuraldehyde	0.13
Acrolein	1.16
Formaldehyde	4.95
Methanol	1.75
Benzene	1.0
Carbon disulfide	0.01
Cumene	0.04
Ethyl benzene	0.02
Toluene	2.0
Xylene	0.2
Total HAPs	80.1

- (a) The potential to emit (as defined in 326 IAC 2-7-1(29)) of PM10, VOC, CO, and NOx are equal to or greater than one hundred (100) tons per year. 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 the potential to emit (as defined in 326 IAC 2-7-1(29)) of a combination of HAPs is greater than twenty-five (25) tons per year. Therefore, the source is subject to the provisions of 326 IAC 2-7. The source will be issued a FESOP because the source will limit its emissions below the Title V levels.
- (c) Fugitive Emissions  
Since this type of operation is in one of the twenty-eight (28) listed source categories under 326 IAC 2-2, the fugitive particulate matter (PM) and volatile organic compound

(VOC) emissions are counted toward determination of Prevention of Significant Deterioration (PSD) applicability.

**County Attainment Status**

The source is located in Blackford County.

Pollutant	Status
PM-10	Attainment
PM-2.5	Attainment
SO <sub>2</sub>	Attainment
NO <sub>2</sub>	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 and NOx emissions are considered when evaluating the rule applicability relating to ozone. Blackford County has been designated as attainment or unclassifiable for ozone. Therefore, VOC and NOx emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2.
- (b) Blackford County has been classified as attainment for PM2.5. U.S. EPA has not yet established the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2 for PM 2.5 emissions. Therefore, until the U.S.EPA adopts specific provisions for PSD review for PM2.5 emissions, it has directed states to regulate PM10 emissions as a surrogate for PM2.5 emissions. See the State Rule Applicability – Entire Source section
- (c) Blackford County has been classified as attainment or unclassifiable in Indiana for all other criteria pollutants. Therefore, these emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2.

**Source Status**

New Source PSD Definition (emissions after controls, based on 8760 hours of operation per year at rated capacity and/or as otherwise limited):

Pollutant	Emissions (tons/yr)
PM	84.6
PM-10	76.8
SO <sub>2</sub>	60.3
VOC	83.2
CO	87.3
NO <sub>x</sub>	97.4
Combination of HAPs	10.28
Acetaldehyde	8.91
n-hexane	0.55
2-furfuraldehyde	0.07
Acrolein	0.09
Formaldehyde	0.11
Methanol	0.10
Benzene	Neg
Carbon disulfide	Neg
Cumene	Neg
Ethyl benzene	Neg
Toluene	Neg
Xylene	Neg

Neg = the emissions are less than 0.01 tons per year.

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

**Potential to Emit After Issuance**

Any control equipment is considered enforceable only after issuance of this FESOP and only to the extent that the effect of the control equipment is made practically enforceable in the permit. Since this source is in one of the twenty-eight (28) listed source categories under 326 IAC 2-2, 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 table below summarizes the potential to emit, reflecting all limits of the emission units.

Process/Emission Unit	Potential To Emit (tons/year)						
	PM	PM-10	SO <sub>2</sub>	VOC	CO	NO <sub>x</sub>	HAPs
Boiler – Trim	3.20	3.20	0.25	2.31	21.4	21.4	Negligible
TO steam generator	5.59	5.59	30.0	4.05	-	36.8	Negligible
Grain Receiving, Handling, and Load Out Operations	17.9	17.9	-	-	-	-	-
Fermentation Process	-	-	-	10.7	-	-	<8.50 total
Wet Milling Operation	36.6	36.3	30.0	42.1	61.8	36.8	<0.78 total
Germ, Fiber, and CPC Dryers							
Distillation and Dehydration Process							
Ethanol Loading Rack with Flare CE012	-	-	Negligible	11.6	4.06	2.43	<0.4 total
Paved Roads (Fugitive)	9.27	1.81	-	-	-	-	-
Equipment Leak (Fugitive)	-	-	-	10.31	-	-	0.60 total; 0.52 n-hexane
Fugitive Emissions from Grain Receiving and Load Out Operations	4.41	4.41	-	-	-	-	-
Cooling Tower (Insignificant)	6.58	6.58	-	-	-	-	-
Storage Tanks (Insignificant)	-	-	-	1.41	-	-	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 84.6	Less than 76.8	Less than 60.3	Less than 83.2	Less than 87.3	Less than 97.4	10.28 total
Title V Thresholds	NA	100	100	100	100	100	25 for total HAPs; 10 for single HAP

Note: “-“ pollutant not emitted by the facility.

\* This is the worst case between loading ethanol to trucks and to railcars.

**Federal Rule Applicability**

- (a) The Trim Boiler (EU023) has a maximum heat input 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 only subject to 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 CE005 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 CE005 uses natural gas and VOC as fuels, there are no applicable SO<sub>2</sub> and PM emission limits for this unit in 40 CFR 60, Subpart Db. Pursuant to 40 CFR 60.44b, the NO<sub>x</sub> 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 the following monitoring requirement:

- (1) Pursuant to 40 CFR 60.48b(b), except as provided under 40 CFR 60.48b(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 emissions of nitrogen oxides discharged to the atmosphere.

This unit is also required to comply with the NO<sub>x</sub> testing requirements in 40 CFR 60.46b and the reporting and recordkeeping requirements in 40 CFR 60.49b.

- (d) Tanks T001 through T005 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 T001 and T002 have capacities greater than 151 cubic meters (39,890 gallons) and the stored liquids have vapor pressures less than 5.2 kPa. Therefore, the tanks are only subject to the reporting and recordkeeping requirements of 40 CFR 60.115b as well as the monitoring requirements of 40 CFR 60.116b.

- (1) The owner or operator shall keep copies of all reports and records required for a period of at least two (2) years.
- (2) The owner or operator shall keep records of the dimensions of the vessel, and any analysis showing the capacity of the storage vessel, for the life of the source.
- (3) For each storage vessel with a capacity greater than or equal to 151 cubic meters (39,890 gallons) and a vapor pressures less than 5.2 kPa, the owner or operator shall notify the Administrator within thirty (30) days when the maximum true vapor pressure of the liquid exceeds the respective maximum true vapor pressure that triggers additional requirements under 40 CFR 60, Subpart Kb.

Tanks T004 and T005 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 T003 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 fixed roof tanks and therefore must 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 ninety (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 Permittee 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 one hundred eighty (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 ten (10) tons /yr for a single HAP and less than twenty-five (25) tons/yr for total HAPs. Therefore, the boiler and the thermal oxidizer/heat recovery steam generator 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 2005. The source is in one of the twenty-eight (28) source categories as defined in 326 IAC 2-2-1 and the potential to emit PM, PM10, VOC, CO, and NOx from the entire source before control is greater than one hundred (100) tons/yr.

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

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

Unit 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	CE006	0.43
FS	Fiber Storage Tanks	CE007	0.05
PCS	CPC Storage Bin	CE008	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 CE005, which is used to control the wet milling operation, the dryers, and distillation and dehydration process, shall not exceed 8.36 lbs/hr. This is equivalent to 36.6 tons/yr of PM emissions.

Combined with the PM emissions from trim boiler, flare, grain receiving / loadout fugitives, and other insignificant activities, at this source, the PM emissions from the entire source are limited to less than one hundred (100) tons/yr.

The source also accepted FESOP limits to limit the PM10, VOC, CO, and NOx emissions from the entire source to less than one hundred (100) tons/yr (see the discussion of 326 IAC 2-8-4 below). Therefore, the requirements of 326 IAC 2-2 are not applicable.

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

The source also accepted FESOP limits on the HAP emissions from the entire source, which limits the emissions from the source to less than ten (10) tons/yr for a single HAP and less than twenty-five (25) tons/yr for any combination of HAPs (see the discussion of 326 IAC 2-8-4 below). Therefore, the requirements of 326 IAC 2-4.1 are not applicable.

#### 326 IAC 2-8-4 (FESOP)

The potential to emit PM10, VOC, CO, and NOx, before controls, for the entire source is greater than one hundred (100) tons/yr. In addition, the potential to emit HAP before control from this source is greater than ten (10) tons/yr for a single HAP (Acetaldehyde) and greater than twenty-five (25) tons/yr for total HAPs. Pursuant to 326 IAC 2-8-4 (FESOP), the source shall comply with the following:

- (a) The CO emissions shall not exceed 51 lbs/MMCF for the trim boiler. This is equivalent to CO emissions of 21.4 tons/yr.
- (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
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 2.45 lbs/hr. This is equivalent to 10.7 tons/yr of VOC emissions.
  - (2) Total HAP emissions shall not exceed 1.94 lbs/hr that is equivalent to 8.50 tons/yr of total HAP emissions. This includes acetaldehyde emissions shall not exceed 1.89 lbs/hr that is equivalent to 8.28 tons/yr of emissions.

- (d) The emissions from thermal oxidizer/heat recovery steam generator CE005, which is used to control the wet milling operation, the dryers, and the distillation and dehydration process, shall not exceed the following:
- (1) PM10 emissions shall not exceed 8.29 lbs/hr. This is equivalent to 36.3 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 14.1 lbs/hr. This is equivalent to 61.8 tons/yr of CO emissions.
  - (4) NOx emissions shall not exceed 8.40 lbs/hr. This is equivalent to 36.8 tons/yr of NOx emissions.
  - (5) Total HAP emissions shall not exceed 0.23 lbs/hr. This is equivalent to 0.99 tons/yr. This includes 0.14 lbs/yr equivalent to 0.63 tons/yr of acetaldehyde.
  - (6) SO<sub>2</sub> emissions shall not exceed 1.0 pound per 1,000 gallons of ethanol produced. This is equivalent to 30.0 tons/yr of SO<sub>2</sub> 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 0.96 lbs/kgal of denatured ethanol. Combined with the throughput limit of 63,000,000 gal/yr, this is equivalent to 11.6 tons/yr of VOC emissions. This limit also ensures that the HAP emissions from flare CE012 are less than 0.04 tons/yr.

Combined with the PM10, VOC, SO<sub>2</sub>, CO, NOx, and HAP emission units, the emissions from the entire source are limited to less than one hundred (100) tons/yr for PM10, VOC, SO<sub>2</sub>, CO and NOx, and less than ten (10) tons/yr for a single HAP and less than twenty-five (25) tons/yr total HAPs. Therefore, the requirements of 326 IAC 2-7 (Part 70 Program) and 326 IAC 2-2 (PSD) are not applicable.

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

This source is located in Blackford 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**

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 the boilers is:

$$Pt = \frac{1.09}{264^{0.26}} = 0.256 \text{ lbs/MMBtu.}$$

According to AP-42, Table 1.4-2, the PM emission factor for natural gas fired boilers is 7.6 lbs/MMCF x 1 MMCF/1,000 MMBtu = 0.0076 lbs/MMBtu. Therefore, this boiler can comply with the PM emission limit of 0.256 lbs/MMBtu.

For the trim boiler, the unit has a maximum heat input capacity of 96 MMBtu/hr. A PM emission limit of 0.256 lbs/MMBtu is equivalent to 24.6 lbs/hr (0.256 lbs/MMBtu x 96 MMBtu/hr = 24.6 lbs/hr).

For the thermal oxidizer/heat recovery steam generator CE005, the unit has a maximum heat input capacity of 168 MMBtu/hr. A PM emission limit of 0.256 lbs/MMBtu is equivalent to 43.0 lbs/hr (0.256 lbs/MMBtu x 168 MMBtu/hr = 43.0 lbs/hr).

**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	5.3	12.5
FS	Fiber Storage Tank	6.6	14.5
PCS	CPC Storage Bin	13.2	23.1
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:

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

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:

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

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

**State Rule Applicability – Fermentation Process (FP)**

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

The fermentation process (fermenters and beer well) will be constructed after January 1, 1980 and has potential VOC emissions greater than twenty-five (25) tons per year. Therefore, this fermentation process is subject to 326 IAC 8-1-6 and the Permittee is required to control VOC emissions through the use of Best Available Control Technology (BACT). According to the BACT analysis in Appendix B, the BACT for this process has been determined to be the following:

- (a) The VOC emissions from the fermentation process (FP) shall be controlled by wet scrubber CE007.
- (b) The overall control efficiency for the wet scrubber shall be at least 98%.
- (c) The VOC emissions from wet scrubber CE007 shall not exceed 2.45 lbs/hr.

**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:

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

There is no PM control device associated with these emissions.

**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	5.3	12.5
FD	Fiber Dryer	6.6	14.5
CPC	Protein Concentration Process	13.2	23.1

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:

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

**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 twenty-five (25) tons per year. Therefore, these processes are subject to 326 IAC 8-1-6 and the Permittee is required to control VOC emissions with the Best Available Control Technology (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 CE005.
- (b) The overall control efficiency for thermal oxidizer CE005 shall be at least 98%.
- (c) The VOC emissions from thermal oxidizer CE005 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 twenty-five (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 Technology (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 CE005.
- (b) The overall control efficiency for thermal oxidizer CE005 shall be at least 98%.

**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 twenty-five (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 Technology (BACT). According to the BACT analysis in Appendix B, BACT for this ethanol loading 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 overall 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 0.96 pounds per kilo gallons of denatured ethanol loaded.

**State Rule Applicability - Cooling Tower (Insignificant Activity)**

**326 IAC 6-3-2 (Process Operations)**

On June 12, 2002, revisions to 326 IAC 6-3 (Particulate Emission Limitations for Manufacturing Processes) became effective; this rule was previously referred to as 326 IAC 6-3 (Process Operations). As of the date this permit is being issued, these revisions have not been approved by EPA into the Indiana State Implementation Plan (SIP); therefore, the following requirement

from the previous version of 326 IAC 6-3 (Process Operations), which has been approved into the SIP, remains an applicable requirement until the revisions to 326 IAC 6-3 are approved into the SIP and the condition is modified in a subsequent permit action.

Pursuant to 40 CFR 52, Subpart P, the particulate matter (PM) from the cooling tower shall be limited by the following:

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:

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

Under the rule revision, particulate emissions from the noncontact cooling tower systems are exempt from this rule.

### **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 T001 through T005 (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 CE005 is subject to the requirements of 40 CFR 60, Subpart Db and shall conduct initial performance test for NO<sub>x</sub> 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 sixty (60) days after achieving the maximum production but not later than one hundred eighty (180) days after initial startup of this ethanol production plant:

- (a) CO test for the boilers.
- (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, PM<sub>10</sub>, VOC, SO<sub>2</sub>, CO, and HAP tests for thermal oxidizer/heat recovery steam generator CE005, 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, NO<sub>x</sub> 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 appropriate corrective actions within a specific time period.

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

1. The trim boiler is a natural gas fired. 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 CE004, CE006 through CE008, and CE010 through CE011.
  - (a) Visible emission notations of the baghouse stack exhausts (stacks EP001 through EP004, EP006 through EP008, and EP010 through EP011) shall be performed once per day 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 day 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. 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) 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 baghouses controlling emissions from 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 day 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 forty (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. 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) 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 (3) months of redirecting vents to the atmosphere and every three (3) 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 must operate properly to ensure that the fermentation process will comply 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 CE005) 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).
  - (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 EP005 shall be performed once per day 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 a three-hour 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 three-hour average temperature of the thermal oxidizer is below 1,500°F. A three-hour 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 three-hour 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 three-hour average temperature of the thermal oxidizer/heat recovery steam generator is below the three-hour average temperature as observed during the compliant stack test. An three-hour average temperature that is below the three-hour 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.

These monitoring conditions are necessary because thermal oxidizer/heat recovery steam generator CE005 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 day 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 009-21592-00024.

# Indiana Department of Environmental Management Office of Air Quality

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

Source Name: Hartford Energy, L.L.C.  
Source Location: 600 North Industrial Park Drive, Hartford City, Indiana 47348  
County: Blackford  
SIC Code: 2869  
Operation Permit No.: F009-21592-00024  
Permit Reviewer: L. Stapf

On October 18, 2005, the Office of Air Quality (OAQ) had a notice published in the News-Times in Hartford City, Indiana, stating that Hartford Energy, L.L.C. ("Hartford") had applied for a Federally Enforceable State Operating Permit ("FESOP") to operate an ethanol production plant. 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. Additionally, IDEM held a public meeting on December 14, 2005, and extended the comment period through the date of the public meeting.

IDEM does not amend the Technical Support Document (TSD). The TSD is maintained to document the original review. This addendum to the TSD is used to document responses to comments and changes made from the time the permit was drafted until a final decision is made.

On November 6, 2005, Daniel R. Baughey, a citizen of Hartford City, submitted comments on the proposed FESOP. A summary of the comments made and IDEM's responses are as follows:

Comment 1: The VOC and HAP emissions test data relied upon by IDEM to determine emission levels was inappropriate since the facilities used for the comparison are dry-mill process ethanol plants and Hartford is a wet-mill process.

Response 1: With regard to ethanol production, wet and dry-mill processes operate in a similar manner. The VOC and HAP emissions resulting from the drying of dried distillers grain and solubles ("DDGS") at dry-mills are comparable to the composition and concentration of VOC and HAP emissions from the various dryers found at wet-mill operations. Wet-mills generally include additional production operations separate from ethanol production, and as a result there are additional emission evaluations necessary at a traditional wet-mill operation. This proposed plant, however, is not a traditional wet-mill. This plant does not employ extended (24-48 hours) steeping in a water and SO<sub>2</sub> solution, and it does not include the separation of the starch and gluten from the corn. The corn is soaked for a significantly shorter duration in water (without SO<sub>2</sub>), with the goal of softening the kernel to the point where the kernel can be cracked and the germ can be separated using a hydrochlone. The remaining material is processed and the fiber is separated from the high protein slurry and dried. The CPC dryer and evaporator, which are used to drive off the water from the protein solubles, would also have emission characteristics comparable to dry-mill dryer operations. IDEM has evaluated the emissions data submitted as part of the FESOP application and has made its determinations based on the best available information.

Comment 2: The U. S. Department of Justice ("DOJ") entered into Consent Decrees with several ethanol production plants in Minnesota. According to information contained in these Consent Decrees, and a release from the DOJ, volatile organic compounds ("VOC") and carbon monoxide ("CO") emissions from feed dryers, cooling cyclones and ethanol loading

operations have historically been underestimated by the ethanol industry and recent testing of these units in Minnesota plants indicates that emissions are well in excess of 100 tons per year, which is the threshold for a major source to be regulated under the Prevention of Significant Deterioration ("PSD") provisions of the Clean Air Act. Since these Minnesota plants are considered to be major sources, they are required to install best available control technology ("BACT") on all units that are significant sources of pollution.

Response 2: IDEM is aware of the DOJ settlements reached with several ethanol production plants in Minnesota and elsewhere. These settlements sought to correct compliance issues related to uncharacterized or underestimated VOC and CO emissions at existing ethanol production plants. These plants were traditionally permitted as minor sources of VOC and CO, based on an industry-wide failure to identify several units utilized at ethanol production plants as VOC and CO emitters. The U. S. EPA, in conjunction with the DOJ, have worked with this industry to address the historical problems with these existing plants and, where appropriate, required facilities to install additional controls on several of these units. IDEM has evaluated the proposed Hartford plant and determined that the uncontrolled VOC and CO emissions would in fact be greater than the PSD major source threshold of 100 tons per year. Hartford will be required to install and operate emission controls at several of the emission units at this facility to ensure that the controlled emission levels are below the PSD major source threshold. In addition, even though the source will be minor under PSD, IDEM has evaluated this source under Indiana's VOC regulations, that require even relatively small sources of VOC emissions to perform an analysis of BACT, and determined that the BACT requirements for this project would include the use of a thermal oxidizer, a wet scrubber, and an enclosed flare to control VOC emissions from this source. These controls will be required to operate at a level of efficiency that reduces VOC emissions by at least ninety-eight percent (98%). The majority of the settlements reached by the DOJ and these ethanol production plants required that VOC emission to be reduced by at least 95%. Therefore, this permit requires even more stringent requirements than the DOJ.

