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

Mitchell E. Daniels, Jr.
Governor

Thomas W. Easterly
Commissioner

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

TO: Interested Parties / Applicant

DATE: March 20, 2007

RE: Maize AgriProducts, Inc. / 007-24059-00019

FROM: Nisha Sizemore
Chief, Permits Branch
Office of Air Quality

Notice of Decision: Approval - Effective Immediately

Please be advised that on behalf of the Commissioner of the Department of Environmental Management, I have issued a decision regarding the enclosed matter. Pursuant to IC 13-15-5-3, this permit is effective immediately, unless a petition for stay of effectiveness is filed and granted according to IC 13-15-6-3, and may be revoked or modified in accordance with the provisions of IC 13-15-7-1.

If you wish to challenge this decision, IC 4-21.5-3 and IC 13-15-6-1 require that you file a petition for administrative review. This petition may include a request for stay of effectiveness and must be submitted to the Office of Environmental Adjudication, 100 North Senate Avenue, Government Center North, Room 1049, Indianapolis, IN 46204, **within eighteen (18) calendar days of the mailing of this notice**. The filing of a petition for administrative review is complete on the earliest of the following dates that apply to the filing:

(1) the date the document is delivered to the Office of Environmental Adjudication (OEA);
(2) the date of the postmark on the envelope containing the document, if the document is mailed to OEA by U.S. mail; or
(3) The date on which the document is deposited with a private carrier, as shown by receipt issued by the carrier, if the document is sent to the OEA by private carrier.

The petition must include facts demonstrating that you are either the applicant, a person aggrieved or adversely affected by the decision or otherwise entitled to review by law. Please identify the permit, decision, or other order for which you seek review by permit number, name of the applicant, location, date of this notice and all of the following:

(1) the name and address of the person making the request;
(2) the interest of the person making the request;
(3) identification of any persons represented by the person making the request;
(4) the reasons, with particularity, for the request;
(5) the issues, with particularity, proposed for considerations at any hearing; and
(6) identification of the terms and conditions which, in the judgment of the person making the request, would be appropriate in the case in question to satisfy the requirements of the law governing documents of the type issued by the Commissioner.

If you have technical questions regarding the enclosed documents, please contact the Office of Air Quality, Permits Branch at (317) 233-0178. Callers from within Indiana may call toll-free at 1-800-451-6027, ext. 3-0178.

Enclosures
FNPER.dot 03/23/06

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

Mitchell E. Daniels, Jr.
Governor

Thomas W. Easterly
Commissioner

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

New Source Construction and Federally Enforceable State Operating Permit OFFICE OF AIR QUALITY

Maize AgriProducts, Inc.
6301 South U.S. Highway 41
Boswell, Indiana 47921

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

The Permittee must comply with all conditions of this permit. Noncompliance with any provisions of this permit is grounds for enforcement action; permit termination, revocation and reissuance, or modification; or denial of a permit renewal application. It shall not be a defense for the Permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit. An emergency does constitute an affirmative defense in an enforcement action provided the Permittee complies with the applicable requirements set forth in Section B, Emergency Provisions.

This permit is issued in accordance with 326 IAC 2.and 40 CFR Part 70 Appendix A and contains the conditions and provisions specified in 326 IAC 2-7 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.

Indiana statutes from IC 13 and rules from 326 IAC, quoted in conditions in this permit, are those applicable at the time the permit was issued. The issuance or possession of this permit shall not alone constitute a defense against an alleged violation of any law, regulation or standard, except for the requirement to obtain a FESOP under 326 IAC 2-8.

Operation Permit No.: F007-24059-00019	
Issued by: Nisha Sizemore Nisha Sizemore, Chief Permits Branch Office of Air Quality	Issuance Date: March 20, 2007 Expiration Date: March 20, 2012

TABLE OF CONTENTS

TABLE OF CONTENTS (Continued)

TABLE OF CONTENTS (Continued)

TABLE OF CONTENTS (Continued)

TABLE OF CONTENTS (Continued)

TABLE OF CONTENTS (Continued)

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.

Source Address:	6301 South U.S. Highway 41, Boswell, IN 47921
Mailing Address:	P.O. Box 90077, Indianapolis, IN 46290
General Source Phone:	N/A
SIC Code:	2869
NAICS Code:	325193
County:	Benton
Source Location Status:	Attainment for all criteria pollutants
Source Status:	Federally Enforceable State Operating Permit (FESOP) Minor Source, under PSD; Minor Source, Section 112 of the Clean Air Act 1 of 28 Source Categories

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

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

(a) Two (2) truck unloading pits, collectively identified as EU001, approved for construction in 2007, with a maximum combined throughput rate of 20,000 bushels of corn per hour, controlled by baghouse CE001, and exhausting through stack PS001.