On November 16, 2005, Charles L. Berger, of Berger and Berger, on behalf of Plumbers and Steamfitters, Local 166, submitted comments on the proposed FESOP. A summary of the comments made and IDEM's responses are as follows:

Comment 1: This Project appears to be part of a much larger operation. The emissions from all related operations should have been included in the potential to emit calculations in determining the applicability of Title V, PSD, and National Emissions Standards for Hazardous Air Pollution ("NESHAP") programs. See e.g. 326 IAC 2-2-1(i)(major source includes "all of the pollutant-emitting activities which belong to the same industrial grouping, are located on one (1) or more contiguous or adjacent properties, and are under the control of the same person (or persons under common control)" (emphasis added). The application does not contain enough information to estimate the related emissions.

As part of the ethanol production operations, Hartford will produce by-products that will be shipped off-site for further processing. These by-products include the germ, fiber, and protein concentrate. We recommend that IDEM determine the subsequent processing, use and destination of these by-products, and make a determination as to whether emissions from these uses should be considered in the potential to emit for Hartford.

In addition, the fermentation process will generate carbon dioxide gas which will be collected by the scrubber and vented to the atmosphere under the current project. However, these gases can be sent to an adjacent carbon dioxide plant for liquefaction or to the thermal oxidizer for further treatment. If the carbon dioxide plant is not eminent, the scrubber should be routed to the thermal oxidizer for further treatment prior to discharge to satisfy BACT for VOCs.

Finally, there is a second essentially identical wet mill ethanol facility proposed by the applicant in the same general vicinity. The Putnam facility was permitted in October 2004. IDEM should investigate this second facility to determine if it is connected in any way to the Putnam facility.

Response 1: IDEM has evaluated the project as proposed by Hartford and permitted the operations included in the application. The application did not include additional facilities for processing the germ, fiber, or protein concentrate. IDEM is not aware of any plans to construct and operate any other facilities on contiguous or adjacent property as part of this project. Therefore, IDEM has included all the proposed emission units in the potential to emit calculations for the applicability determinations for the Title V, PSD, and NESHAP programs. Upon final approval, Hartford will be permitted to build only the facilities included in this FESOP.

The source will include a carbon dioxide recovery plant. This plant consists of a high pressure scrubber, a carbon absorption bed, chillers and a condenser. The recovery plant will not operate unless Hartford has a contract for the scrubbed carbon dioxide, therefore the permit does not require the operation of this process. In addition, the additional processing of the fermentation does not result in any additional regulated emissions and is therefore not included in the permit as an emission unit.

The wet scrubber associated with fermentation (CE009) is a BACT requirement, under 326 IAC 8-1-6. The control efficiency requirement for this scrubber is no less than ninety-eight percent (98%), the same as the control efficiency requirement for the thermal oxidizer. The scrubber satisfies BACT without additional control. Fermentation emissions are limited to 9.7 tons per year. Routing these emissions to an additional control device would only reduce emissions by approximately 9.5 tons per year. The cost of operating the CO<sub>2</sub> recovery plant at all times (even when it is not needed to fulfill a contract) would not be economically feasible. In addition, routing this small amount of emissions to an additional control device has not been proven to improve the overall control efficiency.

The Hartford plant is in Hartford City, Indiana and the Putnam Ethanol, L.L.C. plant is in Cloverdale, Indiana. These plants are approximately 125 miles apart. They are both ethanol production plants and there is no support relationship between the plants. Therefore, IDEM does not consider these plants to be a single source, as defined by 2-7-1(22).

If support facilities are proposed to be constructed on property contiguous or adjacent to Hartford Energy L.L.C. in the future, IDEM's OAQ will evaluate whether those facilities should be considered part of the same source and permitted accordingly.

The following changes have been made to Condition A.2 and the descriptive information for Section D.3 to reflect the presence of the carbon dioxide recovery plant (bolded language has been added, the language with a line through it has been deleted):

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

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

- (m) One (1) fermentation process, identified as FP and EU017, to be constructed in ~~2005~~ **2006**, with a maximum throughput rate of 68,500 gal/hr, using wet scrubber CE009 for VOC control and **sodium bisulfite injection for HAP control**, exhausting through stack EP009. **Wet scrubber CE009 may exhaust to the carbon dioxide recovery plant**

**when in operation.**

- (n) One (1) beer well, identified as BW and EU018, to be constructed in ~~2005~~ **2006**, with a maximum throughput rate of 10,000 gal/hr, using wet scrubber CE009 for VOC control **and sodium bisulfite injection for HAP control**, exhausting through stack EP009. **Wet scrubber CE009 may exhaust to the carbon dioxide recovery plant when in operation.**

### SECTION D.3

### FACILITY OPERATION CONDITIONS – Fermentation Process

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

- (a) One (1) fermentation process, identified as FP and EU017, to be constructed in ~~2005~~ **2006**, with a maximum throughput rate of 68,500 gallons per hour, using wet scrubber CE009 for VOC control and **sodium bisulfite injection for HAP control**, exhausting through stack EP009. **Wet scrubber CE009 may exhaust to the carbon dioxide recovery plant when in operation.**
- (b) One (1) beer well, identified as BW and EU018, to be constructed in ~~2005~~ **2006**, with a maximum throughput rate of 10,000 gallons per hour, using wet scrubber CE009 for VOC control **and sodium bisulfite injection for HAP control**, exhausting through stack EP009. **Wet scrubber CE009 may exhaust to the carbon dioxide recovery plant when in operation.**

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

Comment 2: BACT was not required for the ethanol loading rack. The potential VOC emissions from the ethanol loading rack exceed 25 tons per year. Thus BACT (326 IAC 8-1-6) is required for ethanol loading operations. BACT was not required for railcar loading. The VOC emission calculations assume that railcar loading vapors will be vented to the atmosphere and not the flare required for truck loading. However the application concluded that BACT for the ethanol loadout to both truck and railcars would be a flare with an overall control efficiency of 98%. The permit should require that railcar loading emissions are controlled by the flare, that only submerged loading should be utilized, and that a dedicated fleet be used.

The BACT requirement for truck loading specified in the permit is deficient because the emission limit specified is 0.96 pound per kgal, but that is the uncontrolled emission rate. The limit should be 0.019 pound per kgal. In addition, the permit should require the use of submerged loading, because the calculations were done with values that assumed submerged loading would be utilized.

Response 2: Loadout of denatured ethanol will be performed at two separate loading racks (EU021 and EU026). BACT requires that truck loading be controlled by a flare, and IDEM agrees that the emission limit for the flare controlling truck loading (CE012) specified in the permit should be revised. IDEM has determined that the calculations included with the proposed permit assumed an incorrect maximum loading rate in addition to using the uncontrolled emission rate as the emission limit. Using the corrected calculations, the emission limit after controls should be 0.0224 pound per thousand gallons. The potential emissions from railcar loading are less than twenty-five (25) tons per year, and therefore the railcar loading rack (EU026) is not subject to 326 IAC 8-1-6 (BACT). IDEM also agrees that the permit should contain a condition that mandates submerged loading for both truck and railcar loading, and

should limit railcar loading to utilize only dedicated ethanol fleet railcars. The following changes to Condition A.2 and Section D.5 have been made to reflect these changes (bolded language has been added, the language with a line through it has been deleted):

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:

- (r) One (1) ethanol loading rack for ~~both railcar and~~ truck loading, **utilizing submerged loading only**, identified as ERT and EU021, to be constructed in ~~2005~~ **2006**, 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 three (3) MMBtu/hr, and exhausting through stack EP012.
- (s) **One (1) ethanol loading rack for railcar loading, utilizing submerged loading only, identified as ERR and EU026, to be constructed in 2006, with a maximum throughput rate of 96,000 gallons per hour. The railcar loading process is uncontrolled.**

**SECTION D.5 FACILITY OPERATION CONDITIONS – Ethanol Loading Rack**

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

- (a) One (1) ethanol loading rack for ~~both railcar and~~ truck loading, **utilizing submerged loading only**, identified as ERT and EU021, to be constructed in ~~2005~~ **2006**, 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 three (3) MMBtu/hr, and exhausting through stack EP012.
- (b) **One (1) ethanol loading rack for railcar loading, utilizing submerged loading only, identified as ERR and EU026, to be constructed in 2006, with a maximum throughput rate of 96,000 gallons per hour. The railcar loading process is uncontrolled.**

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

D.5.5 FESOP Limits [326 IAC 2-2] [326 IAC 2-8-4]

Pursuant to 326 IAC 2-8-4 (FESOP), **and in order to render the requirements of 326 IAC 2-2 (PSD) not applicable**, the Permittee shall comply with the following emission limits for the ~~ethanol~~ **truck (EU021) and railcar (EU026)** loading racks:

- (a) The denatured ethanol load-out rate **associated with the truck ethanol loading rack (EU021) and the railcar ethanol loading rack (EU026) combined** 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 **truck** loading rack **(EU021)** when loading denatured ethanol to trucks.
- (c) VOC emissions from flare CE012 **exhaust associated with the truck ethanol loading rack (EU021)** shall not exceed ~~0.96 lbs/kgal~~ **0.0224 pounds per thousand gallons, and 0.70 tons per year.**
- (f) **The VOC emissions from the railcar ethanol loading rack (EU026) shall not exceed 0.453 pounds per thousand gallons, and 14.26 tons per year.**

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

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- (a) **In order to render the requirements of 326 IAC 8-1-6 (BACT) not applicable to the railcar loading rack (EU026), the following conditions shall apply:**
- (1) **The railcar ethanol loading rack (EU026) shall utilize only submerged fill loading and railcars that use non-vapor balance (normal) service; and**
  - (2) **Railcar loading shall utilize only dedicated service railcars, which consists of transportation of only ethanol in the cargo carriers.**
- Compliance with these requirements is necessary to render 326 IAC 8-1-6 (BACT) not applicable to the railcar loading rack (EU026).**
- (b) ~~The potential VOC emissions from the truck loading process are greater than twenty-five (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:
- (a1) The VOC emissions from the ~~ethanol~~ **truck** loading rack (**EU021**) shall be collected and controlled by enclosed flare CE012 when loading denatured ethanol to trucks.
  - (b2) The overall control efficiency for the vapor collection system and enclosed flare CE012 **associated with the truck loading rack (EU021)** shall be at least 98%.
  - (e3) The VOC emissions from enclosed flare CE012 **associated with the truck loading rack (EU021)** shall not exceed ~~0.96~~ **0.0224** pounds per kilol ~~thousand~~ **thousand** gallons of denatured ethanol loaded, **and 0.70 tons per year.**
  - (4) **The truck loading rack (EU021) shall utilize only submerged fill loading and trucks that use non-vapor balance (normal) service.**

#### D.5.9 VOC Control

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In order to comply with Conditions D.5.5(~~e~~) and D.5.6(b), the enclosed flare CE012 shall be in operation and control emissions from the ~~truck ethanol~~ **truck ethanol** loading rack (**EU021**) at all times when **ethanol is being loaded** ~~this rack is loading ethanol~~ to trucks.

#### D.5.12 Flare Pilot Flame

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In order to comply with Conditions D.5.5 and D.5.6(b), 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 ~~truck ethanol~~ **truck ethanol** loading rack (**EU021**) is in operation and is loading ethanol to trucks.

#### D.5.13 Record Keeping Requirements

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- (a) To document compliance with Condition D.5.5(a), the Permittee shall maintain monthly records of the amount of denatured ethanol loaded out **at the truck loading rack and the railcar loading rack combined.**

Comment 3: The vapors from the fermentation process and beerwell will be routed to a scrubber to recover residual ethanol. The carbon dioxide and other gases are vented to the atmosphere. VOC BACT for this scrubber was determined to be an overall control

efficiency of at least 98%. This is not BACT. A scrubber normally directs the collected ethanol and water from the scrubber back into the process and thus is considered part of the process, not a separate control device. Additional control is required.

In addition, higher scrubber control efficiencies have been required in other permits and achieved in practice. These include permits issued to CalGren Renewable Fuels, CA (routes the CO<sub>2</sub> scrubber gases to the thermal oxidizer, scrubber achieves 99% VOC control and the RTO 98.5% for combined VOC control of 99.99%) and United Wisconsin Grain Producers (98.7% VOC control). Stack tests summarized by IDEM in the BACT analysis for Central Indiana Ethanol indicate that higher scrubber control efficiencies are routinely achieved, including 99.2% for AL-Corn, 99% for Central Minnesota Ethanol, 99.28% for Ethanol 2000, 98.98% for CMEC, and 99.5% for Gopher State (with two scrubbers in series).

Response 3: The BACT (326 IAC 8-1-6) requirement for fermentation and the beer well specifies that the source will control VOCs through the use of a scrubber which must operate at a control efficiency of no less than ninety-eight percent (98%). This level of control efficiency is consistent with BACT determinations made in Indiana and in other States. IDEM has not identified any BACT requirements that are more stringent than 98% for ethanol production facilities. IDEM has confirmed that there are at least three facilities in California that have a higher control efficiency requirement than 98% (synthetic minor limits), however based on discussions between IDEM and the San Joaquin Valley Unified Air Pollution Control District it has been confirmed that these facilities have not demonstrated compliance with these limits through stack testing. IDEM is aware that other sources have achieved control efficiencies during testing that exceed 98%. However, BACT must be achievable on a consistent basis under normal operational conditions. BACT limitations do not necessarily reflect the highest possible control efficiency achievable by the technology on which the emission limitation is based. The permitting authority has discretion to base the emission limitation on a control efficiency that is somewhat lower than the optimal level. There are several reasons why the permitting authority might choose to do this. One reason is that the control efficiency achievable through the use of the technology may fluctuate, so that it would not always achieve its optimal control efficiency. In that case, setting the emission limitation to reflect the highest control efficiency would make violations of the permit unavoidable. To account for this possibility, a permitting authority must be allowed a certain degree of discretion to set the emission limitation at a level that does not necessarily reflect the highest possible control efficiency, but will allow the Permittee to achieve compliance consistently. While we recognize that 99% may be achievable as an average during testing, IDEM allows for sources to include a safety factor, or margin of error, to allow for minor variations in the operation of the emission units and the control device.

No changes were made to the permit as a result of this comment.

Comment 4: The thermal oxidizer combusts waste gases from other processes, including wet milling, germ drying cooling, fiber drying, protein concentration, and distillation and dehydration. VOC BACT for this oxidizer is an overall control efficiency of at least 98%. This is not BACT. Higher VOC control efficiencies have been permitted and achieved at other similar facilities. Barr-Rosin, a major dryer vendor, guaranteed the emissions for the Penn Marr Ethanol Project at 98.5% VOC control. The permit issued to Ethanol 2000, MN requires 99.4% VOC control. The permit issued to CalGren in California requires 99.5% VOC control. Stack tests summarized by IDEM in the Central Indiana Ethanol TSD include the following: Michigan Ethanol thermal oxidizer tested at 99.6% control; New Energy Corp.'s two thermal oxidizers tested at 98.8% and 99.2%; and Agri-Energy at 99.59%. Stack tests at the thermal oxidizer at Glacial Lake Energy in Watertown, SD, one of the facilities the applicant relied on, achieved a 98.6% VOC control in February 2003 and 98.43% in April 2003.

Response 4: The BACT (326 IAC 8-1-6) requirement for wet milling, germ drying cooling, fiber drying, protein concentration, and distillation and dehydration specifies that the source will control VOCs through the use of a thermal oxidizer which must operate at a control efficiency of no less than ninety-eight percent (98%). This level of control efficiency is consistent with BACT determinations made in Indiana and in other States. IDEM has not identified any BACT requirements that are more stringent than 98% for ethanol production facilities. IDEM has confirmed that there are at least three facilities in California that have a higher control efficiency requirement than 98% (synthetic minor limits), however based on discussions between IDEM and the San Joaquin Valley Unified Air Pollution Control District it has been confirmed that these facilities have not demonstrated compliance with these limits through stack testing. IDEM is aware that sources have achieved control efficiencies during testing that exceed 98%. However, BACT must be achievable on a consistent basis under normal operational conditions. BACT limitations do not necessarily reflect the highest possible control efficiency achievable by the technology on which the emission limitation is based. The permitting authority has discretion to base the emission limitation on a control efficiency that is somewhat lower than the optimal level. There are several reasons why the permitting authority might choose to do this. One reason is that the control efficiency achievable through the use of the technology may fluctuate, so that it would not always achieve its optimal control efficiency. In that case, setting the emission limitation to reflect the highest control efficiency would make violations of the permit unavoidable. To account for this possibility, a permitting authority must be allowed a certain degree of discretion to set the emission limitation at a level that does not necessarily reflect the highest possible control efficiency, but will allow the Permittee to achieve compliance consistently. While we recognize that 99% may be achievable as an average during testing, IDEM allows for sources to include a safety factor, or margin of error, to allow for minor variations in the operation of the emission units and the control device.

No changes were made to the permit as a result of this comment.

Comment 5: As defined in 326 IAC 2-7-1(22)(A), any source that has the potential to emit 10 tons per year or more of a single HAP or 25 tons per year or more of any combination of HAPs is a major MACT source. A major MACT source must use maximum achievable control technology ("MACT"), which is defined at 40 CFR 63.41 and incorporated into the Indiana regulations at 326 IAC 326 IAC 2-4.1-1(c), and would require a Part 70 Operating Permit.

Ethanol production facilities emit a number of HAPs, including formaldehyde, acetaldehyde, acrolein, and methanol. The permit limits the emission of one of these HAPs, acetaldehyde, from one source, the fermentation scrubber (1.89 lb/hr), and total HAPs from two sources, the fermentation scrubber (1.94 lb/hr) and the thermal oxidizer (0.23 lb/hr). These limits underestimate HAPs because they do not include all sources of HAPs and they were estimated using limited data and questionable assumptions.

The revised facility-wide acetaldehyde emissions would include 8.28 tons per year from the fermentation scrubber, 0.57 tons per year from the dryers, 0.053 tons per year from the grain storage tanks, 0.40 tons per year from the distillation and dehydration, 1.73 tons per year from fugitive sources, and 0.022 tons per year from combustion sources. The total for these units is 11.06 tons per year. Based on these calculations, the permit should be revised to reflect the fact that this is a major source for HAPs, or incorporate restrictions on the potential to emit of all sources listed here to ensure that acetaldehyde emissions are less than 10 tons per year.

The project will emit substantial quantities of potent carcinogens, including aldehydes, diesel exhaust from an emergency diesel generator and a firewater pump, and benzene from gasoline unloading and blending. IDEM should require that the applicant prepare a

health risk assessment to evaluate the risk to the surrounding community.

Response 5: IDEM has confirmed that the Permittee does not intend to construct an emergency diesel generator or fire water pump. That is why IDEM did not include HAP emissions from these facilities in the permit.

IDEM has also confirmed that the source will use sodium bisulfite injection at the fermentation scrubber (CE009) to reduce acetaldehyde emissions. The Permittee has indicated that the use of sodium bisulfite injection will reduce acetaldehyde emissions by no less than 50%. IDEM has added additional requirements to the permit to ensure that the source utilizes this injection process to achieve compliance with the overall acetaldehyde limit. See Response 1 for changes to the description for the fermentation and beerwell units. Additional changes to Condition D.3.5 are shown below.

IDEM has evaluated the revised HAP calculations and agrees that corrections to the existing acetaldehyde limits should be made and additional limits should be included in the permit for acetaldehyde to ensure that emissions are less than 10 tons per year. The following changes to the permit have been made to reflect this correction (bolded language has been added, the language with a line through it has been deleted):

#### **D.1.10 HAP Emissions [326 IAC 2-8-4]**

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**Pursuant to 326 IAC 2-8-4, the HAP emissions from the trim boiler shall not exceed 0.0147 pounds acetaldehyde per MMCF. The annual emissions shall not exceed 0.0046 tons acetaldehyde per year. Combined with the single HAP and total HAPs emissions from other units, the single HAP emissions and total HAPs emissions from the entire source are limited to less than ten (10) tons per year and twenty-five (25) tons per year, respectively. Therefore, the requirements of 326 IAC 2-7 (Part 70 Program) are not applicable.**

#### **D.2.8 HAP Emissions [326 IAC 2-8-4]**

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**Pursuant to 326 IAC 2-8-4, the HAP emissions from the emission units EU014, EU015 and EU016 shall not exceed 0.0040, 0.00046, and 0.0256 pounds acetaldehyde per hour, respectively. The annual emissions from the emission units EU014, EU015 and EU016 shall not exceed 0.0175, 0.0020, and 0.112 tons acetaldehyde per year, respectively. Combined with the single HAP and total HAPs emissions from other units, the single HAP emissions and total HAPs emissions from the entire source are limited to less than ten (10) tons per year and twenty-five (25) tons per year, respectively. Therefore, the requirements of 326 IAC 2-7 (Part 70 Program) are not applicable.**

#### Fermentation Scrubber (CE009):

In addition to the change to the HAP limit, the VOC limits (FESOP and BACT) have been revised based upon corrections to IDEM's calculations.

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

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**Pursuant to 326 IAC 2-8-4 (FESOP), and in order to render the requirements of 326 IAC 2-2 (PSD) and 326 IAC 2-4.1(MACT) not applicable, the VOC and HAP emissions from scrubber ~~CE007~~ CE009 controlling the fermentation process and beer well shall not exceed the following:**

- (a) **2.22** ~~2.45~~ pounds per hour for VOC.
- (b) **0.904** ~~4.94~~ pound per hour for total HAPs.
- (c) **0.858** ~~4.89~~ pound per hour for acetaldehyde (HAP).

#### **D.3.6 VOC Emissions [326 IAC 8-1-6]**

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

- (a) The VOC emissions from the fermentation process (FP) and beer well shall be controlled by wet scrubber ~~CE007~~ **CE009**.
- (b) The overall control efficiency for the wet scrubber shall be at least 98%.
- (c) The VOC emissions from wet scrubber CE007 shall not exceed **2.22** ~~2.45~~ pounds per hour.

### **D.3.9 HAP Control**

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**In order to comply with Condition D.3.5(c), the sodium bisulfite injection system shall be in operation, and injecting sodium bisulfite into scrubber CE009, at all times that the fermentation process and beer well are in operation.**

### **D.3.12 Sodium Bisulfite Injection System**

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- (a) **A continuous monitoring system shall be calibrated, maintained, and operated on fermentation scrubber (CE009) for measuring the sodium bisulfite injection rate. For the purpose of this condition, continuous means no less than once per minute. The output of this system shall be recorded as a one-hour average. From the date of issuance of this permit until the approved stack test results are available, the Permittee shall inject sodium bisulfite at a rate of 12 milliliters per minute.**
- (b) **The Permittee shall determine the one-hour average injection rate from the most recent valid stack test that demonstrates compliance with limits in condition D.3.5(c), as approved by IDEM.**
- (c) **On and after the date the approved stack test results are available, the Permittee shall inject sodium bisulfite at or above the one-hour average injection rate as observed during the compliant stack test.**

### **D.3.13 14 Record Keeping Requirements**

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- (b) **To document compliance with D.3.5(c), the Permittee shall maintain records of the sodium bisulfite injection rate at scrubber CE009.**
- (dc) All records shall be maintained in accordance with Section C - General Record Keeping Requirements, of this permit.

Thermal oxidizer/heat recovery steam generator (CE005):

### **D.4.5 Thermal Oxidizer FESOP Limits [326 IAC 2-2] [326 IAC 2-8-4] [326 IAC 2-4.1]**

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**Pursuant to 326 IAC 2-8-4 (FESOP), and in order to render the requirements of 326 IAC 2-2 (PSD) and 326 IAC 2-4.1 (MACT) not applicable,** the Permittee shall comply with the following emission limits for thermal oxidizer/heat recovery steam generator CE005 which is used to control the wet milling process (WM), the germ dryer and cooling process (GD), the fiber dryer (FD), the protein concentration process (PC), and the distillation and dehydration process (DD):

- (e) ~~Total HAP emissions shall not exceed 0.23 lbs/hr~~ **Acetaldehyde emissions shall not exceed 0.230 pounds per hour.**

Storage Tanks (T001-T005 – Insignificant Activities):

**D.6.3 FESOP Limits [326 IAC 2-2] [326 IAC 2-8-4]**

**Pursuant to 326 IAC 2-8-4 (FESOP), and in order to render the requirements of 326 IAC 2-2 (PSD) not applicable, the Permittee shall comply with the following emission limits for the storage tanks (T001 through T005):**

- (a) VOC emissions shall not exceed 2.42 pounds per hour.**
- (b) The total HAPs emissions shall not exceed 0.0333 pounds per hour.**
- (c) The acetaldehyde emissions shall not exceed 0.0301 pounds per hour.**

Comment 6: This new source is required to have a Part 70 operating permit unless it meets certain conditions set out in 326 IAC 2-7-2(b). In order to be exempt from obtaining a Part 70 operating permit, the source must obtain a federally enforceable state operating permit ("FESOP") which actually makes the source not major (i.e. potential emissions of less than 10 and 25 tons per year for single and combination HAPs, respectively, and 100 tons per year for any regulated pollutant).

The proposed permit is a FESOP. To qualify as a FESOP, the permit must limit emissions below these major source thresholds. The permit states that it limits the source's potential to emit to less than major source levels. However, our review of the permit and supporting files indicates that the permit falls far short of this goal.

Specifically, the following emission units do not contain adequate limits to ensure that emissions will be below the Part 70 major source thresholds:

Trim Boiler: fails to adequately limit CO, NOx, PM10, and SO2

Methanator Flare: fails to adequately limit CO, VOC, PM/PM10, and NOx

Ethanol Loading Rack: fails to adequately limit PM10, NOx, and CO

Grain Receiving and Loadout: fails to adequately limit PM10 (needs throughput limit and control efficiency requirements)

Paved Roads: fails to adequately limit fugitive PM10

Insignificant Activities: fails to adequately limit PM10 and VOC (cooling tower and 5 liquid storage tanks)

Response 6: New HAP limits are addressed in Response 5 above and the PM10 fugitive emissions from paved roads are addressed in Response 16 below.

IDEM has evaluated the revised calculations and agrees that more specific limitations should be included in the permit to ensure that emissions do not exceed the major source thresholds under Part 70 and PSD. The following changes to the permit have been made to reflect these new or modified limits (bolded language has been added, the language with a line through it has been deleted):

Trim Boiler (EU0223):

**D.1.5 Nitrogen Oxides (NOx) [326 IAC 2-8-4] [326 IAC 2-2]**

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

- (a) The boiler shall only burn natural gas.
- (b) The input of the natural gas to the trim boiler shall be limited to less than 627.6 MMCF per 12 consecutive month period, with compliance determined at the end of each month.
- (c) NOx emissions shall not exceed 51 pounds per MMCF.
- (d) Total NOx emissions from fuel combustion shall be limited to 42.9 tons per year.

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

**D.1.56 CO Emissions [326 IAC 2-8-4] [326 IAC 2-2]**

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

- (a) The boiler shall only burn natural gas.
- (b) The input of natural gas to the trim boiler shall be limited to less than 627.6 MMCF per 12 consecutive month period, with compliance determined at the end of each month.
- (c) CO emissions from the trim boiler shall not exceed 51 pounds per MMCF ~~lbs/MMCF~~.
- (d) Total CO emissions from fuel combustion shall be limited to 16.0 tons per year.

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

**D.1.7 VOC Emissions [326 IAC 2-8-4] [326 IAC 2-2]**

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Pursuant to 326 IAC 2-8-4, and in order to render the requirements of 326 IAC 2-2 (PSD) not applicable, the VOC emissions from the trim boiler shall not exceed 5.5 lbs/MMCF. Total VOC emissions from fuel combustion shall be limited to 1.73 tons per year. Combined with the VOC emissions from other units, the VOC emissions from the entire source are limited to less than one hundred (100) tons per year. Therefore, the requirements of 326 IAC 2-7 (Part 70 Program) and 326 IAC 2-2 (PSD) are not applicable.

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

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- (a) Pursuant to 326 IAC 6-2-4 (Particulate Emission Limitations for Sources of Indirect Heating: Emission Limitations for facilities specified in 326 IAC 6-2-1(d)), the PM emissions from the boiler shall not exceed 0.256 pounds per million Btu heat input (lb/MMBtu). This limitation was calculated using the following equation:

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

For this unit, Q = 264 MMBtu/hr.

- (b) Pursuant to 326 IAC 2-8-4, and in order to render the requirements of 326 IAC 2-2 (PSD) not applicable, the PM and PM10 emissions from the trim boiler shall not exceed 7.6 pounds per MMCF. Total PM and PM10 emissions from fuel combustion shall be limited to 2.38 tons per year. Combined with the particulate matter emissions from other units, the particulate matter emissions from the entire source are limited to less than one hundred (100) tons per year. Therefore, the requirements of 326 IAC 2-7 (Part 70 Program) and 326 IAC 2-2 (PSD) are not applicable.

**D.1.9 SO2 Emissions [326 IAC 2-8-4] [326 IAC 2-2]**

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Pursuant to 326 IAC 2-8-4, and in order to render the requirements of 326 IAC 2-2 (PSD) not applicable, the SO2 emissions from the trim boiler shall not exceed 1.5 pounds per MMCF. Total SO2 emissions from fuel combustion shall be limited to 3.39 tons per year. Combined with the SO2 emissions from other units, the SO2 emissions from the entire source are limited to less than one hundred (100) tons per year. Therefore, the requirements of 326 IAC 2-7 (Part 70 Program) and 326 IAC 2-2 (PSD) are not applicable.

**D.1.1415 Record Keeping Requirements**

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- (a) To document compliance with Condition D.1.712, the Permittee shall maintain daily records of the amount and type of fuel combusted in the trim boiler.
- (b) In order to demonstrate compliance with Conditions D.1.5 and D.1.6 the Permittee shall record the quantity natural gas combusted at the trim boiler.

**D.1.16 Reporting Requirements**

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A quarterly summary of the information to document compliance with Conditions D.1.5 and 1.6 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).

In addition to the fuel usage reporting requirement in D.1.16, a new form has been added to the permit to be used for submitting this quarterly report.

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

**FESOP Quarterly Report**

**Source Name:** Hartford Energy, L.L.C.  
**Source Address:** 600 North Industrial Park Drive, Hartford City, Indiana 47348  
**Mailing Address:** 700 East Ogden, Suite 308, Westmont, IL 60559  
**FESOP No.:** 009-21592-00024  
**Facility:** Trim Boiler (EU023)  
**Parameter:** Natural gas combustion  
**Limit:** Less than 627.6 MMCF of natural gas per twelve (12) consecutive month period with compliance determined at the end of each month.

**MONTH:** \_\_\_\_\_ **YEAR:** \_\_\_\_\_

Month	This Month	Previous 11 Months	12 Consecutive Month Period Total
	Natural Gas (MMCF)	Natural Gas (MMCF)	Natural Gas (MMCF)

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

**Submitted by:** \_\_\_\_\_  
**Title / Position:** \_\_\_\_\_  
**Signature:** \_\_\_\_\_  
**Date:** \_\_\_\_\_  
**Phone:** \_\_\_\_\_

**Attach a signed certification to complete this report.**

Methanator Flare (CE013) and Cooling Tower (SECTION D.7 – Other Insignificant Activities):

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

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

**D.7.1 Flare FESOP Limits [326 IAC 2-2] [326 IAC 2-8-4]**

Pursuant to 326 IAC 2-8-4 (FESOP), and in order to render the requirements of 326 IAC 2-2 (PSD) not applicable, the following conditions shall apply to the Methanator Flare (CE013) which is used to control the digester gasses from process water:

- (a) The flare shall be designed as a smokeless flare.
- (b) The flare shall have a soot concentration value of 0 mg per liter.

**D.7.2 Cooling Tower FESOP Limits [326 IAC 2-2] [326 IAC 2-8-4]**

Pursuant to 326 IAC 2-8-4 (FESOP), and in order to render the requirements of 326 IAC 2-2 (PSD) not applicable, **PM/PM10 emissions from the cooling towers shall not exceed 1.50 pounds per hour, and 6.58 tons per year.**

Truck Loading Rack (EU021) (see Response 2 for changes to the VOC limits):

**D.5.5 FESOP Limits [326 IAC 2-2] [326 IAC 2-8-4]**

Pursuant to 326 IAC 2-8-4 (FESOP), and in order to render the requirements of 326 IAC 2-2 (PSD) not applicable, the Permittee shall comply with the following emission limits for the ~~ethanol~~ **truck (EU021) and railcar (EU026) loading racks:**

- (d) The total NOx emissions from the flare CE012 exhaust associated with the truck loading rack (EU021) shall not exceed 0.077 pounds per thousand gallons, and 2.43 tons per year.
- (e) The total CO emissions from the flare CE012 exhaust associated with the truck loading rack (EU021) shall not exceed 0.129 pounds per thousand gallons, and 4.06 tons per year.

Grain Receiving and Loadout:

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

Pursuant to 326 IAC 2-8-4 (FESOP), and in order to render the requirements of 326 IAC 2-2 (PSD) not applicable, The 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 the trim boiler, thermal oxidizer/heat recovery steam generator CE005, flare CE012, unpaved roads, and insignificant activities, ~~the PM/PM10 emissions from the other emission units at this source, PM/PM10 emissions the entire source~~ are limited to less than one hundred (100) tons per year. Therefore, the requirements of 326 IAC 2-7 (Part 70 Program) and 326 IAC 2-2 (PSD) are not applicable.

Germ, Fiber, and Protein Concentrate Storage Tanks (EU014, EU015, and EU016):

**D.2.7 VOC Emissions [326 IAC 2-8-4] [326 IAC 2-2]**

**Pursuant to 326 IAC 2-8-4, and in order to render the requirements of 326 IAC 2-2 (PSD) not applicable, the VOC emissions from the emission units EU014, EU015 and EU016 shall not exceed 0.280, 0.0337, and 1.79 pounds per hour, respectively. The annual VOC emissions from the emission units EU014, EU015 and EU016 shall not exceed 1.23, 0.148, and 7.93 tons per year, respectively. Combined with the VOC emissions from other units, the VOC emissions from the entire source are limited to less than one hundred (100) tons per year. Therefore, the requirements of 326 IAC 2-7 (Part 70 Program) and 326 IAC 2-2 (PSD) are not applicable.**

Comment 7: The permit limits are not enforceable. The applicant is attempting to avoid the requirements of New Source Review ("NSR"), MACT, and the Title V operating permit program by limiting the project's potential to emit ("PTE") with production, operational, and emission limitations. The permit must meet certain minimum requirements to qualify for a FESOP, pursuant to 326 IAC 2-8-4, 2-8-5 and 2-8-6.

In addition, the limits included in a FESOP must be practically enforceable, and there must be sufficient monitoring, recordkeeping, and reporting to evaluate continuous compliance with the limits. The proposed monitoring is not adequate to assure continuous compliance.

Specific deficiencies include the following:

Loadout Averaging Time: Compliance with the rolling annual denatured ethanol loadout average should be calculated on a daily basis unless not feasible.

Fuel Sulfur Content: SO<sub>2</sub> testing requirements are not adequate and there are no restrictions on fuel sulfur content from the fuels burned at the boiler, TO, emergency diesel generator, or fire water pump.

TO Temperature: The temperature requirement should be a range with a minimum and maximum temperature, and the permit should specify response steps for out of range temperature readings.

Visible Emissions: Visible emission notations are subjective, there is no correlation between PM<sub>10</sub> mass emission rate and visible emissions, and there is no requirement for a training course for certification.

Test Methods: The test method should be specified in the FESOP.

Testing: PM<sub>10</sub> testing is not required for the truck and rail dump pits, grain handling, belt conveyor, germ storage tank, fiber storage tanks, CPC storage bins, the truck and rail loadout hoods, the soak, slurry and yeast tanks, the germ drying and cooling, fiber dryer, and protein concentration process.

Testing Frequency: A one-time stack test is not sufficient (see Consolidated Edison Co. of

NY, Inc., Ravenswood Steam Plant v. U.S. EPA, Sept, 30, 2003); an initial test with subsequent testing every 5 years, is not sufficient.

Response 7: IDEM has determined that it is sufficient to require the Applicant to determine compliance with the rolling annual denatured loadout average at the end of each month. For this type of annualized throughput limit it is unnecessary to establish compliance on a daily basis. No changes were made as a result of this comment.

This source does not require restrictions on fuel sulfur content from the fuels burned at the boiler since it is only permitted to burn natural gas and waste gases from the process units. The source is will not include emergency diesel generators or fire water pumps. No changes were made as a result of this comment.

IDEM establishes a minimum temperature requirement to ensure that the TO operates at or above the temperature at which the unit has demonstrated compliance with the required control efficiency. There is an economic disincentive to operate at temperatures substantially higher than the established minimum. In addition, the temperature could increase as a result of sudden variations in VOC concentrations, which would be considered proper operation, and should not be considered a deviation. No changes were made as a result of this comment.

With regard to visible emission notations, the calibration of what is normal and abnormal is established in the training of the employee on "the appearance and characteristics of normal visible emissions for that specific process." Because the emission characteristics vary with the type of process, it is not reasonable to establish a generic definition of "normal". This method of determining whether visible emissions are "normal" is very similar to the compliance monitoring methods cited by EPA's Portland Cement MACT, 40 CFR 63, Subpart LLL for determining whether raw mills and finish mills are operating properly. Please refer to 40 CFR 63.1350(e). Furthermore, the concept of "practical enforceability" should be applied to an emission limitation or standard. Monitoring requirements should be judged based upon their ability to ensure compliance with those emission limitations or standards. In this case, the emission limitations are the PM and opacity limitations established in 326 IAC 5-1, 326 IAC 6-3-2, and the PM and PM10 limits necessary to render PSD not applicable. IDEM, OAQ considers the visual emissions notations of this permit to be part of an overall compliance monitoring strategy that is sufficient to ensure compliance with these rules. Requiring Permittees subject to the visual emissions notation condition to be trained in Method 9 monitoring, is overly burdensome to the source and not necessary. During IDEM, OAQ inspections, the inspector will perform Method 9 monitoring to also ensure compliance with 326 IAC 5-1. At that time, the inspector will review the visual emission notation records and establish a correlation between his Method 9 result and whether the source identifies the emissions as "normal" or "abnormal". He will be able to establish compliance with 326 IAC 5-1 over the time period covered by the records, based on the records and his correlation to the Method 9 results. No changes were made as a result of this comment.