(b) One (1) rail unloading pit, identified as EU002, approved for construction in 2007, with a maximum throughput rate of 30,000 bushels of corn per hour, controlled by baghouse CE001, and exhausting through stack PS001.

(c) One (1) corn handling process, approved for construction in 2007, controlled by baghouse CE001, and exhausting through stack PS001. This process consists of the following:

(1) One (1) corn conveying and handling system, identified as EU003, with a maximum throughput rate of 50,000 bushels of corn per hour.

(2) One (1) corn elevator, identified as EU004, with a maximum throughput rate of 50,000 bushels of corn per hour.

(3) One (1) corn conveying and handling system, identified as EU005, with a maximum throughput rate of 50,000 bushels of corn per hour.

(4) Two (2) corn storage silos, identified as EU006 and EU007, each with a maximum storage capacity of 500,000 bushels.

(d) Three (3) hammermills, identified as EU008, EU009, and EU010, approved for construction in 2007, with a combined maximum throughput rate of 115.32 tons of corn

per hour, controlled by baghouses CE002, CE003, and CE004, respectively, and exhausting through stacks PS002, PS003, and PS004, respectively.

(e) One (1) liquefaction process, approved for construction in 2007, with a maximum throughput rate of 363 tons of mash per hour, with emissions uncontrolled and exhausting to atmosphere. This process consist of the following:

(1) Mix tank and hot water tank, identified as EU011.

(2) Cook tubes, flash tanks, and mash cooling, identified as EU012.

(3) Two (2) conversion tanks, identified as EU013 and EU014.

(4) One (1) yeast tank, identified as EU015.

Under NSPS, Subpart VV, the pumps, compressors, pressure relief devices in gas/vapor service, sampling connection systems, open-ended valves or lines, and valves of this process are considered to be affected facilities.

(f) One (1) fermentation process, approved for construction in 2007, with a maximum beer production rate of 360 tons hour, using wet scrubber CE005 for VOC control and sodium bisulfite injection for HAP control, exhausting through stack PS005. This process consist of the following:

(1) One (1) pre-fermenter tank, identified as EU016.

(2) Six (6) fermentation tanks, identified as EU017 through EU22.

(3) One (1) beer well, identified as EU023.

Under NSPS, Subpart VV, the pumps, compressors, pressure relief devices in gas/vapor service, sampling connection systems, open-ended valves or lines, and valves of this process are considered to be affected facilities.

(g) One (1) distillation and dehydration process, approved for construction in 2007, with a maximum ethanol production rate of 11,000 gallons per hour, using wet scrubber CE006 for VOC control and sodium bisulfite injection for HAP control, exhausting through stack PS006. This process consist of the following:

(1) One (1) beer stripper, identified as EU024.

(2) One (1) stripping column, identified as EU025.

(3) One (1) rectifying column, identified as EU026.

(4) Molecular sieve units, identified as EU027.

(5) One (1) thin stillage tank, identified as EU030.

(6) One (1) light evaporator, identified as EU031.

(7) One (1) intermediate stillage tank, identified as EU032.

Under NSPS, Subpart VV, the pumps, compressors, pressure relief devices in gas/vapor service, sampling connection systems, open-ended valves or lines, and valves of this process are considered to be affected facilities.

(h) Two (2) natural gas fired regenerative thermal oxidizers, identified as CE008 and CE009, each with a maximum heat input capacity of 12 MMBtu/hr, exhausting to stack PS010.

(i) Equipment utilized in the process of dehydrating distillers grain, approved for construction in 2007, with emissions controlled by RTOs CE008 and CE009, exhausting to stack PS010. This process consist of the following:

(1) One (1) whole stillage tank, identified as EU028.

(2) Centrifuge, decanters, and centrate reciever, identified as EU029.

(3) Final evaporation concentrators, identified as EU033.

(4) One (1) syrup tank, identified as EU034.

Under NSPS, Subpart VV, the pumps, compressors, pressure relief devices in gas/vapor service, sampling connection systems, open-ended valves or lines, and valves of this process are considered to be affected facilities.

(j) Two (2) natural gas fired DDGS dryers, identified as EU037 and EU038, approved for construction in 2007, each with a maximum heat input rate of 82.6 MMBtu/hr, and each with a total maximum throughput rate of 19.3 tons of DDGS per hour, each controlled by an internal multiclone, with emissions venting to RTOs CE008 and CE009, respectively, and exhausting to stack PS010.

(k) One (1) DDGS cooler, identified as EU039, approved for construction in 2007, with a maximum throughput rate of 38.6 tons of DDGS per hour, controlled by a baghouse identified as CE010. The exhaust from baghouse CE010 exhaust to DDGS dryers EU037 and EU038 and is used as dryer combustion air.