IDEM does not include the specific test method for each test requirement in the permit. The Permittee is obligated to conduct testing to demonstrate compliance with the applicable emission limitations in accordance with Section C - Performance Testing of this FESOP. Section C specifies that 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. Additionally, the applicant is required to submit a protocol prior to testing. The protocol explains how the testing will be performed and which methods will be used. IDEM staff review and approve the protocol before any testing is approved. IDEM believes this is

sufficient to ensure that the appropriate test method is utilized. No changes were made as a result of this comment.

Pursuant to Condition D.4.16 of the proposed FESOP, the Permittee is required to test the thermal oxidizer/heat recovery steam generator (CE005) for PM10. Given, that CE005 controls emissions from the soak, slurry and yeast tanks, germ drying and cooling, fiber dryer, and protein concentration process, this test will be used to determine compliance with the PM10 emission limit for CE005, which will include these units. No changes were made as a result of this comment.

IDEM agrees that a one-time stack test is not sufficient in this case and has revised the permit to include, for units with testing requirements, an initial test and subsequent testing every five (5) years thereafter. IDEM believes that a five (5) year test cycle, when paired with regular monitoring of operational parameters, is sufficient to establish continuous compliance with the emission limitations established in the permit. The following changes to the permit have been made to reflect changes to the testing frequency and to add additional testing requirements where appropriate (bolded language has been added, the language with a line through it has been deleted):

Truck and rail dump pits, grain handling, belt conveyor, germ storage tank, fiber storage tanks, CPC storage bins, the truck and rail loadout hoods (PM10 limits are included in D.2.5 through D.2.8):

**D.2.11 Testing Requirements [326 IAC 2-8-5(a)(1), (4)] [326 IAC 2-1.1-11]**

**In order to demonstrate compliance with Conditions D.2.5 through D.2.8, the Permittee shall perform PM, PM10, VOC (including emission rate, destruction efficiency, and capture efficiency) and acetaldehyde testing, within sixty (60) days after achieving the maximum capacity, but not later than one hundred eighty (180) days after initial startup, utilizing methods as approved by the Commissioner. These tests shall be repeated at least once every five (5) years from the date of this valid compliance demonstration. Testing shall be conducted in accordance with Section C - Performance Testing.**

Trim Boiler (EU023):

**D.1.14 Testing Requirements [326 IAC 2-8-5(a)(1), (4)] [326 IAC 2-1.1-11]**

**In order to demonstrate compliance with Conditions D.1.5, D.1.6, D.1.7, D.1.8(b), D.1.9, and D.1.10, the Permittee shall perform NOx, CO, VOC, PM, PM10, SO2 and acetaldehyde testing for the trim boiler, within sixty (60) days after achieving the maximum capacity production, but not later than one hundred eighty (180) days after initial startup, utilizing methods as approved by the Commissioner. These tests shall be repeated at least once every five (5) years from the date of this valid compliance demonstration. Testing shall be conducted in accordance with Section C - Performance Testing.**

Fermentation/Beerwell (EU017/EU018):

**D.3.910 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 acetaldehyde HAP testing for scrubber CE009, within sixty (60) days after achieving the maximum capacity production, but not later than one hundred eighty (180) days after initial startup, utilizing methods as approved by the Commissioner. These tests shall be repeated at least once every five (5) years from the date of this valid compliance demonstration. Testing shall be conducted in accordance with Section C - Performance Testing.**

Thermal oxidizer/heat recovery steam generator (CE005):

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]

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- (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 CE005, within sixty (60) days after achieving the maximum **capacity production**, but not later than one hundred eighty (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<sub>2</sub>, CO, and **acetaldehyde HAP** testing for thermal oxidizer/heat recovery steam generator CE005, within sixty (60) days after achieving the maximum **capacity production**, but not later than one hundred eighty (180) days after initial startup, utilizing methods as approved by the Commissioner. PM-10 includes filterable and condensable 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.

Truck Loading Rack (EU021):

D.5.10 Testing Requirements [326 IAC 2-8-5(a)(1), (4)] [326 IAC 2-1.1-11] [326 IAC 2-2]

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In order to demonstrate compliance with Conditions D.5.5(c), (d), (e), **(f)** and D.5.6 **associated with the truck loading rack (EU021)**, the Permittee shall perform VOC (including emission rate, destruction efficiency, and capture efficiency), CO, and NOx testing for enclosed flare CE012, within sixty (60) days after achieving the maximum **production capacity**, but not later than one hundred eighty (180) days after initial startup, utilizing methods as approved by the Commissioner. **These tests shall be repeated at least once every five (5) years from the date of this valid compliance demonstration.** Testing shall be conducted in accordance with Section C - Performance Testing.

Comment 8: The following units were omitted from the TSD emission calculations:

Product Storage Tanks: VOCs were not included in the TSD calculations

Wet Milling: PM10 and VOC emissions were not included in the TSD calculations

Other Emission Units: fire water pump, emergency diesel generator, bio-methanator flare, fugitive VOC emissions from storing, transporting, and/or treating the wastewater, back-up fuel emissions (propane or diesel), upset conditions, fugitive PM from rail operation

Response 8: IDEM agrees that the wet milling PM10 and VOC emissions and product storage tank VOC emissions were inadvertently omitted from the TSD calculations. A revised version of Appendix A to the TSD has been included as Appendix A to the ATSD. These omitted emission calculations have been included as page 18 of 18 of Appendix A to the ATSD.

Propane is the only back-up fuel utilized at the source, and the Trim Boiler (EU023) is the only unit that is permitted to use propane as a back-up fuel. All other combustion units operate using natural gas or waste gases from process units. See Response 5 regarding diesel fuel for the fire water pump and diesel generator, and Response 6 for additional limitations on propane usage.

The wastewater treatment facility utilizes an anaerobic digestion system which exhausts to

thermal oxidizer CE005 or methanator flare CE013. There are no fugitive emissions associated with treating, storing, or transporting the wastewater since the processing is done on site and is controlled.

Fugitive emissions from railcar operations were included on page 11 of 16 of Appendix A to the TSD in the original proposed FESOP.

With regard to upset conditions, the FESOP includes compliance monitoring and determination requirements. In addition, the permit specifies that control devices necessary to ensure compliance with applicable limitations must be operated at all times that the associated emission units are operating. The permit also contains provisions which require that the Permittee take appropriate corrective action when these controls or emission units are not operating properly to minimize excess emissions. All of these conditions work together to ensure that upset conditions do not occur, however if they do in fact occur then those emissions should be minimal. Finally, emissions which exceed applicable limitations are considered deviations and therefore not counted toward the overall limitations.

With regard to the methanator flare, the proposed permit included the flare in two separate sections. The methanator flare was listed in Section D.4 as EU022, and described as the back-up control device for thermal oxidizer CE005. The methanator flare is later included as an insignificant activity in Section D.7, where it is described as the control device for the digester bio-gas from process water treatment. There is actually only one flare, CE013, which is a 6.4 MMBtu enclosed flare used to control bio-gas from the process water treatment. The emission calculations for this flare are included on page 14 of 18 in the Appendix to the ATSD. The following changes to the permit have been made to reflect this correction (bolded language has been added, the language with a line through it has been deleted):

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:

- ~~(e) One (1) Methanator flare, identified as EU022, to be constructed in 2005, using natural gas and process waste gases from those operations controlled by thermal oxidizer (TO), EU024, when the TO is out of service, with a maximum heat input capacity of six (6) MMBtu/hr, and exhausting through stack EP013.~~

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

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

- ~~(b) One (1) Methanator flare, identified as EU022, to be constructed in 2005, using natural gas and process waste gases from those operations controlled by thermal oxidizer (TO), EU024, when the TO is out of service, with a maximum heat input capacity of six (6) MMBtu/hr, and exhausting through stack EP013.~~

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

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):

- (4) One (1) digester for process water, identified as MF, to be constructed in 2005. This unit has methane emissions and is controlled by thermal oxidizer CE005 **or by methanator** flare CE013.

**SECTION D.7 FACILITY OPERATION CONDITIONS – Other Insignificant Activities**

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

**Insignificant Activities**

- (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:
  - (14) One (1) digester for process water, identified as MF, to be constructed in 2005. This unit has methane emissions and is controlled by thermal oxidizer CE005 **or by methanator** flare CE013.

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

Comment 9: NOx emissions were miscalculated for the dryers and TO. The NOx emissions from the TO should be the sum of the NOx emissions from the dryers (17.2 tons per year) and the NOx emissions from burning 168 MMBtu/hr of natural gas in the thermal oxidizer (36.8 tons per year). Based on these calculations, the NOx emissions for the TO should be 54 tons per year rather than the 73.6 tons per year indicated in the TSD.

In addition, the TSD, Calculations page 2, incorrectly labels the TO emission calculations as "PTE of the Boilers". Also, the TO emissions are included in two separate tables in the TSD (pages 2 and 6). These tables should be consolidated to eliminate confusion.

Response 9: IDEM agrees that there was an error in the NOx emission calculations for the TO. The emission calculations have been evaluated and the appropriate changes have been made to the permit. The NOx limit for the trim boiler was adjusted in response to a separate comment (Comment 5), and as a result of changes to those limits and this correction to the calculations for thermal oxidizer CE005, the NOx limit for CE005 has been adjusted. Appendix A has been revised to reflect the changes to the calculations. These revised calculations have been included as Appendix A to the ATSD. No changes will be made to the TSD, as explained earlier in this ATSD, but the following changes to the permit have been made to reflect this correction (bolded language has been added, the language with a line through it has been deleted):

**D.4.5 Thermal Oxidizer FESOP Limits [326 IAC 2-2] [326 IAC 2-8-4] [326 IAC 2-4.1]**

- (d) NOx emissions shall not exceed ~~8.4~~ **12.49** lbs/hr.

Comment 10: The TSD estimated uncontrolled VOC emissions from ethanol loading using an equation from AP-42. The values used for this equation are inconsistent with those calculated by the EPA program Tanks 4.0 for this site. The corrected values of these factors are 0.71 tons per year for controlled loading of trucks and 14.2 tons per year for uncontrolled loading of railcars. The railcar emissions should also be controlled by a flare (see Comment 2 of this ATSD), but are not in this calculation because the TSD assumed they were uncontrolled. The controlled railcar VOC emissions would be 0.28 tons per year.

Response 10: IDEM has determined that the Tank values used in the calculations for this permit are from a previous version of the Tanks program. IDEM has modified its calculations using the more recent version and made the appropriate changes to the permit. See Response 2 for the changes to the permit.

Appendix A has been revised to reflect the changes to the calculations. These revised calculations have been included as page 8 of 18 of Appendix A to the ATSD.

Comment 11: The combustion of loading vapors in the flare would create NOx and CO emissions. The TSD did not include either NOx or CO but the application included calculations showing 2.43 tons per year of NOx and 4.06 tons per year of CO.

Response 11: IDEM has determined that the application did in fact include these emission values for NOx and CO. IDEM has made the appropriate changes to the permit to account for these emissions. See Response 6 for the changes to the permit.

Appendix A has been revised to reflect the changes to the calculations. These revised calculations have been included as page 9 of 18 of Appendix A to the ATSD.

Comment 12: PM and PM10 emissions from combusting 168 MMBTU per hour of natural gas in the TO are double counted. The 5.6 tons per year for PM and PM10 was included in both the TO emission calculations and the combined emissions from the TO. In addition, there is a separate entry in the TSD calculations for the TO steam generator.

Response 12: IDEM agrees and has modified its calculations and made the appropriate changes to the permit. Appendix A has been revised to reflect the changes to the calculations. These revised calculations have been included as page 16 of 18 of Appendix A to the ATSD. The following changes to the permit have been made to reflect this correction (bolded language has been added, the language with a line through it has been deleted):

#### **D.4.5 Thermal Oxidizer FESOP Limits [326 IAC 2-2] [326 IAC 2-8-4] [326 IAC 2-4.1]**

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- (a) PM/PM10 emissions shall not exceed ~~8.29~~ **8.89** lbs/hr.

Comment 13: The TSD relied on a VOC emission estimate of 0.49 pounds per hour for distillation and dehydration provided by the Applicant. This value is overestimated because the stack test (AI-Corn) on which the estimate was based showed speciated VOC emissions and therefore required no carbon adjustment. The Applicant's calculations also incorrectly assumed the same control efficiency for both Hartford and AI-Corn, 98%.

Response 13: IDEM has determined that the emission estimate of 0.49 pounds per hour is incorrect. The

corrected emission estimate is 0.095 pounds per hour, which includes the average emission rate from the Alcorn tests without an adjustment for carbon. These revised calculations have been included as page 15 of 18 of Appendix A to the ATSD. The VOC limit for thermal oxidizer/heat recovery steam generator CE005 includes the emissions from the distillation and dehydration process (DD). The emission limit for CE005 has been adjusted to reflect this correction as well as additional corrections detailed in this ATSD. Consequently, while the change to the emission rate results in a decrease in allowable emissions from distillation and dehydration, other corrections resulted in an increase in the pound per hour limit specified in condition D.4.5. The following revisions have been made to condition D.4.5 (bolded language has been added, the language with a line through it has been deleted):

**D.4.5 Thermal Oxidizer FESOP Limits [326 IAC 2-2] [326 IAC 2-8-4] [326 IAC 2-4.1]**

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- (b) VOC emissions shall not exceed ~~9.64~~ **10.56** lbs/hr.

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

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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 CE005.
- (b) The overall control efficiency for the thermal oxidizer CE005 shall be at least 98%.
- (c) The VOC emissions from thermal oxidizer CE005) shall not exceed ~~9.64~~ **10.56** pounds per hour.

Comment 14: The TSD contains two separate, conflicting, estimates of HAP emissions from the dryers. The TSD appendix shows acetaldehyde emissions of 0.57 ton per year (page 7), and total HAPs of 0.36 ton per year, which includes 0.23 ton per year of acetaldehyde (page 6). The TSD potential to emit summary table relies on the smaller value. These discrepancies should be resolved and the affected permit limits corrected.

Response 14: IDEM agrees and has modified its calculations and made the appropriate changes to the permit. The acetaldehyde emissions included on page 6 of the TSD Appendix were in error. The total acetaldehyde emission value on page 7 of Appendix A to the original TSD was correct when it indicated that acetaldehyde emissions, after controls, are 0.57 tons per year. Appendix A has been revised to reflect the changes to the calculations. These revised calculations have been included as pages 6 and 7 of 18 of Appendix A to the ATSD. See Response 5 above for the permit changes.

Comment 15: The potential to emit calculations for the trim boiler do not include CO, allegedly because CO emissions are accounted for in the thermal oxidizer calculations. However, the boiler does not vent through the thermal oxidizer, but rather through its own stack, EP015. The TSD potential to emit table correctly reports CO emissions from the boiler.

Response 15: IDEM agrees and has modified its calculations and made the appropriate changes to the permit. Appendix A has been revised to reflect the changes to the calculations. These revised calculations have been included as page 1 of 18 of Appendix A to the ATSD. See Response 6 above for the permit changes.

Comment 16: The TSD estimated 1.81 tons per year of PM10 emissions from paved roadways within the

plant boundary, assuming 50% control by sweeping. IDEM should have used the AP-42 values for industrial roadways rather than the AP-42 values for urban roadways relied upon in these calculations. According to the industrial roadway table, the silt loading values range from 7.4 to 292 grams per square meter. Using these values, rather than the 0.6 grams per square meter used in the TSD calculations, yields a range of potential emission estimates from 9.26 tons per year to 101 tons per year. Even the low value is sufficient to cause facility-wide PM10 emissions to exceed 100 tons per year.

In addition, the paved road fugitive PM10 calculations are based on an average vehicle weight of 29 tons. The application indicates that the maximum gross vehicle weight for both types of trucks (grain trucks and tankers) is 36 tons. Other projects have assumed a truck capacity of 25 tons and empty vehicle weight of 15 tons for a full weight of 40 tons. IDEM should investigate the assumed loaded vehicle weight and revise the paved fugitive PM10 emissions accordingly.

Response 16: IDEM has evaluated the emission calculations included in the application and investigated the claims made by the commenter with regard to the paved road calculations included in the permit. Based on IDEM's evaluation, the 0.6 grams per square meter value is consistent with the ranges prescribed in AP-42 for paved roads at this type of industrial facility.

With regard to the vehicle weight, the application and IDEM's calculations are based on a maximum vehicle weight of 42 tons when full. This is derived by adding the maximum weight of the grain trucks utilized, 17 tons, and the maximum capacity of 25 tons. IDEM uses the 29 ton value to account for the fact that the trucks are empty half the time they are entering and exiting the plant. The 29 ton average is the average of the full weight and the empty weight.

No changes were made to the permit in response to these comments.

On December 14, 2005, IDEM held a public meeting in Hartford City, Indiana. At this meeting several comments were made regarding this proposed FESOP. A summary of the comments made and IDEM's responses are as follows:

**Jack Bates (Hartford City)**

Comment 1: Indiana should enact more stringent laws to better protect the environment and the health of local citizens.

Response 1: The construction permit rules require that a permit be issued if the applicant is required to comply with permit conditions detailing the requirements of the air pollution control rules and any other conditions necessary to protect public health. The EPA and the Indiana Air Pollution Control Board approve the laws that govern air quality in Indiana. IDEM is delegated to enforce those laws as they currently exist, but does not have the sole authority to change them.

If citizens wish to participate in the process for creating new laws or amending existing laws that govern air pollution, they can participate in the Air Pollution Control Board meetings. There are two ways for a person to receive a copy of the agenda for upcoming board meetings. The first option is an email notification that's sent out two weeks before the board meeting. A notification goes out to those on the list that the board materials are available on line for viewing/downloading. <http://www.IN.gov/idem/air/rules/airboard/>. The second option is for people that wish to get the agenda by mail. The mailing also includes the web address to view the board documents on line. Anyone can email Pat Troth to request to be added to

the notification list at [ptroth@idem.IN.us](mailto:ptroth@idem.IN.us).

Comment 2: Will IDEM consider the effect of this new plant on ground water pollution? Hartford City relies on driven wells for city water. Where will the water for this plant come from?

Response 2: This permit is not intended to address issues related to water pollution or disruption of water supply. The Department of Natural Resources is responsible for regulations related to the waters of Indiana. The Permittee is obligated to investigate any and all regulations that it must comply with, including but not limited to, air, water, and land quality. Those requirements that fall outside the scope of this permit would need to be addressed by the Permittee with the appropriate regulatory agency.

Comment 3: How many trucks will be coming and going from the plant?

Response 3: The Permittee estimates that there will be a maximum of 117 trucks per day, including grain receiving, DDGS loadout, ethanol loadout and denaturant delivery. IDEM does not have specific authority to regulate the number of trucks entering and exiting the plant; however, IDEM has calculated the emissions from truck traffic, and has included conditions in the permit to ensure that the emissions from truck traffic do not exceed the levels allowed by state and federal laws regulating air pollution.

#### **Daniel Baughey (Hartford City)**

Comment 1: This meeting is not legal because there was no notice in the papers.

Response 1: There are no legal requirements concerning notice of public meetings regarding IDEM's air permit decisions. IDEM individually notified by mail fourteen potentially interested parties of record, including Mr. Baughey. IDEM also posted notice on its web site. These notices and an announcement at the meeting stated that the formal public comments period was extended through December 14, 1005.

Charles L. Berger, of Berger & Berger and on behalf of Plumbers and Steamfitters, Local 166, had requested a public hearing, but subsequently withdrew that request. There were no other written requests for a public hearing on this permit. However, the public meeting was well attended; over 50 people attended and 7 people provided oral testimony. A court reporter attended and provided a transcript of the proceedings.

In making a final decision on the application, IDEM has considered all of the comments received during the meeting. The purpose of a public hearing is to allow the public an opportunity to express their concerns and for IDEM to respond to those concerns. IDEM believes that both of these goals were accomplished at the meeting that was held.

Comment 2: Is this a chemical processing plant?

Response 2: Ethanol production is considered a chemical processing plant under 326 IAC 2-2.

Comment 3: How many inspectors do you have throughout the state currently?

Response 3: IDEM has 31 full time inspectors and 8 full time stack testers.

Comment 4: What type of monitoring or monitoring devices does IDEM have the authority to require at a source like this one?

Response 4: Pursuant to 326 IAC 2-8-4(3) IDEM has the authority to require monitoring and

recordkeeping sufficient to ensure continuous compliance with the permit and all applicable requirements. IDEM has included compliance monitoring requirements in this proposed FESOP. Included in these requirements are continuous monitoring devices for measuring the temperature on the thermal oxidizer, and for measuring NOx emissions from the thermal oxidizer stack which includes the controlled emissions from the dryers, distillation/dehydration, and the wet mill operations. In addition to the continuous monitoring devices, the permit requires monitoring and recordkeeping of visible emissions, pressure drop at baghouses and controls, and scrubber flow rates. The permit require sufficient compliance monitoring to ensure continuous compliance with the applicable permit limitations.

Comment 5: Does this plant have a flare like we see at other large plants where it lights up the sky at night?

Response 5: The flare that will be utilized at this plant is an enclosed flare, which will not have a visible flame.

Comment 6: Is the source required to submit all records and data collected pursuant to this permit to IDEM? Will anyone from IDEM be visiting the site and asking to verify these records, or can they just send in whatever they have? Does IDEM attempt to validate data, and is there anything in place that IDEM could do to respond if they submit erroneous data or data that has been changed?

Response 6: Some records are required to be submitted IDEM, while other records must be only be kept on-site and made available upon request. IDEM has an inspector assigned to the county in which this facility will be located. This inspector will inspect this facility and review the records maintained by the source. In addition, the inspector will verify that the records are in fact being maintained properly and that the data recorded is based on monitoring that is conducted properly. In addition, the permit requires stack testing of several of the emission units. IDEM will review the test protocol prior to the test, approve the protocol if appropriate, and observe the test when conducted. In the unlikely event that data is found to be intentionally manipulated in some way, IDEM has the authority to initiate civil action or if the act rises to the level of a criminal violation, IDEM has its own Office of Criminal Investigation that can investigate and refer cases to the local prosecutor.

Comment 7: Has IDEM looked into what other States have done with these types of plants? Does Indiana have much experience dealing with these types of production plants? How many ethanol plants does Indiana have?

Response 7: Indiana has two (2) ethanol production plants operating in Indiana. IDEM has permitted several more that have not yet been constructed. With regard to comparing our permits to those of other States, IDEM must evaluate BACT determinations made in other States as part of our determination. IDEM compares the level of control and the control technologies required at other similar facilities in Indiana and other States as part of the BACT evaluation. In addition, IDEM has participated in settlement discussions for the National Grain settlements coordinated by the US EPA. Through these discussions and negotiations IDEM has gained a great deal of practical experience working with this industry, and more specifically ethanol production plants.

Comment 8: Did I understand correctly that this plant will be operated 24 hours a day, 365 days a year?

Response 8: The emission calculations utilized to determine the potential to emit of this source are based on the presumption that the plant will operate 8760 hours per year, which is the equivalent of 24 hours a day, 365 days a year. This is to ensure that IDEM is considering the potential emissions from the source at the maximum hours of operation possible, even though most

sources do not actually operate 8760 hours per year.

**Dr. George Parks (Hartford City)**

Comment 1: The Muncie paper indicated this morning that Henry County is the sixth worst in the nation for air pollution. It also indicated that Muscatine County, Iowa is third. I was born in Muscatine, Iowa, and an alcohol plant was built there in 1943. I know there is an odor, but I don't know if it causes any illness or not. I also know that this plant is the biggest company that could be polluting the air in Muscatine, Iowa. I'm not against the plant, but I am against the plant in city limits. There will be pollution.

Response 1: IDEM does not have the authority to deny a permit based solely on the proposed location. IDEM also lacks the authority to regulate odor from industrial facilities. IDEM must limit itself to regulating emissions of air pollution exclusively, as we have done through this FESOP. Also, Indiana's air pollution laws do not distinguish between facilities located in rural areas and facilities located in urban or residential areas. The laws require facilities located in nonresidential areas to comply with the same standards that are required for facilities located in urban or residential areas. Local zoning laws govern where a facility is allowed to locate.

Comment 2: Is there anyway to tell how far air pollution from a factory will travel or how big an area that the emissions will impact. This plant will be within 4 to 5 miles from most of the residents and I was wondering how we know what is traveling that far and how it will effect the residents of Hartford City.

Response 2: IDEM can conduct air modeling for a given area to determine what the emission concentrations would be at a given distance from the plant. The modeling is done through a computer program that evaluates stack heights, emission characteristics, geography, and other factors to determine what the concentrations of air pollutants would be in a specific area around a plant. These models are then compared to national standards referred to as National Ambient Air Quality Standards or NAAQS to ensure that the plant will not exceed these standards. The NAAQS are established by the US EPA to protect public health.

This modeling is not required for sources that have minor levels of emissions.

**Carolee Schneider (Hartford City)**

Comment 1: I recently attended an agricultural seminar sponsored by the Lieutenant Governor and Purdue University. At the seminar it was announced that there would be forty ethanol plants in Indiana within the next two years. Has anyone considered the cumulative effect of forty plants?

Response 1: IDEM monitors regional air quality to ensure compliance with the NAAQS. If several ethanol plants were located in a concentrated area, IDEM could monitor that area to ensure there is no violation of the NAAQS. Also, if IDEM has a concern that a new plant is proposed in an area where there are already several industrial facilities contributing to the ambient air quality, IDEM can conduct air quality modeling to ensure that the addition of emissions to that area will not have a negative impact on the air quality.

On a regional level, IDEM is participating with other Midwest states to account for state-wide emissions that affect ambient levels of PM2.5 and ozone. The air in Blackford County currently complies with the health-based standards for these pollutants. Regional modeling (across the entire Midwest) currently shows that Hartford City's air will continue to meet those standards and the few portions of Indiana that do not meet these standards will come into compliance by 2010.

Upon further review the OAQ has decided to make the following changes to this FESOP. The following changes have been made to the permit (bolded language has been added, the language with a line through it has been deleted):

1. IDEM has determined that the Permittee is not required to keep records of all preventive maintenance. However, where the Permittee seeks to demonstrate that an emergency has occurred, the Permittee must provide, upon request, records of preventive maintenance in order to establish that the lack of proper maintenance did not cause or contribute to the deviation. Therefore, IDEM has deleted paragraph (b) of Section B – Preventive Maintenance, and has amended the Section B – Emergency Provisions condition as follows:

**B.12 Preventive Maintenance Plan [326 IAC 1-6-3] [326 IAC 2-8-4(9)] [326 IAC 2-8-5(a)(1)]**

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- (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  
Indianapolis, Indiana 46204

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.~~
- (be)** 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).
- (cd)** 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  
Indianapolis, Indiana 46204

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) **The Permittee seeking to establish the occurrence of an emergency shall make records available upon request to ensure that failure to implement a PMP did not cause or contribute to an exceedance of any limitations on emissions. However, IDEM, OAQ, may require that the Preventive Maintenance Plans required under 326 IAC 2-8-3(c)(6) be revised in response to an emergency.**
  - (f) Failure to notify IDEM, OAQ, by telephone or facsimile of an emergency lasting more than one (1) hour in accordance with (b)(4) and (5) of this condition shall constitute a violation of 326 IAC 2-8 and any other applicable rules.
  - (g) Operations may continue during an emergency only if the following conditions are met:
    - (1) If the emergency situation causes a deviation from a technology-based limit, the Permittee may continue to operate the affected emitting facilities during the emergency provided the Permittee immediately takes all reasonable steps to correct the emergency and minimize emissions.
    - (2) If an emergency situation causes a deviation from a health-based limit, the Permittee may not continue to operate the affected emissions facilities unless:
      - (A) The Permittee immediately takes all reasonable steps to correct the emergency situation and to minimize emissions; and
      - (B) Continued operation of the facilities is necessary to prevent imminent injury to persons, severe damage to equipment, substantial loss of capital investment, or loss of product or raw material of substantial economic value.
- Any operations shall continue no longer than the minimum time required to prevent the situations identified in (g)(2)(B) of this condition.
- (h) The Permittee shall include all emergencies in the Quarterly Deviation and Compliance Monitoring Report.

2. IDEM has clarified the Section B Operational Flexibility condition as follows:

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 limitations provided in** this permit (whether expressed herein as a rate of emissions or in terms of total emissions);

(4) The Permittee notifies the:

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

and

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

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

(5) The Permittee maintains records on-site **on a five (5) year basis**, 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 The~~ **Permittee shall make 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) The Permittee may make Section 502(b)(10) of the Clean Air Act changes (this term is defined at 326 IAC 2-7-1(36)) without a permit revision, subject to the constraint of 326 IAC 2-8-15(a). For each such Section 502(b)(10) of the Clean Air Act change, the required written notification shall include the following:**

- (1) A brief description of the change within the source;**
- (2) The date on which the change will occur;**
- (3) Any change in emissions; and**
- (4) Any permit term or condition that is no longer applicable as a result of the change.**

**The notification which shall be submitted is not considered an application form, report or compliance certification. Therefore, the notification by the Permittee does not require the certification by the "responsible official" as defined by 326 IAC 2-7-1(34).**

**(bc) 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).

- (ed) 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.
- (de) 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. Condition C.7 (Operation of Equipment) is the same as the conditions found in the D conditions of this permit under Compliance Determination, therefore C.7 will be removed as follows:

~~C.7 — Operation of Equipment [326 IAC 2-8-5(a)(4)]~~

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~~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.~~

4. Regarding Condition C.15, IDEM realizes that the instrument specifications can only be practically applied to analog units, and has therefore clarified the condition to state that the condition only applies to analog units. Upon further review, IDEM has also determined that the accuracy of the instruments is not nearly as important as whether the instrument has a range that is appropriate for the normal expected reading of the parameter. Therefore, the accuracy requirements have been removed from the condition.

~~C.1514 Pressure Gauge and Other Instrument Specifications [326 IAC 2-1.1-11] [326 IAC 2-8-4(3)] [326 IAC 2-8-5(1)]~~

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- (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~~ **When required by any condition of this permit, an analog instrument used to measure a parameter related to the operation of an air pollution control device shall have a scale such that the expected normal maximum reading for the normal range 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) **The Permittee may request that the IDEM, OAQ approve the use of an instrument that does not meet the above specifications provided that the Permittee can demonstrate that an alternative instrument specification will adequately ensure compliance with permit conditions requiring the measurement of the parameters.** ~~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.~~

5. IDEM has reconsidered the requirement to develop and follow a Compliance Response Plan. The Permittee will still be required to take reasonable response steps when a compliance monitoring

parameter is determined to be out of range or abnormal. Replacing the requirement to develop and follow a Compliance Response Plan with a requirement to take reasonable response steps will ensure that the control equipment is returned to proper operation as soon as practicable, while still allowing the Permittee the flexibility to respond to situations that were not anticipated. The Section D conditions that refer to this condition have been revised to reflect the new condition title, and the following changes have been made to the Section C condition:

**C.1716 Compliance Response Plan—Preparation, Implementation, Records, and Reports Response to Excursions or Exceedances [326 IAC 2-8-4] [326 IAC 2-8-5]**

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

- (1) **monitoring results;**
  - (2) **review of operation and maintenance procedures and records;**
  - (3) **inspection of the control device, associated capture system, and the process.**
- (d) **Failure to take reasonable response steps shall be considered a deviation from the permit.**
- (e) **The Permittee shall maintain the following records:**
- (1) **monitoring data;**
  - (2) **monitor performance data, if applicable; and**
  - (3) **corrective actions taken.**
6. Upon further review, IDEM has determined that it is the Permittee's responsibility to include routine control device inspection requirements in the applicable preventive maintenance plan. Since the Permittee is in the best position to determine the appropriate frequency of control device inspections and the details regarding which components of the control device should be inspected, the conditions requiring control device inspections have been removed from the permit. In addition, the requirement to keep records of the inspections has been removed. In addition, IDEM has determined that once per day monitoring of the control device and of visible emission notations, is generally sufficient to ensure proper operation of the control device. IDEM has also determined that monitoring these parameters once per day is sufficient to satisfy the requirements of the Part 70 rules at 326 IAC 2-7-5 and 326 IAC 2-7-6.

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

#### **D.1.4415 Record Keeping Requirements**

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- ~~(b) To document compliance with Condition D.1.9, the Permittee shall maintain 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.

#### **D.2.11 Baghouse Inspections**

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~~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.2.912 Visible Emissions Notations**

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- (a) Visible emission notations of the baghouse stack exhausts (stacks EP001 through EP006, and EP009 through EP011) shall be performed once per ~~shift~~ **day** during normal daylight operations when exhausting to the atmosphere. A trained employee shall record whether emissions are normal or abnormal.
- ~~(e) The Compliance Response Plan for these units shall contain troubleshooting contingency~~

~~and response steps for when an~~ **If abnormal emissions are is observed, the Permittee shall take reasonable steps in accordance with Section C – Response to Excursions or Exceedances.** Failure to take response steps in accordance with Section C - ~~Compliance Response Plan – Preparation, Implementation, Records and Reports~~ **Response to Excursions or Exceedances** shall be considered a deviation from this permit.

**D.2.4013 Baghouse Parametric Monitoring**

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- (a) 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~~ **day** when these units are in operation. When for any one reading, the pressure drop across the baghouse is outside the normal range of 1.0 to 6.0 inches of water or a range established during the latest stack test, the Permittee shall take reasonable response steps in accordance with Section C- ~~Compliance Response Plan – Preparation, Implementation, Records and Reports~~ **Response to Excursions or Exceedances**. A pressure reading that is outside the above mentioned range is not a deviation from this permit. Failure to take response steps in accordance with Section C - ~~Compliance Response Plan – Preparation, Implementation, Records and Reports~~ **Response to Excursions or Exceedances** shall be considered a deviation from this permit.
- (b) The instrument used for determining the pressure shall comply with Section C - ~~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.2.4315 Record Keeping Requirements**

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- (a) To document compliance with Condition D.2.912, the Permittee shall maintain records of once per ~~shift~~ **day** visible emission notations of the baghouse stack exhausts.
- (b) To document compliance with Condition D.2.4013, the Permittee shall maintain once per ~~shift~~ **day** records of the ~~total static~~ pressure drop **across each baghouse** 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.~~
- (ec) All records shall be maintained in accordance with Section C - General Record Keeping Requirements, of this permit.

**D.3.11 Scrubber Inspections**

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

**D.3.4011 Parametric Monitoring**

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The Permittee shall monitor and record the flow rate of scrubber ~~CE007~~ **CE009** at least once per ~~shift~~ **day** when the fermentation process and beer well are 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~~ **Response to Excursions or Exceedances**. 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~~ **Response to Excursions or Exceedances** 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.3.1213 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~~ **Response to Excursions or Exceedances** shall be considered a deviation from this permit.

#### D.3.1314 Record Keeping Requirements

- (a) To document compliance with Condition D.3.1011, the Permittee shall maintain once per shift **day** records of flow rate for scrubber CE009 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 records of any additional inspections prescribed by the Preventive Maintenance Plan.~~
- (dc) All records shall be maintained in accordance with Section C - General Record Keeping Requirements, of this permit.

#### D.4.18 Visible Emissions Notations

- (a) Visible emission notations of the stack exhaust from stack EP005 (~~or EP013 when operating as the emergency backup~~) shall be performed once per **shift day** during normal daylight operations when exhausting to the atmosphere. A trained employee shall record whether emissions are normal or abnormal.
- (e) ~~The Compliance Response Plan for these units shall contain troubleshooting contingency and response steps for when an~~ **If abnormal emissions are** is observed, **the Permittee shall take reasonable steps in accordance with Section C - Response to Excursions or Exceedances**. Failure to take response steps in accordance with Section C - ~~Compliance Response Plan - Preparation, Implementation, Records and Reports~~ **Response to Excursions or Exceedances** shall be considered a deviation from this permit.

#### D.4.21 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.4.221 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~~ **Response to Excursions or Exceedances** shall be considered a deviation from this permit

#### D.4.2322 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~~ **day** visible emission notations of the stack EP005 (or EP013 when operating as the emergency backup).
- (c) To document compliance with Condition D.4.19, the Permittee shall maintain continuous temperature records for the thermal oxidizer and the three hour average temperature 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 cyclones GE005A, GE005B and GE005C during normal operation.~~
- ~~(f) To document compliance with Condition D.4.21, the Permittee shall maintain records of the results of the inspections required under Condition D.4.21.~~
- ~~(g) To document compliance with Condition D.4.13, the Permittee shall maintain records of any additional inspections prescribed by the Preventive Maintenance Plan.~~
- (eh) All records shall be maintained in accordance with Section C - General Record Keeping Requirements, of this permit.

#### D.5.11 Visible Emissions Notations

- (a) Visible emission notations of the stack exhaust from stack EP012 shall be performed once per ~~shift~~ **day** during normal daylight operations when exhausting to the atmosphere. A trained employee shall record whether emissions are normal or abnormal.
- (e) ~~The Compliance Response Plan for these units shall contain troubleshooting contingency and response steps for when an~~ **If abnormal emissions are observed, the Permittee shall take reasonable steps in accordance with Section C – Response to Excursions or Exceedances.** Failure to take response steps in accordance with Section C - ~~Compliance Response Plan – Preparation, Implementation, Records and Reports~~ **Response to Excursions or Exceedances** shall be considered a deviation from this permit.

#### 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 **at both the truck loading rack**

**(EU021) and the railcar loading rack (EU026) combined.**

- (b) To document compliance with Condition D.5.11, the Permittee shall maintain records of once per ~~shift~~ **day** visible emission notations of stack EP012.
- ~~(c) To document compliance with Condition D.5.8, the Permittee shall maintain records of any additional inspections prescribed by the Preventive Maintenance Plan.~~
- ~~(cd)~~ 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.
- ~~(de)~~ All records shall be maintained in accordance with Section C - General Record Keeping Requirements, of this permit.

**D.6.56 Record Keeping Requirements**

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- (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 records of any additional inspections prescribed by the Preventive Maintenance Plan.~~
  - ~~(eb)~~ All records shall be maintained in accordance with Section C - General Record Keeping Requirements, of this permit.
7. Paragraph (a) of the Broken or Failed Baghouse condition has been deleted. For multi-compartment baghouses, the permit will not specify what actions the Permittee needs to take in response to a broken bag. However, a requirement has been added to Condition D.2.10 requiring the Permittee to notify IDEM if a broken bag is detected and the control device will not be repaired for more than ten (10) days. This notification allows IDEM to take any appropriate actions if the emission unit will continue to operate for a long period of time while the control device is not operating in optimum condition.

**D.2.810 Particulate Control**

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

**D.2.1214 Broken or Failed Bag Detection [326 IAC 2-8-5(1)] [326 IAC 2-8-4(1)]**

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~~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 ten (10) days or more after the failure is observed before the failed units will be repaired or replaced, the Permittee shall promptly notify the IDEM, OAQ of the expected date the failed units will be repaired or replaced. The notification shall also include the status of the applicable compliance monitoring parameters with respect to normal, and the results of any response actions taken up to the time of notification.~~

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

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

8. IDEM has made additional changes to the permit which are not shown in this ATSD. These changes include the following:
1. Throughout the D sections of this permit references to units of measurement (i.e. lbs/hr, tons/yr, etc.) have been spelled to ensure that the respective conditions are clear.
  2. The Table of Contents has been revised to reflect the addition and deletion of conditions.
  3. Some conditions were renumbered to account for the addition and deletion of conditions.