(l) One (1) DDGS handling and loadout operation, approved for construction in 2007. This process consist of the following:

(1) One (1) DDGS conveyor and handling system, identified as EU040, with a maximum handling rate of 40 tons of DDGS per hour, controlled by bagbouse CE011, and exhausting to stack PS011.

(2) One (1) DDGS storage building, identified as EU041, controlled by bagbouse CE011, and exhausting to stack PS011.

(3) One (1) DDGS truck loadout spout, identified as EU042, with a maximum throughput rate of 44 tons of DDGS per hour.

(m) One (1) denatured ethanol loadout system, approved for construction in 2007, with emissions controlled by a enclosed flare, identified as CE007, with a maximum heat input capacity of 6.8 MMBtu/hr, and exhausting through stack PS009. This process consist of the following:

(1) One (1) railcar loading rack, utilizing submerged loading only, identified as EU035, with a maximum throughput rate of 60,000 gallons per hour.

(2) One (1) truck loading rack, utilizing submerged loading only, identified as EU036, with a maximum throughput rate of 48,000 gallons per hour

Under NSPS, Subpart VV, the pumps, compressors, pressure relief devices in gas/vapor service, sampling connection systems, open-ended valves or lines, and valves of this process are considered to be affected facilities.

(n) Two (2) natural gas fired boilers, identified as EU046 and EU047, approved for construction in 2007, each with a rated heat capacity of 143.5 MMBtu/hr, with emissions venting through stacks PS012 and PS013, respectively. Under NSPS, Subpart Db, these units are considered affected facilities.

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

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

(a) Noncontact induced draft cooling tower system not regulated under a NESHAP, identified as EU050.

(b) Replacement or repair of electrostatic precipitators, bags in baghouses and filters in other air filtration equipment.

(c) Paved roads and parking lots with public access.

(d) Stationary fire pumps, including one (1) diesel fire pump, identified as EU048, approved for construction in 2007, with a maximum power output rate of 275 horsepower, and exhausting to stack PS014. Under NSPS, Subpart IIII, this unit is considered an affected fire pump engine.

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

(1) Two (2) shift tanks, identified as TK001 and TK002, approved for construction in 2007, each with a maximum capacity of 120,000 gallons of 200-proof ethanol. Under NSPS, Subpart Kb, these units are considered affected facilities.

(2) One (1) off-spec ethanol tank, identified as TK003, approved for construction in 2007 with a maximum capacity of 240,000 gallons. Under NSPS, Subpart Kb, this unit is considered an affected facility.

(3) One (1) denaturant tank, identified as TK004, approved for construction in 2007, with a maximum capacity of 120,000 gallons of denaturant (gasoline). Under NSPS, Subpart Kb, this unit is considered an affected facility.

(4) Two (2) denatured ethanol tanks, identified as TK005 and TK006, approved for construction in 2007, each with a maximum capacity of 1,000,000 gallons of denatured ethanol (190 proof). Under NSPS, Subpart Kb, these units are considered affected facilities.

(5) One (1) digester for process water, identified as EU049, approved for construction in 2007. This unit has methane emissions controlled by methanator

flare CE012, which is fueled by natural gas and has a maximum heat input capacity of 3.48 MMBtu per hour, and exhausting to stack PS015.

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).

SECTION B

GENERAL CONDITIONS

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

Terms in this permit shall have the definition assigned to such terms in the referenced regulation. In the absence of definitions in the referenced regulation, the applicable definitions found in the statutes or regulations (IC 13-11, 326 IAC 1-2 and 326 IAC 2-7) shall prevail.

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

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

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

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

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

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

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

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

(a) This permit, 007-24059-00019, is issued for a fixed term of five (5) years from the issuance date of this permit, as determined in accordance with IC 4-21.5-3-5(f) and IC 13-15-5 3. Subsequent revisions, modifications, or amendments of this permit do not affect the expiration date of this permit.

(b) If IDEM, OAQ, upon receiving a timely and complete renewal permit application, fails to issue or deny the permit renewal prior to the expiration date of this permit, this existing permit shall not expire and all terms and conditions shall continue in effect, until the renewal permit has been issued or denied.

B.5 Term of Conditions [326 IAC 2-1.1-9.5]

Notwithstanding the permit term of a permit to construct, a permit to operate, or a permit modification, any condition established in a permit issued pursuant to a permitting program approved in the state implementation plan shall remain in effect until:

(a) the condition is modified in a subsequent permit action pursuant to Title I of the Clean Air Act; or

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

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

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

B.7 Severability [326 IAC 2-8-4(4)]

The provisions of this permit are severable; a determination that any portion of this permit is invalid shall not affect the validity of the remainder of the permit.