# ATSD Appendix B

## Best Available Control Technology (BACT) Determinations

### Source Background and Description

Source Name:	Hartford Energy, L.L.C.
Source Location:	600 North Industrial Park Drive, Hartford City, Indiana 47348
County:	Blackford
SIC Code:	2869
Operation Permit No.:	F009-21592-00024
Permit Reviewer:	L. Stapf

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 Hartford Energy, L.L.C. on August 3, 2005;
- (b) Information from vendors/suppliers;
- (c) The EPA RACT/BACT/LAER (RBLCL) Clearinghouse; and
- (d) State and local air quality permits.

## **Appendix B.1 Best Available Control Technology (BACT) Determination For the Fermentation Process (FP)**

### **Introduction:**

Hartford Energy will use a fermentation process to produce ethanol from grain. The potential VOC emissions from this activity are estimated to be greater than twenty-five (25) tons per year. Since this facility will be constructed after the January 1, 1980 applicability date, Hartford Energy 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 Hartford Energy.

### **Step 1 – Identify Control Options**

To control VOC emissions from the fermentation process, Hartford Energy reviewed the following six control technologies:

1. Carbon Adsorption;
2. Wet Scrubbers;\*
3. Thermal Oxidation;
4. Catalytic Oxidation;
5. Flare; and
6. Refrigeration Condenser.

\* Hartford Energy 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, Hartford Energy 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.

**Catalytic Oxidation:** Catalytic oxidation, a catalyst is used to lower the activation energy for oxidation. When a preheated gas stream is passed through a catalytic oxidizer, the catalyst bed initiates and promotes the oxidation of the VOC without being permanently altered itself. In catalytic oxidation, combustion occurs at significantly lower temperatures than that of direct flame units and can also achieve a destruction efficiency of 95%. However, steps must be taken to ensure complete combustion. The

types of catalysts used include platinum, platinum alloys, copper chromate, copper oxide, chromium, manganese, and nickel. These catalysts are deposited in thin layers on an inert substrate, usually a honeycomb shaped ceramic.

**Step 3 – Rank Remaining Control Technologies by Control Effectiveness**

Using the control efficiencies reported for similar sources, Hartford Energy has ranked the remaining control technologies as follows:

<b>Control Technology</b>	<b>Control Efficiency (%)</b>
Thermal Oxidizer	98
Catalytic Oxidizer	98
Wet Scrubber	98
Flaring	95
Refrigeration Condenser	90

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 the wet scrubber is based on recent stack tests performed at Al-Corn as well as at Central IN Ethanol that indicate 98% control efficiency can be achieved using a wet scrubber.

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 Hartford Energy and IDEM, OAQ:

<b>Plant</b>	<b>RBLC I.D.</b>	<b>Facility</b>	<b>Control Technology and Permit Date</b>	<b>Stack Test Results and Dates</b>
United Wisconsin Grain Producers, Friesland, WI	WI-0204	Fermentation	Wet scrubber (packed tower) with 98.7% control efficiency. Permit issued: August 14, 2003.	Under construction. No test data available.
Michigan Ethanol, Caro, MI	MI-0359	Fermentation	BACT determined to be a scrubber with 97% control efficiency. Permit issued: November 4, 2002.	97.4% (03/19/03)
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.	No test data available.
Grain Processing Corporation, Washington, IN	IN-0075	Fermentation	Scrubber with 95% control efficiency. Permit issued: June 10, 1997.	No test data available.
Red Trail Energy, Stark County, ND	ND-0020	Fermentation	Scrubber with 97% control efficiency, 3 hr avg. Permit issued: Aug 4, 2004.	Under construction. No test data.
New Energy Corp, South Bend, IN	IN-not available	Fermentation	Scrubber with 95% control efficiency. Consent decree issued: January 16, 2004.	99.5% (10/14/05)
Central Indiana Ethanol LLC, Marion, IN	IN-draft	Fermentation	Scrubber with 98% control efficiency. Permit issued: August 4, 2005.	Under construction. No test data available.
Putnam Ethanol, Cloverdale, IN	IN-draft	Fermentation	Scrubber with 95% control efficiency. Permit issued: October 5, 2004.	Under construction. No test data available.

In addition to the RBLC data, Hartford Energy submitted the following information collected from consent decrees issued for fermentation processes similar to that proposed by Hartford Energy:

Source, State	Max. Ethanol Production Rate (MMgal/yr)	Control Technology	Emission Limits	Stack Test Results and Dates
Agri-Energy*, MN	22	Wet scrubber and thermal oxidizer	95% removal or 10 ppm	0.58 lbs/hr (01/30/03)
AI-Corn*, MN	34.5	Wet scrubber	95% removal or 20 ppm for less than 200 ppm inlet	99.2%, 6.65 lbs/hr (01/21/03)
Central MN Ethanol *, MN	22	Wet scrubber	95% removal or 20 ppm for less than 200 ppm inlet	99.0%, 2.04 lbs/hr (11/27/02)
Corn Plus, MN	44	Wet scrubber	95% removal or 20 ppm for less than 200 ppm inlet	Not available.
CVEC, MN	49.5	Wet scrubber	95% removal or 20 ppm for less than 200 ppm inlet	Not available.
Diversified Energy Co. **, MN	20	Wet scrubber	95% removal or 20 ppm for less than 200 ppm inlet	2.74 lbs/hr (01/04)
Ethanol 2000 **, MN	35	Wet scrubber	95% removal or 20 ppm for less than 200 ppm inlet	98.28%, 5.40 lbs/hr (12/04/02)
Agra Resources Coop. (dba EXOL), MN	50	Wet scrubber	95% removal or 20 ppm for less than 200 ppm inlet	Not available.
Pro-Corn, MN	50	Wet scrubber	95% removal or 20 ppm for less than 200 ppm inlet	5.11 lbs/hr (04/01/03)
ACE Ethanol*, WI	20	Wet scrubber	95% removal or 20 ppm for less than 200 ppm inlet	1.07 lbs/hr (11/20/02)
CMEC, MN	22	Wet scrubber	4.3 lbs/hr	98.98%, 2.88 lbs/hr (11/26/02)
Gopher State, MN	NA	Wet scrubber	98% collection efficiency	99.5%, 0.81 lbs/hr (07/09/03)
MN Energy, MN	19	Wet scrubber	Not available	23 lbs/hr (04/07/03)

\* lbs/hour as ethanol

\*\* lbs/hour as carbon multiplied by the Midwest Scaling Factor 2.0.

Based on control efficiency, the thermal oxidizer, flare and catalytic oxidizer are the best control technologies. However, these technologies destroy the product rather than recovering it and generate their own emissions.

Hartford Energy 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<sub>2</sub> recovery plant that compresses and cools the CO<sub>2</sub> until it is liquified. Thermal oxidation or the flare would result in additional moisture as well as the addition of other pollutants that would contaminate the CO<sub>2</sub> and add to the expense of CO<sub>2</sub> purification.

#### **Step 4 – Evaluate the Most Effective Controls and Document Results**

Based on the same control efficiency, the thermal oxidizer, flare and wet scrubber are all equally the most effective control technologies. Hartford Energy may select any of the three technologies. Hartford Energy has shown a preference for the wet scrubber in order to facilitate CO<sub>2</sub> recovery.

#### **Step 5 – Select BACT**

Hartford Energy plans to recover CO<sub>2</sub> from the fermentation process for purification and re-sale as a product. Since only the wet scrubber will allow the CO<sub>2</sub> to be collected and purified, and since the control technologies are equal in control efficiency, IDEM, OAQ agrees to accept the wet scrubber as BACT for the fermentation process.

Pursuant to 326 IAC 8-1-6, IDEM, OAQ has determined that the following requirements represent BACT for the fermentation process:

- (a) The VOC emissions shall be controlled by a wet scrubber.
- (b) The overall control efficiency of the wet scrubber (including the capture efficiency and the destruction efficiency) shall be at least 98%. Compliance with these limits will be demonstrated by stack testing.
- (c) The VOC emissions from the wet scrubber shall not exceed 2.22 pounds per hour.

## **Appendix B.2 Best Available Control Technology (BACT) Determination For the Ethanol Loading Racks (ER)**

### **Introduction:**

Hartford Energy 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 Permittee will have separate loading racks for truck and railcar loading. The railcars are dedicated tanks but the trucks may carry gasoline before filling with ethanol. The potential VOC emissions from loading ethanol into trucks and railcars were calculated using the methodology in AP-42, Section 5.2, Transportation and Loading of Petroleum Liquids (1/95). The potential to emit of VOCs from the truck loading rack are estimated to be greater than twenty-five (25) tons per year, and potential VOC emissions from the railcar loading rack are less than twenty-five (25) tons per year (see the calculations in Appendix A of the ATSD). This source will have a production limit of 63 million gallons per year of denatured ethanol production. 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 Hartford Energy.

### **Step 1 – Identify Control Options**

To control VOC emissions form the ethanol truck loading facility, Hartford Energy 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, Hartford Energy 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, Hartford Energy 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, the consultant for Hartford Energy 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.

**Thermal Oxidizers:** Thermal oxidation is an effective control system for continuous emission sources; however, Hartford Energy states this process is too sporadic in order to use thermal oxidation as an effective control method. Therefore, the thermal oxidizer is considered a technically infeasible option for the ethanol loading rack.

**Step 3 – Rank Remaining Control Technologies by Control Effectiveness**

A condenser, or a flare are the only technically feasible control options for the ethanol loading facility. Hartford Energy 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
Refrigeration Condenser	Greater than 90

The search for ethanol loading processes in EPA’s RBLC identified the following:

Plant	RBLC ID or Permit #	Dated Issued and State	Facility	Control Technology and Permit Date	Stack Test Results and Dates
Putnam Ethanol, LLC	F133-19163-00003	10/05/04 IN	Ethanol loading rack	Flare with control efficiency of 98%	Under construction. No test data.
Motiva Enterprises, LLC	CT-0149	10/22/03 CT	Fuel loading rack	Vapor recovery unit with carbon absorption unit	Not available.
United Wisconsin Grain Producers	WI-0204	8/14/03 WI	Ethanol loading rack	Flare with a control efficiency of 94%	Not available.
Archer Daniels Midland Co.	IL-0090	3/28/03 IL	Ethanol loading rack	Flare with a control efficiency of 95%.	Not available.
Van Waters & Rogers	CA-0894	09/01/99 CA	Truck loading Stations	Thermal oxidizer with a control efficiency of 95%.	Not available.

From their search of consent decrees, Hartford Energy provided the following information:

Source, State	Max, Ethanol Production Rate (MMGal/yr)	Control Technology	Emission Limits
Agri-Energy*, MN	22	DDGS dryer / thermal oxidizer	Truck: 95% Destruction or 10ppm of VOC emissions from the thermal oxidizer. Railcar: dedicated ethanol vessels only
Al-Corn*, MN	30	DDGS dryer / thermal oxidizer	Truck: 95% Destruction or 10ppm of VOC emissions from the thermal oxidizer. Railcar: dedicated ethanol vessels only
Central MN Ethanol *, MN	22	DDGS dryer	Truck: Route to dryer control equipment Railcar: dedicated ethanol vessels only
Corn Plus, MN	44	Boiler / thermal oxidizer	95% destruction or 10 ppm limit for boiler

Source, State	Max, Ethanol Production Rate (MMGal/yr)	Control Technology	Emission Limits
CVEC, MN	49.5	DDGS dryer / thermal oxidizer	Truck: Route to dryer control equipment (95% reduction or 10 ppm) Railcar: Dedicated ethanol vessels only
Diversified Energy Co. **, MN	20	Flare	95% destruction
Ethanol 2000 **, MN	35	Flare	95% destruction
Agra Resources Coop. (dba EXOL), MN	50	DDGS dryer / thermal oxidizer	Truck: 95% destruction or 10 ppm limit for VOC emissions from the thermal oxidizer.
Pro-Corn, MN	50	Flare	95% destruction
Central Indiana Ethanol LLC, Marion, IN	63	Flare	98% destruction and 1.84 lbs/hour. Permit issued Aug 4, 2005. Under construction

\* lbs/hour as ethanol

\*\* lbs/hour as carbon multiplied by the Midwest Scaling Factor 2.0.

Hartford Energy searched the EPA RACT/BACT/LAER Clearinghouse (RBLC) in July 2005 to provide information for the loading rack. Previous BACT determinations for similar loading racks at ethanol, gasoline bulk terminals, and chemical plants were found. The results are summarized. 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 Hartford Energy.

IDEM OAQ searched the RBLC and found these related permits:

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 most effective control technology is the flare.

#### **Step 5 – Select BACT**

Since flares achieve the highest control efficiency, and have been used to control VOC emissions from other ethanol loading racks, Hartford Energy proposes to use this control technology as BACT for this type of operation. Based on IDEM, OAQ's review of the RBLC database and the information provided by Hartford Energy, IDEM, OAQ agrees that the flare represents BACT for this type of operation. Hartford Energy estimates that fugitive VOC emissions from the tank rack control system will be 11.6 tons per year based on 63,000,000 gallons per year throughput.

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 (EU021) shall be collected and controlled by an enclosed flare when loading denatured ethanol to trucks.
- (b) The overall control efficiency (including the capture efficiency and the destruction efficiency) for the vapor collection system and enclosed flare shall be at least 98%.
- (c) The VOC emissions from the enclosed flare shall not exceed 0.0224 pounds per 1,000 gallons of denatured ethanol loaded, and 0.70 tons per year.
- (d) The truck loading rack shall utilize only submerged fill loading and trucks that use non-vapor balance (normal) service.

### **Appendix B.3 Best Available Control Technology (BACT) Determination For Distillation and Dehydration Process (DD)**

#### **Introduction:**

Hartford Energy 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 twenty-five (25) tons per year. Since this facility will be constructed after the January 1, 1980 applicability date, Hartford Energy 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 Hartford Energy.

#### **Step 1 – Identify Control Options**

To control VOC emissions from the distillation and dehydration process, Hartford Energy 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**

Hartford Energy 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.

Further, Hartford Energy stated that the heating requirements for a flare or a catalytic oxidizer would be significantly greater than the heating requirements for a thermal oxidizer because the flare and catalytic oxidizer do not have efficient methods of heat recovery.

#### **Step 3 – Rank Remaining Control Technologies by Control Effectiveness**

Hartford Energy has ranked the remaining control technologies as follows:

<b>Control Technology</b>	<b>Control Efficiency (%)</b>
Thermal Oxidizer	98
Wet Scrubber	98
Refrigeration Condenser	90

The following table shows the results of a review of the RBLC database performed by Hartford Energy and IDEM, OAQ:

Plant	RBLIC I.D.	Facility	Control Technology and Permit Date	Stack Test Results and Dates
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	Not available.
Michigan Ethanol, Caro, MI	MI-0359	Distillation	BACT determined to be a scrubber with 98% control efficiency. Permit issued: November 4, 2002	94.0% (03/19/03)
Cargill, Inc., Eddyville, IA	IA-0029	Distillation	BACT determined to be a wet scrubber with 95% control efficiency. Permit issued: April 25, 1996	Not available.
Grain Processing Corporation, Washington, IN	IN-0075	Distillation	BACT determined to be a wet scrubber with 95% control efficiency. Permit issued: June 10, 1997	Not available.
Putnam Ethanol, LLC	F133-19163-00003	Distillation/dryers	RTO with a control efficiency of 98%. VOC emissions < 9.61 lbs/hr.	Not available.
United Wisconsin Grain Producers	WI-0204	Distillation/dryers	RTO with a control efficiency of 98% or VOC emissions < 5 ppm.	Not available.
Central Indiana Ethanol LLC, Marion, IN	IN-draft	Distillation	BACT determined to be a wet scrubber with 98% control efficiency. Permit issued: Aug 4, 2005	Under construction. No test data.

In addition to the RBLIC data, Hartford Energy submitted the following information collected from consent decrees issued for distillation processes similar to that proposed by Hartford Energy:

Source, State	Pollutant Controlled	Control Technology	Emission Limits	Stack Test Results and Dates
Agri-Energy*, MN	22	Wet scrubber, thermal oxidizer	95% removal or 10 ppm	0.58 lbs/hr (01/30/03)
Al-Corn*, MN	34.5	Wet scrubber	95% removal or 20 ppm for less than 200 ppm inlet	99.2%, 6.65 lbs/hr (01/03)
Central MN Ethanol *, MN	22	Wet scrubber	95% removal or 20 ppm for less than 200 ppm inlet	99.0%, 2.04 lbs/hr (11/27/02)
Corn Plus, MN	44	Wet scrubber	95% removal or 20 ppm for less than 200 ppm inlet	Not available.
CVEC, MN	49.5	Wet scrubber	95% removal or 20 ppm for less than 200 ppm inlet	Not available.
Diversified Energy Co. **, MN	20	Wet scrubber	95% removal or 20 ppm for less than 200 ppm inlet	2.74 lbs/hr (01/04)
Ethanol 2000 **, MN	35	Wet scrubber	95% removal or 20 ppm for less than 200 ppm inlet	5.40 lbs/hr (12/05/02)
Agra Resources Coop. (dba EXOL), MN	50	Wet scrubber	95% removal or 20 ppm for less than 200 ppm inlet	Not available.
Pro-Corn, MN	50	Wet scrubber	95% removal or 20 ppm for less than 200 ppm inlet	Not Available.
ACE Ethanol *, WI	20	Wet scrubber	95% removal or 20 ppm for less than 200 ppm inlet	1.07 lbs/hr (11/20/02)

\* lbs/hour as ethanol

\*\* lbs/hour as carbon multiplied by the Midwest Scaling Factor 2.0.

#### **Step 4 – Evaluate the Most Effective Controls and Document Results**

Hartford Energy did not provide any cost data for the control technologies identified above. Hartford Energy stated that a thermal oxidizer used to control emissions from both the dryers and the distillation process would be more cost effective than two separate, independent control options. Based on control efficiency, the thermal oxidizer and wet scrubber are the most effective control technologies.

#### **Step 5 – Select BACT**

Hartford Energy will use a thermal oxidizer as BACT for the distillation and dehydration process. Hartford Energy 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 Hartford Energy is equipped with a heat recovery steam generator. This unit is identified as CE005 in the draft permit and will be used to control emissions from the dryers, distillation and dehydration process, and wet milling process.

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 CE005.
- (b) The overall control efficiency (including the capture efficiency and the destruction efficiency) for CE005 shall be at least 98%
- (c) The VOC emissions from thermal oxidizer CE005 shall not exceed 10.56 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:**

Hartford Energy 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 twenty-five (25) tons per year (see the calculations in Appendix A). Since these facilities will be constructed after the January 1, 1980 applicability date, Hartford Energy is required to implement BACT to comply with 326 IAC 8-1-6. Although the Hartford Energy 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, Hartford Energy 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, Hartford Energy 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 Hartford Energy to recover most of the heat generated.

**Refrigeration Condensers:** Hartford Energy 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, Hartford Energy 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, Hartford Energy 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**

Hartford Energy has ranked the remaining control technologies by control efficiency as follows:

Control Technology	Control Efficiency (%)
Thermal Oxidation	98
Wet Scrubber	70

Hartford Energy 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 Hartford Energy and IDEM, OAQ:

Source, State	RBLC I.D. or State ID	Facility	Control Technology and Permit Date	Stack Test Results and Dates
Michigan Ethanol, MI	MI-0359	Dryer	BACT determined to be a Thermal Oxidizer with 95% control efficiency. Permit issued: November 4, 2002	99.6%, (03/19/03)
Archer Daniels Midland Co., IL	IL-0087	Feed Dryer #7	BACT determined to be Regenerative Thermal Oxidizer 95% and VOC < 10 ppm. Permit issued: December 27, 2002	Not available.
New Energy Corp., IN	T141-6956-00033	DDGS Dryers	RTO with a control efficiency of 95%. Unknown issue date.	98.8% (RTO1) 99.2% (RTO2) (06/30/04)
Putnam Ethanol, LLC, IN	F133-19163-00003	Distillation / Dryers	RTO with a control efficiency of 98%. VOC emissions < 9.61 lbs/hr. Permit issued: Oct 5, 2004.	Under construction. No test data available.

In addition to the RBLC data, Hartford Energy submitted the following information collected from consent decrees issued for dryers similar to those proposed by Hartford Energy:

Source	Max. Ethanol Production Rate (Mmgal/yr)	Control Technology	Emission Limits	Stack Test Results and Dates
Agri-Energy, MN	22	Thermal Oxidizer	95% destruction or 10 ppm	99.59% (01/28/03)
Al-Corn, MN	30	Thermal Oxidizer	95% destruction or 10 ppm	0.11lbs/hr (08/03/04)

Central MN Ethanol, MN	22	Wet Scrubber	95% destruction or 10 ppm	Not available
Corn Plus, MN	44	Thermal Oxidizer or boiler	95% destruction or 10 ppm	Not available
CVEC, MN	49.5	Thermal Oxidizer	95% destruction or 10 ppm	Not available
Diversified Energy Co. , MN	20	Regenerative Thermal Oxidizer	95% destruction or 10 ppm	Not available
Ethanol 2000, MN	35	Regenerative Thermal Oxidizer	95% destruction or 10 ppm	97.74%, 5.94 lbs/hr (10/31/02)
Agra Resources Coop. (dba EXOL) , MN	50	Thermal Oxidizer	95% destruction or 10 ppm	Not available
Pro-Corn, MN	50	Regenerative Thermal Oxidizer	95% destruction or 10 ppm	97.7%, 3.54 lbs/hr (04/01/03)
Gopher State, MN	NA	Regenerative Thermal Oxidizer	95% destruction and 7.7 lbs/hr	1.225 lbs/hr (09/21/01)
DENCO, MN	30	Regenerative Thermal Oxidizer	6.0 lbs/hr	97.3%, 1.93 lbs/hr (01/20/04)
ACE Ethanol, WI	NA	Regenerative Thermal Oxidizer	96% reduction	Not available

**Step 4 – Evaluate the Most Effective Controls and Document Results**

The most effective control is the thermal oxidizer with a control efficiency of 98%.

**Step 5 – Select BACT**

Hartford Energy has selected a thermal oxidizer as BACT for the dryers and believes that the thermal oxidizer will achieve 98% control efficiency for VOC emissions. 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 Hartford Energy is equipped with a heat recovery steam generator. This unit is identified as CE005 in the draft permit and will be used to control emissions from the dryers, distillation and dehydration process, and wet milling process.

- (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 CE005.
- (b) The overall control efficiency (including the capture efficiency and the destruction efficiency) for thermal oxidizer CE005 shall be at least 98%.
- (c) The VOC emissions from thermal oxidizer CE005 shall not exceed 10.56 pounds per hour.

Process	Control Device	PM	PM10	VOC	NOx	SO2	HAPs	Acetaldehy	CO
Truck dump EU001 baghouse	CE001	3.75	3.75						
Railcar dump EU002 baghouse	CE002	5.63	5.63						
Grain handling (EU003 to EU007, EU025) baghouse	CE003	1.31	1.31						
Process belt conveyor EU008 baghouse	CE004	0.19	0.19						
Thermal Oxidizer EU009 to EU013, EU024	CE005	39.0	39.0	46.3	54.7	32.9	3.42	0.67	79.7
Germ storage EU014	CE006	1.88	1.88	1.23			0.0175	0.0175	
Fiber storage EU015	CE007	0.22	0.22	0.148			0.0020	0.0020	
Protein Concentrate storage EU016	CE008	0.39	0.39	7.93			0.112	0.112	
Fermentation EU-17 and beer well EU018 wet scrubber E	CE009			9.74			3.96	3.76	
Solids truck loadout EU019 baghouse	CE010	3.02	3.02						
Solids railcar loadout EU020 baghouse	CE011	1.49	1.49						
Ethanol loading rack, trucks, EU021, flare	CE012	0	0	0.70	2.43	0	0.041	0	4.06
Ethanol loading rack, railcars, EU026	none - EP015	0	0	14.26	0	0	0.83	0	0
Methanator flare EU022, digester wastewater	CE013			0.08	0.15				0.627
Trim Boiler, uncontrolled, EU023	none - EP014	2.38	2.38	1.73	16.0	0.19	5.95E-01	4.61E-03	16.0
Shift tank, T001	none			0.2155			0	0	
Shift tank, T002	none			0.2155			0	0	
Denaturant tank, T003	none			0.671			0.0145	0	
Denaturant ethanol tank, T004	none			0.1545			0	0	
Denaturant ethanol tank, T005	none			0.1545			0	0	
Grain loadout, uncaptured, F001	fugitive	4.33	4.33						
Uncapture solids, F002	fugitive	0.07	0.07						
Equipment leaks, volatile, F003	fugitive			10.31			2.33	1.73	
Roadway vehicle traffic, F004	fugitive	18.5	3.61						
Cooling towers, F005	fugitive	6.58	6.58						
Totals (without counting Methanator flare EU022)	--	88.7	73.8	93.7	73.1	33.1	11.3	6.3	99.7

**Appendix A: Emission Calculations  
One (1) 96 MMBtu/hr Trim Boiler (EU023)**

**Company Name: Hartford Energy, LLC  
Address: 600 North Industrial Park Dr, Hartford City, IN 47348  
FESOP: 009-21592-00024  
Reviewer: L Stapf  
Date: Jan 26, 2006**

**Limited PTE of the Boiler While Burning Natural Gas with CO Restriction:**

Heat Input Capacity MMBtu/hr	Limited Throughput MMCF/yr
96	627.6

	Pollutant					
	PM*	PM10*	SO <sub>2</sub>	NOx**	VOC	CO**
Emission Factor in lbs/MMCF	7.6	7.6	0.6	51	5.5	51.0
Emission Factor, lb/MMBtu	0.0076	0.0076	0.0006	0.051	0.0055	0.051
Hourly Emissions Limit (lbs/hour)	0.7296	0.7296	0.0576	4.896	0.528	4.896
<b>Potential to Emit in tons/yr</b>	<b>2.38</b>	<b>2.38</b>	<b>0.19</b>	<b>16.0</b>	<b>1.73</b>	<b>16.0</b>

	Pollutant										
	2-Methylnaphthalene	Benzene	Dichlorobenzene	Formaldehyde	Hexane	Naphthalene	Phenanathrene	Pyrene	Acetaldehyde ***	Toluene	Total HAPs
Emission Factor (lb/MMcf)	2.45E-05	2.10E-03	1.20E-03	7.50E-02	1.80E+00	6.10E-04	1.70E-05	5.00E-06	1.47E-02	3.40E-03	1.90E+00
HAP Emissions (tons/yr)	7.69E-06	6.59E-04	3.77E-04	2.35E-02	5.65E-01	1.91E-04	5.33E-06	1.57E-06	4.61E-03	1.07E-03	5.95E-01

**Methodology**

Emission factors 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.

\*\*NOx and CO emission factors based on manufacturer's guarantees.

MMBtu = 1,000,000 Btu

MMCF = 1,000,000 Cubic Feet of Gas

Limited Throughput (MM CFt/year) = Limit (ton CO/yr) \* 2000 (lb/ton) \* (MM CFt/51.0 lb CO)

\*\*\* The emission factor for acetaldehyde is 0.0147 (lb/MMcf gas) / 1000 (Btu / scf gas) = 1.47E-5 (lb / MMBtu) Reference is the California Air Resource Board ([http://www.arb.ca.gov/app/emsinv/cafef\\_detail.php?id=878&sc=10100601](http://www.arb.ca.gov/app/emsinv/cafef_detail.php?id=878&sc=10100601)).

**Appendix A: HAPs Emission Calculations  
One (1) 168 MMBtu/hr Unit (EU024)**

**Company Name: Hartford Energy, LLC  
Address: 600 North Industrial Park Dr, Hartford City, IN 47348  
FESOP: 009-21592-00024  
Reviewer: L Stapf  
Date: Jan 26, 2006**

**PTE While Burning Natural Gas:**

Heat Input Capacity MMBtu/hr	Potential Throughput MMCF/yr	Max. Ethanol Production Rate (gal/hr)
168	1,472	7,192

Emission Factor (lb/MMcf)	Pollutant										
	2-Methylnaphthalene	Benzene	Dichlorobenzene	Formaldehyde	Hexane	Naphthalene	Phenanathrene	Pyrene	Acetaldehyde ***	Toluene	Total HAPs
	2.45E-05	2.10E-03	1.20E-03	7.50E-02	1.80E+00	6.10E-04	1.70E-05	5.00E-06	1.47E-02	3.40E-03	
HAP Emissions (tons/yr)	1.80E-05	1.55E-03	8.83E-04	5.52E-02	1.32E+00	4.49E-04	1.25E-05	3.68E-06	1.08E-02	2.50E-03	1.40E+00

**Methodology**

Emission factors are from AP-42, Chapter 1.4, Tables 1.4-1, 1.4-2, and 1.4-3 (AP-42, 3/98).

MMCF = 1,000,000 Cubic Feet of Gas

Potential Throughput (MMCF) = Heat Input Capacity (MMBtu/hr) x 8,760 hrs/yr x 1 MMCF/1,000 MMBtu

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

\*\*\* The emission factor for acetaldehyde is 0.0147 (lb/MMcf gas) / 1000 (Btu / scf gas) = 1.47E-5 (lb / MMBtu) Reference is the California Air Resource Board ([http://www.arb.ca.gov/app/emsinv/catef\\_detail.php?id=878&sc=10100601](http://www.arb.ca.gov/app/emsinv/catef_detail.php?id=878&sc=10100601)).

**Appendix A: Emission Calculations  
PM and PM10 Emissions  
From Grain Loading, Handling, and DDGS Loadout Operations**

**Company Name: Hartford Energy, LLC  
Address: 600 North Industrial Park Dr, Hartford City, IN 47348  
FESOP: 009-21592-00024  
Reviewer: Lstapf  
Date: Jan 26, 2006**

**1. Captured Emissions:**

Process	Control Device ID	Control Device	Outlet Grain Loading (gr/dscf)	Maximum Air Flow Rate (scfm)	PTE of PM/PM10 after Control (lbs/hr)	PTE of PM/PM10 after Control (tons/yr)
Truck Dumping, EP001	CE001	Baghouse	0.005	20,000	0.86	3.75
Rail Dumping, EP002	CE002	Baghouse	0.005	30,000	1.29	5.63
Grain Handling, EP003	CE003	Baghouse	0.005	7,000	0.30	1.31
Process Conveyor, EP004	CE004	Baghouse	0.005	1,000	0.04	0.19
Germ Storage, EP006	CE006	Baghouse	0.005	10,000	0.43	1.88
Fiber Storage, EP015	CE007	Baghouse	0.005	1,200	0.05	0.23
CPC Storage, EP016	CE008	Baghouse	0.005	2,000	0.09	0.38
Truck Loadout, EP019	CE010	Baghouse	0.005	16,000	0.69	3.00
Rail Loadout, EP020	CE011	Baghouse	0.005	8,000	0.34	1.50
<b>Total</b>						<b>17.9</b>

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

**2. Fugitive Emissions:**

Process	Unit ID	Throughput Limit (tons/yr)	PM/PM10 Emission Factor* (lbs/ton)	PTE of PM/PM10 before Control (tons/yr)	Capture Efficiency** (%)	Fugitive PM/PM10 Emissions (tons/yr)
Truck Dump, Uncaptured Dust	F001	646,800	0.035	11.3	80%	2.26
Rail Dump, Uncaptured Dust	F001	646,800	0.032	10.35	80%	2.07
Product Loadout, Uncaptured Dust	F002	219,450	0.0033	0.36	80%	0.07
<b>Total</b>						<b>4.41</b>

\* Emission factor for grain handling is from AP-42, Table 9.9.1-1 (AP-42, 03/03). Emission factors for DDGS storage and loadout process were provided by the source. Assume all PM emissions are PM10 emissions.

\*\* The capture efficiency information was provided by the source.

**Methodology**

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

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

**Company Name: Hartford Energy, LLC  
Address: 600 North Industrial Park Dr, Hartford City, IN 47348  
FESOP: 009-21592-00024  
Reviewer: L Stapf  
Date: Jan 26, 2006**

**1. Process Description:**

Control Equipment: Wet Scrubber CE009 which controls both the fermentation process  
Limited Throughput Rate: 7,192 gal/hr of ethanol

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

Pollutant	*Stack Test Emission Rate after Control (lbs/hr)	Limited Production Emission Rate after Control (lbs/hr)	Production Limit Emissions after Control (tons/yr)	Control Efficiency (%)	PTE Un-Controlled (tons/yr)	** Additional Controls Carbon Bisulfite (%)	Emissions after Carbon Bisulfite Control (tons/yr)
VOC	1.63	2.22	9.74	98%	487	0%	9.74
HAP							
2-furfuraldehyde	0.01	0.0136	0.06	50%	0.12	0%	0.06
Acetaldehyde	1.26	1.7182	7.53	50%	15.05	50%	3.76
Acrolein	0.01	0.0136	0.06	50%	0.12	0%	0.06
Formaldehyde	0.003	0.0041	0.02	50%	0.04	0%	0.02
Methanol	0.01	0.0136	0.06	50%	0.12	0%	0.06
<b>Total HAPs</b>	<b>1.29</b>	<b>1.76</b>	<b>7.72</b>	<b>--</b>	<b>15.45</b>	<b>--</b>	<b>3.96</b>

\* This is provided by the source based on the stack test results from Galcial Lake Energy (tested 02/11/2003, production rate 44 MMgal/yr) and scaled linearly based on 63.0 MMgal/yr production capacity. The Permittee will perform stack testing to demonstrate compliance with the above emission rates. The test source did not use sodium bisulfite injection.

\*\* The control efficiency information is based on the information from other similar plants. This source will use sodium bisulfite injection for additional control.

Note: According to the testing results from other similar plants, the potential VOC emissions before controls on the fermentation process are greater than 25 tons/yr.

**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**  
**PM and PM10 Emissions**  
**10 MMBtu/hr Germ Dryer (EU010), 23 MMBtu/hr Fiber Dryer (EU011),**  
**47 MMBtu/hr CPC Dryer (EU012)**  
**Company Name: Hartford Energy, LLC**  
**Address: 600 North Industrial Park Dr, Hartford City, IN 47348**  
**FESOP: 009-21592-00024**  
**Reviewer: Lstapf**  
**Date: Jan 26, 2006**

**Captured Emissions:**

Process	Control Device ID	Control Device	Emission Factor	Emission Factor Units	Maximum Air Flow Rate (scfm)	Control Efficiency	PTE of PM/PM10 after Control (lbs/hr)	PTE of PM/PM10 after Control (tons/yr)
Germ Dryer, EU010	CE005	TO	0.4	grains/dscf	16,800	0.95	2.88	12.61
Fiber Dryer, EU011	CE005	TO	0.1	grains/dscf	7,400	0.90	0.63	2.78
CPC Dryer, EU012	CE005	TO	3.0	grains/dscf	13,600	0.99	3.50	15.32
<b>Total</b>								<b>30.7</b>

Assume all PM emissions equal PM10 emissions.

**Methodology**

Based on a grain loading emission factor:

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

**Appendix A: Emission Calculations**  
**Combustion HAP Emissions**  
**10 MMBtu/hr Germ Dryer (EU010), 23 MMBtu/hr Fiber Dryer (EU011),**  
**47 MMBtu/hr CPC Dryer (EU012)**  
**Company Name: Hartford Energy, LLC**  
**Address: 600 North Industrial Park Dr, Hartford City, IN 47348**  
**FESOP: 009-21592-00024**  
**Reviewer: L Stapf**  
**Date: Jan 26, 2006**

Heat Input Capacity  
MMBtu/hr

Control Efficiency

80

(3 units combined)

98%

(estimated by the source)

63.000

production limitation (MMgal/year)

Pollutant

	Acrolein	Formaldehyde	Methanol	Total HAPs
Emission Rate before Control (lbs/hr) *	0.135	1.08	0.30	1.65
<b>PTE before Control (tons/year)</b>	<b>0.59</b>	<b>4.73</b>	<b>1.31</b>	<b>7.2</b>
<b>PTE after Control (tons/year)</b>	<b>0.01</b>	<b>0.09</b>	<b>0.03</b>	<b>0.70</b>

\*HAP emission rates were estimated by the source based on the stack testing results from similar sources. The Permittee will perform stack tests to verify the HAP emissions from these units.

### Methodology

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

PTE after Control (tons/yr) = PTE before Control (tons/yr) x (1-Control Efficiency)

**Appendix A: Emission Calculations  
VOC, Acetaldehyde and NOx Emissions  
From Germ, Fiber and CPC Dryers**

**Company Name: Hartford Energy, LLC  
Address: 600 North Industrial Park Dr, Hartford City, IN 47348  
FESOP: 009-21592-00024  
Reviewer: L Stapf  
Date: Jan 26, 2006**

VOC and HAP emissions from the dryers are controlled by thermal oxidizer CE005.

Unit Description	VOC Emission Rate (lbs/hr) *	HAP (Acetaldehyde) Emission Rate (lbs/hr) **	NOx Emission Rate (lbs/hr)	Limited VOC after Control (tons/yr) ****	Limited HAP (Acetaldehyde) after Control (tons/yr) ****	Limited NOx after Control (tons/yr)	***Control Efficiency	VOC before Control (tons/yr)	HAP (Acetaldehyde) before Control (tons/yr)	NOx before Control (tons/yr)
Germ Dryer	1.70	0.04	****	7.4	0.18	****	96%	186	4.4	****
Fiber Dryer	3.20	0.00	****	14.0	0.00	****	96%	350	0.0	****
CPC Dryer	4.20	0.09	****	18.4	0.39	****	96%	460	9.9	****
<b>Total</b>	<b>--</b>	<b>0.13</b>	<b>****</b>	<b>39.9</b>	<b>0.57</b>	<b>****</b>	<b>--</b>	<b>996</b>	<b>14.2</b>	<b>****</b>

\* 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.

\*\*\*\* The production shall be limited to 63.0 MMgals per year.

\*\*\*\*\* NOx emissions from natural gas combustion, AP-42 Chapter 1.4. See sheet 17.