B.8 Property Rights or Exclusive Privilege [326 IAC 2-8-4(5)(D)]

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

B.9 Duty to Provide Information [326 IAC 2-8-4(5)(E)]

(a) The Permittee shall furnish to IDEM, OAQ, within a reasonable time, any information that IDEM, OAQ may request in writing to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with this permit. The submittal by the Permittee does require the certification by an "authorized individual" as defined by 326 IAC 2-1.1-1(1). Upon request, the Permittee shall also furnish to IDEM, OAQ copies of records required to be kept by this permit.

(b) For information furnished by the Permittee to IDEM, OAQ, the Permittee may include a claim of confidentiality in accordance with 326 IAC 17.1. When furnishing copies of requested records directly to U. S. EPA, the Permittee may assert a claim of confidentiality in accordance with 40 CFR 2, Subpart B.

B.10 Certification [326 IAC 2-8-3(d)] [326 IAC 2-8-4(3)(C)(i)] [326 IAC 2-8-5(1)]

(a) Where specifically designated by this permit or required by an applicable requirement, any application form, report, or compliance certification submitted shall contain certification by an "authorized individual" of truth, accuracy, and completeness. This certification shall state that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete.

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

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

B.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 final permit issuance through December 31 of the same year. All subsequent certifications shall cover the time period from January 1 to December 31 of the previous year, and shall be submitted no later than July 1 of each year to:

Indiana Department of Environmental Management
Compliance Branch, Office of Air Quality
100 North Senate Avenue
MC61-53
Indianapolis, Indiana 46204-2251

(b) The annual compliance certification report required by this permit shall be considered timely if the date postmarked on the envelope or certified mail receipt, or affixed by the shipper on the private shipping receipt, is on or before the date it is due. If the document is submitted by any other means, it shall be considered timely if received by IDEM, OAQ, on or before the date it is due.

(c) The annual compliance certification report shall include the following:

(1) The appropriate identification of each term or condition of this permit that is the basis of the certification;

(2) The compliance status;

(3) Whether compliance was continuous or intermittent;

(4) The methods used for determining the compliance status of the source, currently and over the reporting period consistent with 326 IAC 2-8-4(3); and

(5) Such other facts, as specified in Sections D of this permit, as IDEM, OAQ may require to determine the compliance status of the source.

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

B.12 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.13 Preventive Maintenance Plan [326 IAC 1-6-3][326 IAC 2-8-4(9)][326 IAC 2-8-5(a)(1)]

(a) If required by specific condition(s) in Section D of this permit, the Permittee shall prepare and maintain Preventive Maintenance Plans (PMPs) within ninety (90) days after issuance of this permit, 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
MC61-53
Indianapolis, Indiana 46204-2251

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

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

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

B.14 Emergency Provisions [326 IAC 2-8-12]

(a) An emergency, as defined in 326 IAC 2-7-1(12), is not an affirmative defense for an action brought for noncompliance with a federal or state health-based emission limitation except as provided in 326 IAC 2-8-12.

(b) An emergency, as defined in 326 IAC 2-7-1(12), constitutes an affirmative defense to an action brought for noncompliance with a health-based or technology-based emission limitation if the affirmative defense of an emergency is demonstrated through properly signed, contemporaneous operating logs or other relevant evidence that describe the following:

(1) An emergency occurred and the Permittee can, to the extent possible, identify the causes of the emergency;

(2) The permitted facility was at the time being properly operated;

(3) During the period of an emergency, the Permittee took all reasonable steps to minimize levels of emissions that exceeded the emission standards or other requirements in this permit;

(4) For each emergency lasting one (1) hour or more, the Permittee notified IDEM, OAQ, within four (4) daytime business hours after the beginning of the emergency, or after the emergency was discovered or reasonably should have been discovered;

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

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

Indiana Department of Environmental Management
Compliance Branch, Office of Air Quality
100 North Senate Avenue
MC61-53
Indianapolis, Indiana 46204-2251

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

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

(A) A description of the emergency;

(B) Any steps taken to mitigate the emissions; and

(C) Corrective actions taken.

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

(6) The Permittee immediately took all reasonable steps to correct the emergency.

(c) In any enforcement proceeding, the Permittee seeking to establish the occurrence of an emergency has the burden of proof.

(d) This emergency provision supersedes 326 IAC 1-6 (Malfunctions). This permit condition is in addition to any emergency or upset provision contained in any applicable requirement.

(e) The Permittee seeking to establish the occurrence of an emergency shall make records available upon request to ensure that failure to implement a PMP did not cause or contribute to an exceedance of any limitations on emissions. However, IDEM, OAQ may require that the Preventive Maintenance Plans required under 326 IAC 2-8-3(c)(6) be revised in response to an emergency.