**Methodology**

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

PTE of before Control (tons/yr) = PTE of after Control (tons/yr) / (1-Control Efficiency)

**Appendix A: Emission Calculations**  
**VOC and HAP Emissions from Truck Ethanol Loading Rack (EU021)**  
**and from Railcar Ethanol Loading Rack (EU026)**  
**Company Name: Hartford Energy, LLC**  
**Address: 600 North Industrial Park Dr, Hartford City, IN 47348**  
**FESOP: 009-21592-00024**  
**Reviewer: L Stapf**  
**Date: Jan 26, 2006**

**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/Mgal)
- 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/Mgal)
Gasoline (submerged, dedicated normal)	0.6	4.61	66	512	4.44
Gasoline (submerged, clean cargo)	0.5	4.61	66	512	3.70
Denatured Ethanol (submerged, dedicated normal)	0.6	0.6539	47.42	512	0.453
Denatured Ethanol (submerged, clean cargo)	0.5	0.6539	47.42	512	0.38

Therefore, the emission factor for loading denatured ethanol to the trucks which stored gasoline previously

$$= L (\text{gasoline, normal}) - L (\text{gasoline, clean cargo}) + L (\text{denatured ethanol, clean cargo}) =$$

1.12 (lbs/Mgal)

**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 = 7.192 Mgal/hr

PTE of VOC before Control (tons/yr) = 7.192 Mgal/hr x 1.12 lbs/Mgal x 8760 hr/yr x 1 ton/2000 lbs = **35 tons/yr**

**3. Limited Potential to Emit VOC after Control:**

Annual Production Limit: 63,000 Mgal/yr  
 Flare Control Efficiency: 98% (for truck loading only)

Limited PTE of VOC by Trucks (tons/yr) = 1.12 lbs/Mgal x 63,000 Mgal/yr x (1-98%) x 1 tons/2000 lbs = **0.70 tons/yr**  
 Limited PTE of VOC by Railcars (tons/yr) = 0.453 lbs/Mgal x 63,000 Mgal/yr x 1 tons/2000 lbs = **14.26 tons/yr**

**4. Potential to Emit HAPs:**

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

HAP	*HAP Fraction	Trucks PTE of HAP before Control (tons/yr)	Trucks Limited PTE of HAP after Control (tons/yr)	PTE of HAP before Control (tons/yr)	Limited PTE of HAP after Control (tons/yr)
Benzene	2.50E-03	0.09	1.76E-03	0.04	3.57E-02
Carbon Disulfide	2.00E-05	0.00	1.41E-05	0.00	2.85E-04
Cumene	1.00E-04	0.00	7.04E-05	0.00	1.43E-03
Ethyl benzene	5.00E-05	0.00	3.52E-05	0.00	7.13E-04
n-Hexane	5.00E-02	1.8	3.52E-02	0.71	7.13E-01
Toluene	5.00E-03	0.18	3.52E-03	0.07	7.13E-02
Xylene	5.00E-04	0.02	3.52E-04	0.01	7.13E-03
<b>Total</b>	<b>0.058</b>	<b>2.0</b>	<b>0.041</b>	<b>0.8</b>	<b>0.830</b>

\* 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 (EU021)**

**Company Name: Hartford Energy, LLC  
Address: 600 North Industrial Park Dr, Hartford City, IN 47348  
FESOP: 009-21592-00024  
Reviewer: L Stapf  
Date: Jan 26, 2006**

Heat Input Capacity  
MMBtu/hr

Max. Load-out Rate  
Mgal/hr

Annual Production Limit  
Mgal/yr

3.0

96.0

63,000

	Pollutant					
Emission Factor	*PM NA	*PM10 NA	*SO <sub>2</sub> NA	**NO <sub>x</sub> 0.077 (lbs/Mgal)	***VOC -	**CO 0.129 (lbs/Mgal)
<b>Unlimited Potential to Emit in tons/yr</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>32.4</b>	<b>227</b>	<b>54.2</b>
<b>Limited Potential to Emit in tons/yr</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>2.43</b>	<b>0.70</b>	<b>4.06</b>

\*PM, PM10, and SO<sub>2</sub> emission factors are negligible due to the smokeless design and minimal H<sub>2</sub>S levels.

\*\*Emission factors for NO<sub>x</sub> and CO are provided by the source based on the test results for a similar source.

\*\*\* VOC emission calculations can be found in page 8 of this appendix.

**Methodology**

PTE of PM/PM10 and SO<sub>2</sub> (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 NO<sub>x</sub> and CO (tons/yr) = Max. Load-out Rate (Mgal/hr) x Emission Factor (lbs/Mgal) x 8760 hr/yr x 1 ton/2000 lbs

Limited PTE of NO<sub>x</sub> and CO (tons/yr) = Annual Production Limit (Mgal/yr) x Emission Factor (lbs/Mgal) x 1 ton/2000 lbs

Limited PTE of PM/PM10 and SO<sub>2</sub> (tons/yr) = Unlimited PTE (tons/yr) x Annual Production Limit (Mgal/yr) / (Max. Load-out Rate Mgal/hr x 8760 hr/yr)

**Appendix A: Emission Calculations  
Fugitive Emissions From Paved Roads, F004**

**Company Name: Hartford Energy, LLC  
Address: 600 North Industrial Park Dr, Hartford City, IN 47348  
FESOP: 009-21592-00024  
Reviewer: Lstapf  
Date: Jan 26, 2006**

**1. Emission Factors: AP-42**

According to AP-42, Chapter 13.2.1 - Paved Roads (12/03), the PM/PM10 emission factors for paved roads can be estimated from the following equation:

$$E = (k \times (sL/2)^a \times (w/3)^b - C) \times (1 - p/(4 \times 365))$$

where:

E = emission factor (lb/vehicle mile traveled)  
sL = road surface silt loading (g/m<sup>2</sup>) = 0.6 (g/m<sup>2</sup>) (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

$$\text{PM Emission Factor} = (0.082 \times (7.4/2)^{0.65} \times (29/3)^{1.5} - 0.00047) \times (1 - 120/1460) = \mathbf{1.03 \text{ lbs/mile}}$$

$$\text{PM10 Emission Factor} = (0.016 \times (7.4/2)^{0.65} \times (29/3)^{1.5} - 0.00047) \times (1 - 120/1460) = \mathbf{0.20 \text{ lbs/mile}}$$

**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	71	0.84	21,769	60.7%	17.6	11.3	2.19
DDGS Load Out	29	23	0.84	7,052	19.7%	5.70	3.65	0.71
Ethanol Load Out	29	22	0.84	6,745	18.8%	5.45	3.49	0.68
Denaturant Delivery	29	1	0.84	307	0.85%	0.25	0.16	0.03
<b>Total</b>				<b>35,872</b>	<b>100%</b>	<b>29.0</b>	<b>18.5</b>	<b>3.61</b>

\* 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%.

$$\text{PTE of PM after Control} = 18.5 \text{ tons/yr} \times (1-50\%) = \mathbf{9.27 \text{ tons/yr}}$$

$$\text{PTE of PM10 after Control} = 3.61 \text{ tons/yr} \times (1-50\%) = \mathbf{1.81 \text{ tons/yr}}$$

**Appendix A: Emission Calculations  
PM and PM10 Emissions  
Fugitive Sources**

**Company Name: Hartford Energy, LLC  
Address: 600 North Industrial Park Dr, Hartford City, IN 47348  
FESOP: 009-21592-00024  
Reviewer: Lstapf  
Date: Jan 26, 2006**

Process	Unit ID	Throughput Limit (tons/yr)	PM/PM10 Emission Factor* (lbs/ton)	PTE of PM/PM10 before Control (tons/yr)	Capture Efficiency** (%)	Fugitive PM/PM10 Emissions (tons/yr)
Truck Dump, Uncaptured Dust	F001	646,800	0.035	11.3	80%	2.26
Rail Dump, Uncaptured Dust	F001	646,800	0.032	10.35	80%	2.07
Product Loadout, Uncaptured Dust	F002	219,450	0.0033	0.36	80%	0.07
<b>Total</b>						<b>4.41</b>

\* Emission factor for grain handling is from AP-42, Table 9.9.1-1 (AP-42, 03/03). Emission factors for DDGS storage and loadout process were provided by the source. Assume all PM emissions are PM10 emissions.

\*\* The capture efficiency information was provided by the source.

**Methodology**

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

**Appendix A: Emission Calculations  
PM/PM10 Emissions  
From the the Cooling Tower (Insignificant Activity), F005**

**Company Name: Hartford Energy, LLC  
Address: 600 North Industrial Park Dr, Hartford City, IN 47348  
FESOP: 009-21592-00024  
Reviewer: Lstapf  
Date: Jan 26, 2006**

**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 located at a similar source.

**2. Potential to Emit PM/PM10:**

Assume all the dissolved solids become PM10 emissions and assume PM emissions are equal to PM10 emissions.

$$\text{PTE of PM/PM10 (lbs/hr)} = 33,000 \text{ gal/min} \times 60 \text{ min/hr} \times 0.005\% \times 8.345 \text{ lbs/gal} \times 2,500 \text{ ppm} \times 1/1,000,000 \text{ ppm} = \mathbf{1.50 \text{ lbs/hr}}$$

$$\text{PTE of PM/PM10 (tons/yr)} = 2.07 \text{ lbs/hr} \times 8760 \text{ hr/yr} \times 1 \text{ ton}/2000 \text{ lbs} = \mathbf{6.58 \text{ tons/yr}}$$

**Appendix A: Emission Calculations  
VOC and HAP Emissions  
From Equipment Leaks, F003**

**Company Name: Hartford Energy, LLC  
Address: 600 North Industrial Park Dr, Hartford City, IN 47348  
FESOP: 009-21592-00024  
Reviewer: L Stapf  
Date: Jan 26, 2006**

**1. Fugitive VOC Emissions:**

Equipment Component Source	Product	Component Count*	Emission Factor** (lbs/comp-hr)	Subpart VV Control Effectiveness*** (%)	Fugitive VOC Emissions (tons/yr)
Valves	Gas/Vapor	100	0.013134	87%	0.75
Valves	Light Liquid	200	0.008866	84%	1.24
Pumps	Gas/Vapor	20	0.04378	69%	1.19
Compressor Seals	Gas/Vapor	0	0.5016	0%	0.00
Pressure-Relief Valves	Gas/Vapor	10	0.2288	87%	1.30
Sampling Connections	All	10	0.033	0%	1.45
Open-Ended Lines	All	20	0.00374	0%	0.33
Flanges	All	230	0.004026	0%	4.06
<b>Total</b>					<b>10.31</b>

\* Component count estimated based on similar ethanol plants.

\*\* Emission factors are from Protocol for Equipment leak Emission Estimates, EPA-453/R-95-017.

\*\*\* Control Effectiveness is from Protocol for Equipment leak Emission Estimates, EPA-453/R-95-017, Table 5-2.

**Methodology**

Fugitive VOC Emissions (tons/yr) = Component Count x Emission Factor (lbs/hr) x 8760 hr/yr x 1 ton/2000 lbs x (1-Control Effectiveness)

**2. Fugitive HAP Emissions:**

HAP	HAP Fraction*	Fugitive HAP Emissions (tons/yr)
Acetaldehyde **	1.68E-01	1.73E+00
Methanol	2.00E-04	2.06E-03
Benzene	2.50E-03	2.58E-02
Carbon Disulfide	2.00E-05	2.06E-04
Cumene	1.00E-04	1.03E-03
Ethylbenzene	5.00E-05	5.16E-04
n-Hexane	5.00E-02	5.16E-01
Toluene	5.00E-03	5.16E-02
Xylenes	5.00E-04	5.16E-03
<b>Total</b>		<b>2.33</b>

\* This is the HAP fraction for gasoline vapors or from test results.

\*\* Acetaldehyde fraction from  $0.77 \cdot (10/7/52.75) + 0.00576 \cdot (39.9/52.75) + 0.186 \cdot (2.15/52.75) = 0.168$

**Methodology**

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

**Appendix A: Emission Calculations  
Methanator Flare**

**Company Name: Hartford Energy, LLC**  
**Address: 600 North Industrial Park Dr, Hartford City, IN 47348**  
**FESOP: 009-21592-00024**  
**Reviewer: L Stapf**  
**Date: Jan 26, 2006**

**1. PTE Flaring Emissions**

Heat Input Capacity MMBtu/hr	Hours of Operation Limit (hours/year)
6.0	500

Emission Factor in lbs/MMBtu	Pollutant		
	VOC	CO	NOx
	0.052	0.370	0.068
<b>Potential to Emit (tons/yr)</b>	<b>0.08</b>	<b>0.56</b>	<b>0.10</b>

**Methodology**

Emission factors 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.

\*\*NOx and CO emission factors based on manufacturer's guarantees.

MMBtu = 1,000,000 Btu

MMCF = 1,000,000 Cubic Feet of Gas

Potential Throughput (MMCF) = Heat Input Capacity (MMBtu/hr) x 8,760 hrs/yr x 1 MMCF/1,000 MMBtu

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

\*\*\* The emission factor for acetaldehyde is 0.0147 (lb/MMcf gas) / 1000 (Btu / scf gas) = 1.47E-5 (lb / MMBtu) Reference is the California Air Resource Board ([http://www.arb.ca.gov/app/emsinv/cafef\\_](http://www.arb.ca.gov/app/emsinv/cafef_)

**2. PTE Pilot Light Emissions**

Heat Input Capacity MMBtu/hr
0.1

Emission Factor in lbs/MMCF	Pollutant					
	PM	PM10	SO2	CO	NOx	VOC
	1.9	7.60	0.6	84	100	5.5
<b>Potential to Emit (tons/yr)</b>	<b>8.32E-04</b>	<b>3.33E-03</b>	<b>2.63E-04</b>	<b>3.68E-02</b>	<b>4.38E-02</b>	<b>2.41E-03</b>

**Methodology**

VOC EF is from flaring: 0.14 lb/MMBtu measured as methane equivalent (AP-42 Table 13.5-1)

where methane and ethane is subtracted from the total so that VOC = 0.14 \* 55% methane (% from Table 13.5-2) + 8% ethane = 0.052 lb/MMBtu

The biomethanator flare controls emissions when the dryer is down. Otherwise those gases are vented through the dryer and its control device.

The flare has a soot concentration value of 0 mg/liter (i.e. it's a non-smoking flare).

Annual Emission (tons/yr) = Heat input (MMBtu/hr) \* 8760 (hr/yr) \* (1 MMCF/1000 MMBtu) \* Emission Factor (lb/MMCF) \* (ton / 2,000 lb)

**Appendix A: Emission Calculations  
VOC and HAP Emissions  
From the Distillation and Dehydration Process**

**Company Name: Hartford Energy, LLC  
Address: 600 North Industrial Park Dr, Hartford City, IN 47348  
FESOP: 009-21592-00024  
Reviewer: L Stapf  
Date: Jan 26, 2006**

**1. Process Description:**

Max. Throughput Rate: 7,192 gal/hr  
 VOC Emission Rate: 0.0947 lbs/hr (provided by the source and based on the test results from Al-Corn Clean Fuel, Claremont, Minnesota on 01/21/03 - 01/23/03 based on 6,850 gal/yr)  
 Control Equipment: Thermal Oxidizer CE005  
 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) =  $0.0947 \text{ lbs/hr} \times 7192 / 6850 \times 8760 \text{ hr/yr} \times 1 \text{ tons}/2000 \text{ lbs} =$  **0.44 tons/yr**

PTE of VOC before Control (tons/yr) =  $0.44 \text{ tons/yr} / (1-98\%) =$  **21.8 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%	0.081	4.0
Acrolein	0.40%	0.002	0.09
Formaldehyde	0.20%	0.001	0.04
Methanol	0.30%	0.001	0.07
<b>Total</b>		<b>0.08</b>	<b>4.2</b>

\* This is provided by the source based on the test results from Al-Corn Clean Fuel, Claremont, Minnesota 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 CE005**

**Company Name: Hartford Energy, LLC  
Address: 600 North Industrial Park Dr, Hartford City, IN 47348  
FESOP: 009-21592-00024  
Reviewer: L Stapf  
Date: Jan 26, 2006**

Heat Input Capacity  
MMBtu/hr

Max. Ethanol Production Rate  
(gal/hr)

168

7,192

	Pollutant					
Emission Factor	PM* 7.6 (lbs/MMCF)	PM10* 7.6 (lbs/MMCF)	***SO <sub>2</sub> 0.001 (lbs/gal)	**NO <sub>x</sub> 50 (lbs/MMCF)	VOC 5.5 (lbs/MMCF)	CO 84.0 (lbs/MMCF)
<b>Potential to Emit in tons/yr</b>	<b>5.59</b>	<b>5.59</b>	<b>31.5</b>	<b>36.8</b>	<b>4.05</b>	<b>61.8</b>

Emission factors for PM/PM10, NO<sub>x</sub>, 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).

EFs selected are for large wall fired boilers > 100 MMBtu/hour.

\*PM and PM10 emission factors are condensable and filterable PM10 combined.

\*\*NO<sub>x</sub> emission factor based on manufacturer's guarantee of 0.05 lb NO<sub>x</sub>/MMBtu.

\*\*\* SO<sub>2</sub> emission factor is provided by the source based on estimated sulfur that enters thermal oxidizer as fuel in the bio-digester gas.

**Methodology**

PTE of PM/PM10, NO<sub>x</sub>, 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<sub>2</sub> = Max. Ethanol Production Rate (gal/hr) x Emission Factor (lbs/gal) x 8760 hr/yr x 1 ton/2000 lbs



**Appendix A: Emission Calculations  
Combustion VOC and HAP Emissions  
Storage Tanks**

**Company Name: Hartford Energy, LLC**  
**Address: 600 North Industrial Park Dr, Hartford City, IN 47341**  
**FESOP: 009-21592-00024**  
**Reviewer: L Stapf**  
**Date: Jan 26, 2006**

63,000 production limitation (MMgal/year)  
 8760 hours per year

	Pollutant															
	Unidentified Components of Gasoline	Cyclohexane	Benzene	Hexane	Pentane	NeoHexane	Toluene	Xylene	Ethyl benzene	Ethyl alcohol	Acetaldehyde	1,2,4 Trimethyl benzene	Carbon Disulfide	Cumene	Total HAPs	Total VOC
Product storage, PCS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	224	NA	NA	NA	224	15680
Product storage, Germ	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	35	NA	NA	NA	35	2458
Product storage, Fiber	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	4	NA	NA	NA	4	295
T001 (lbs/year)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	431	NA	NA	NA	0	431
T002 (lbs/year)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	431	NA	NA	NA	0	431
T003 (lbs/year)	1311	1.05	7.60	6.79	NA	NA	9.77	4.22	0.93	NA	NA	0.94	NA	NA	29	1342
T004 (lbs/year)	59	NA	NA	NA	NA	NA	NA	NA	NA	250	NA	NA	NA	NA	0	309
T005 (lbs/year)	59	NA	NA	NA	NA	NA	NA	NA	NA	250	NA	NA	NA	NA	0	309
<b>Total Emissions (lbs/year)</b>	1.43E+03	1.05E+00	7.60E+00	6.79E+00	0.00E+00	0.00E+00	9.77E+00	4.22E+00	9.30E-01	1.36E+03	2.63E+02	9.40E-01	0.00E+00	0.00E+00	2.93E+02	2.13E+04
<b>Total Emissions (lbs/hour)</b>	1.63E-01	1.20E-04	8.68E-04	7.75E-04	0.00E+00	0.00E+00	1.12E-03	4.82E-04	1.06E-04	1.56E-01	3.01E-02	1.07E-04	0.00E+00	0.00E+00	3.34E-02	2.43E+00
<b>Total PTE (tons/year)</b>	7.14E-01	5.25E-04	3.80E-03	3.40E-03	0.00E+00	0.00E+00	4.89E-03	2.11E-03	4.65E-04	6.81E-01	1.32E-01	4.70E-04	0.00E+00	0.00E+00	1.46E-01	1.06E+01

**Methodology**

Emission calculations based on output from TANKS 4.09D (2005).  
 PTE before Control (tons/yr) = Emission Factor before Control (lbs/hr) x 8760 hr/yr x 1 ton/2000 lbs  
 PTE after Control (tons/yr) = PTE after Control (tons/yr) x (1-Control Efficiency)