(f) Failure to notify IDEM, OAQ by telephone or facsimile of an emergency lasting more than one (1) hour in accordance with (b)(4) and (5) of this condition shall constitute a violation of 326 IAC 2-8 and any other applicable rules.

(g) Operations may continue during an emergency only if the following conditions are met:

(1) If the emergency situation causes a deviation from a technology-based limit, the Permittee may continue to operate the affected emitting facilities during the emergency provided the Permittee immediately takes all reasonable steps to correct the emergency and minimize emissions.

(2) If an emergency situation causes a deviation from a health-based limit, the Permittee may not continue to operate the affected emissions facilities unless:

(A) The Permittee immediately takes all reasonable steps to correct the emergency situation and to minimize emissions; and

(B) Continued operation of the facilities is necessary to prevent imminent injury to persons, severe damage to equipment, substantial loss of capital investment, or loss of product or raw material of substantial economic value.

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

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

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

(a) All terms and conditions of permits established prior to 007-24059-00019 and issued pursuant to permitting programs approved into the state implementation plan have been either:

(1) incorporated as originally stated,

(2) revised, or

(3) deleted

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

B.16 Termination of Right to Operate [326 IAC 2-8-9][326 IAC 2-8-3(h)]

The Permittee's right to operate this source terminates with the expiration of this permit unless a timely and complete renewal application is submitted at least nine (9) months prior to the date of expiration of the source's existing permit, consistent with 326 IAC 2-8-3(h) and 326 IAC 2-8-9.

B.17 Deviations from Permit Requirements and Conditions [326 IAC 2-8-4(3)(C)(ii)]

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

Indiana Department of Environmental Management
Compliance Data Section, Office of Air Quality
100 North Senate Avenue
MC61-53
Indianapolis, Indiana 46204-2251

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

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

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

B.18 Permit Modification, Reopening, Revocation and Reissuance, or Termination [326 IAC 2-8-4(5)(C)][326 IAC 2-8-7(a)][326 IAC 2-8-8]

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

(b) This permit shall be reopened and revised under any of the circumstances listed in IC 13-15-7-2 or if IDEM, OAQ determines any of the following:

(1) That this permit contains a material mistake.

(2) That inaccurate statements were made in establishing the emissions standards or other terms or conditions.

(3) That this permit must be revised or revoked to assure compliance with an applicable requirement. [326 IAC 2-8-8(a)]

(c) Proceedings by IDEM, OAQ to reopen and revise this permit shall follow the same procedures as apply to initial permit issuance and shall affect only those parts of this

permit for which cause to reopen exists. Such reopening and revision shall be made as expeditiously as practicable. [326 IAC 2-8-8(b)]

(d) The reopening and revision of this permit, under 326 IAC 2-8-8(a), shall not be initiated before notice of such intent is provided to the Permittee by IDEM, OAQ at least thirty (30) days in advance of the date this permit is to be reopened, except that IDEM, OAQ may provide a shorter time period in the case of an emergency. [326 IAC 2-8-8(c)]

B.19 Permit Renewal [326 IAC 2-8-3(h)]

(a) The application for renewal shall be submitted using the application form or forms prescribed by IDEM, OAQ and shall include the information specified in 326 IAC 2-8-3. Such information shall be included in the application for each emission unit at this source, except those emission units included on the trivial or insignificant activities list contained in 326 IAC 2-7-1(21) and 326 IAC 2-7-1(40). The renewal application does require the certification by an "authorized individual" as defined by 326 IAC 2-1.1-1(1).

Request for renewal shall be submitted to:

Indiana Department of Environmental Management
Permits Branch, Office of Air Quality
100 North Senate Avenue
MC61-53
Indianapolis, Indiana 46204-2251

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

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

(2) If the date postmarked on the envelope or certified mail receipt, or affixed by the shipper on the private shipping receipt, is on or before the date it is due. If the document is submitted by any other means, it shall be considered timely if received by IDEM, OAQ on or before the date it is due.

(c) If the Permittee submits a timely and complete application for renewal of this permit, the source's failure to have a permit is not a violation of 326 IAC 2-8 until IDEM, OAQ takes final action on the renewal application, except that this protection shall cease to apply if, subsequent to the completeness determination, the Permittee fails to submit by the deadline specified in writing by IDEM, OAQ any additional information identified as being needed to process the application.

B.20 Permit Amendment or Revision [326 IAC 2-8-10][326 IAC 2-8-11.1]

(a) Permit amendments and revisions are governed by the requirements of 326 IAC 2-8-10 or 326 IAC 2-8-11.1 whenever the Permittee seeks to amend or modify this 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
MC61-53
Indianapolis, Indiana 46204-2251

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

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

B.21 Operational Flexibility [326 IAC 2-8-15][326 IAC 2-8-11.1]

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

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

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

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

(4) The Permittee notifies the:

Indiana Department of Environmental Management
Permits Branch, Office of Air Quality
100 North Senate Avenue
MC61-53
Indianapolis, Indiana 46204-2251

and

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

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

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

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

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

(c) Alternative Operating Scenarios [326 IAC 2-8-15(d)]
The Permittee may make changes at the source within the range of alternative operating scenarios that are described in the terms and conditions of this permit in accordance with 326 IAC 2-8-4(7). No prior notification of IDEM, OAQ, or U.S. EPA is required.

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

B.22 Source Modification Requirement [326 IAC 2-8-11.1]

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

B.23 Inspection and Entry [326 IAC 2-8-5(a)(2)][IC13-14-2-2][IC 13-17-3-2][IC13-30-3-1]

Upon presentation of proper identification cards, credentials, and other documents as may be required by law, and subject to the Permittee's right under all applicable laws and regulations to assert that the information collected by the agency is confidential and entitled to be treated as such, the Permittee shall allow IDEM, OAQ, U.S. EPA, or an authorized representative to perform the following:

(a) Enter upon the Permittee's premises where a FESOP source is located, or emissions related activity is conducted, or where records must be kept under the conditions of this permit;

(b) As authorized by the Clean Air Act, IC 13-14-2-2, IC 13-17-3-2, and IC 13-30-3-1, have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;

(c) As authorized by the Clean Air Act, IC 13-14-2-2, IC 13-17-3-2, and IC 13-30-3-1, inspect, at reasonable times, any facilities, equipment (including monitoring and air pollution control equipment), practices, or operations regulated or required under this permit;

(d) As authorized by the Clean Air Act, IC 13-14-2-2, IC 13-17-3-2, and IC 13-30-3-1, sample or monitor, at reasonable times, substances or parameters for the purpose of assuring compliance with this permit or applicable requirements; and

(e) As authorized by the Clean Air Act, IC 13-14-2-2, IC 13-17-3-2, and IC 13-30-3-1, utilize any photographic, recording, testing, monitoring, or other equipment for the purpose of assuring compliance with this permit or applicable requirements.

B.24 Transfer of Ownership or Operational Control [326 IAC 2-8-10]

(a) The Permittee must comply with the requirements of 326 IAC 2-8-10 whenever the Permittee seeks to change the ownership or operational control of the source and no other change in the permit is necessary.

(b) Any application requesting a change in the ownership or operational control of the source shall contain a written agreement containing a specific date for transfer of permit responsibility, coverage and liability between the current and new Permittee. The application shall be submitted to:

Indiana Department of Environmental Management
Permits Branch, Office of Air Quality
100 North Senate Avenue
MC61-53
Indianapolis, Indiana 46204-2251

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

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

B.25 Annual Fee Payment [326 IAC 2-7-19][326 IAC 2-8-4(6)] [326 IAC 2-8-16] [326 IAC 2-1.1-7]

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

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

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

B.26 Credible Evidence [326 IAC 2-8-4(3)][326 IAC 2-8-5][62 FR 8314] [326 IAC-1-1-6]

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

SECTION C **SOURCE OPERATION CONDITIONS**

Entire Source

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

C.1 Particulate Emission Limitations For Processes with Process Weight Rates Less Than One Hundred (100) Pounds per Hour [326 IAC 6-3-2]

Pursuant to 326 IAC 6-3-2(e)(2), particulate emissions from any process not exempt under 326 IAC 6-3-1(b) or (c) which has a maximum process weight rate less than 100 pounds per hour and the methods in 326 IAC 6-3-2(b) through (d) do not apply shall not exceed 0.551 pounds per hour.

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

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

(a) Pursuant to 326 IAC 2-8:

(1) The potential to emit any regulated pollutant, except particulate matter (PM), from the entire source shall be limited to less than one-hundred (100) tons per twelve (12) consecutive month period.

(2) The potential to emit any individual hazardous air pollutant (HAP) from the entire source shall be limited to less than ten (10) tons per twelve (12) consecutive month period; and

(3) The potential to emit any combination of HAPs from the entire source shall be limited to less than twenty-five (25) tons per twelve (12) consecutive month period.

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

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

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

C.3 Opacity [326 IAC 5-1]

Pursuant to 326 IAC 5-1-2 (Opacity Limitations), except as provided in 326 IAC 5-1-3 (Temporary Alternative Opacity Limitations), opacity shall meet the following, unless otherwise stated in this permit:

(a) Opacity shall not exceed an average of forty percent (40%) in any one (1) six (6) minute averaging period as determined in 326 IAC 5-1-4.

(b) Opacity shall not exceed sixty percent (60%) for more than a cumulative total of fifteen (15) minutes (sixty (60) readings as measured according to 40 CFR 60, Appendix A,

Method 9 or fifteen (15) one (1) minute nonoverlapping integrated averages for a continuous opacity monitor) in a six (6) hour period.

C.4 Open Burning [326 IAC 4-1] [IC 13-17-9]

The Permittee shall not open burn any material except as provided in 326 IAC 4-1-3, 326 IAC 4-1-4 or 326 IAC 4-1-6. The previous sentence notwithstanding, the Permittee may open burn in accordance with an open burning approval issued by the Commissioner under 326 IAC 4-1-4.1.

C.5 Incineration [326 IAC 4-2] [326 IAC 9-1-2]

The Permittee shall not operate an incinerator or incinerate any waste or refuse except as provided in 326 IAC 4-2 and 326 IAC 9-1-2.

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

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

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

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

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

(a) Notification requirements apply to each owner or operator. If the combined amount of regulated asbestos containing material (RACM) to be stripped, removed or disturbed is at least 260 linear feet on pipes or 160 square feet on other facility components, or at least thirty-five (35) cubic feet on all facility components, then the notification requirements of 326 IAC 14-10-3 are mandatory. All demolition projects require notification whether or not asbestos is present.

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

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

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

(A) Asbestos removal or demolition start date;

(B) Removal or demolition contractor; or

(C) Waste disposal site.

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

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

All required notifications shall be submitted to:

Indiana Department of Environmental Management
Asbestos Section, Office of Air Quality
100 North Senate Avenue
MC61-52
Indianapolis, Indiana 46204-2251

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

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

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

(g) Indiana Accredited Asbestos Inspector
The Permittee shall comply with 326 IAC 14-10-1(a) that requires the owner or operator, prior to a renovation/demolition, to use an Indiana Accredited Asbestos Inspector to thoroughly inspect the affected portion of the facility for the presence of asbestos.

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

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

(a) Compliance testing on new emissions units shall be conducted within 60 days after achieving maximum production rate, but no later than180 days after initial start-up, if specified in Section D of this approval. All testing shall be performed according to the provisions of 326 IAC 3-6 (Source Sampling Procedures), except as provided elsewhere in this permit, utilizing any applicable procedures and analysis methods specified in 40 CFR 51, 40 CFR 60, 40 CFR 61, 40 CFR 63, 40 CFR 75, or other procedures approved by IDEM, OAQ.

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

Indiana Department of Environmental Management
Compliance Data Section, Office of Air Quality
100 North Senate Avenue
MC61-53
Indianapolis, Indiana 46204-2251

no later than thirty-five (35) days prior to the intended test date. The protocol submitted by the Permittee does not require certification by an "authorized individual" as defined by 326 IAC 2-1.1-1(1).

(b) The Permittee shall notify IDEM, OAQ of the actual test date at least fourteen (14) days prior to the actual test date. The notification submitted by the Permittee does not require certification by an "authorized individual" as defined by 326 IAC 2-1.1-1(1).

(c) Pursuant to 326 IAC 3-6-4(b), all test reports must be received by IDEM, OAQ not later than forty-five (45) days after the completion of the testing. An extension may be granted by IDEM, OAQ if the Permittee submits to IDEM, OAQ, a reasonable written explanation not later than five (5) days prior to the end of the initial forty-five (45) day period.

Compliance Requirements [326 IAC 2- 1.1-11]

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

The commissioner may require stack testing, monitoring, or reporting at any time to assure compliance with all applicable requirements by issuing an order under 326 IAC 2-1.1-11. Any monitoring or testing shall be performed in accordance with 326 IAC 3 or other methods approved by the commissioner or the U. S. EPA.

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

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

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

Indiana Department of Environmental Management
Compliance Branch, Office of Air Quality
100 North Senate Avenue
MC61-53
Indianapolis, Indiana 46204-2251

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

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

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

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

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

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

(c) Whenever a continuous emission monitor other than an opacity monitor is malfunctioning or will be down for calibration, maintenance, or repairs for a period of four (4) hours or more, a calibrated backup CEMS shall be brought online within four (4) hours of

shutdown of the primary CEMS, and shall be operated until such time as the primary CEMS is back in operation.

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

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

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

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

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

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

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

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

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

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

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

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

(1) initial inspection and evaluation;

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

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

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

(1) monitoring results;

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

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

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

(e) The Permittee shall maintain the following records:

(1) monitoring data;

(2) monitor performance data, if applicable; and

(3) corrective actions taken.

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

(a) When the results of a stack test performed in conformance with Section C - Performance Testing, of this permit exceed the level specified in any condition of this permit, the Permittee shall take appropriate response actions. The Permittee shall submit a description of these response actions to IDEM, OAQ, within thirty (30) days of receipt of the test results. The Permittee shall take appropriate action to minimize excess emissions from the affected facility while the response actions are being implemented.

(b) A retest to demonstrate compliance shall be performed within one hundred twenty (120) days of receipt of the original test results. Should the Permittee demonstrate to IDEM, OAQ that retesting in one-hundred and twenty (120) days is not practicable, IDEM, OAQ may extend the retesting deadline.

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

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

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

C.18 General Record Keeping Requirements [326 IAC 2-8-4(3)] [326 IAC 2-8-5]

(a) Records of all required monitoring data, reports and support information required by this permit shall be retained for a period of at least five (5) years from the date of monitoring sample, measurement, report, or application. These records shall be physically present or electronically accessible at the source location for a minimum of three (3) years. The records may be stored elsewhere for the remaining two (2) years as long as they are available upon request. If the Commissioner makes a request for records to the Permittee, the Permittee shall furnish the records to the Commissioner within a reasonable time.

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

C.19 General Reporting Requirements [326 IAC 2-8-4(3)(C)] [326 IAC 2-1.1-11]

(a) The Permittee shall submit the attached Quarterly Deviation and Compliance Monitoring Report or its equivalent. Any deviation from permit requirements, the date(s) of each deviation, the cause of the deviation, and the response steps taken must be reported. This report shall be submitted within thirty (30) days of the end of the reporting period.

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

(b) The report required in (a) of this condition and reports required by conditions in Section D of this permit shall be submitted to:

Indiana Department of Environmental Management
Compliance Data Section, Office of Air Quality
100 North Senate Avenue
MC61-53
Indianapolis, Indiana 46204-2251

(c) Unless otherwise specified in this permit, any notice, report, or other submission required by this permit shall be considered timely if the date postmarked on the envelope or certified mail receipt, or affixed by the shipper on the private shipping receipt, is on or before the date it is due. If the document is submitted by any other means, it shall be considered timely if received by IDEM, OAQ on or before the date it is due.

(d) Unless otherwise specified in this permit, all reports required in Section D of this permit shall be submitted within thirty (30) days of the end of the reporting period. All reports do require the certification by an "authorized individual" as defined by 326 IAC 2-1.1-1(1).

(e) The first report shall cover the period commencing on the date of issuance of this permit and ending on the last day of the reporting period. Reporting periods are based on calendar years, unless otherwise specified in this permit. For the purpose of this permit "calendar year" means the twelve (12) month period from January 1 to December 31 inclusive.

(f) The Permittee shall make the information required to be documented and maintained in accordance with (c) in Section C- General Record Keeping Requirements available for review upon a request for inspection by IDEM, OAQ. The general public may request this information from the IDEM, OAQ under 326 IAC 17.1.

Stratospheric Ozone Protection

C.20 Compliance with 40 CFR 82 and 326 IAC 22-1

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

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

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

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

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

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

(a) Two (2) truck unloading pits, collectively identified as EU001, approved for construction in 2007, with a maximum combined throughput rate of 20,000 bushels of corn per hour, controlled by baghouse CE001, and exhausting through stack PS001.

(b) One (1) rail unloading pit, identified as EU002, approved for construction in 2007, with a maximum throughput rate of 30,000 bushels of corn per hour, controlled by baghouse CE001, and exhausting through stack PS001.

(c) One (1) corn handling process, approved for construction in 2007, controlled by baghouse CE001, and exhausting through stack PS001. This process consists of the following:

(1) One (1) corn conveying and handling system, identified as EU003, with a maximum throughput rate of 50,000 bushels of corn per hour.

(2) One (1) corn elevator, identified as EU004, with a maximum throughput rate of 50,000 bushels of corn per hour.

(3) One (1) corn conveying and handling system, identified as EU005, with a maximum throughput rate of 50,000 bushels of corn per hour.

(4) Two (2) corn storage silos, identified as EU006 and EU007, each with a maximum storage capacity of 500,000 bushels.

(d) Three (3) hammermills, identified as EU008, EU009, and EU010, approved for construction in 2007, with a combined maximum throughput rate of 115.32 tons of corn per hour, controlled by baghouses CE002, CE003, and CE004, respectively, and exhausting through stacks PS002, PS003, and PS004, respectively.

(l) One (1) DDGS handling and loadout operation, approved for construction in 2007. This process consist of the following:

(1) One (1) DDGS conveyor and handling system, identified as EU040, with a maximum handling rate of 40 tons of DDGS per hour, controlled by bagbouse CE011, and exhausting to stack PS011.

(2) One (1) DDGS storage building, identified as EU041, controlled by bagbouse CE011, and exhausting to stack PS011.

(3) One (1) DDGS truck loadout spout, identified as EU042, with a maximum throughput rate of 44 tons of DDGS per hour.

Insignificant Activities:

(d) Paved roads and parking lots with public access.

(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 FESOP PM and PM10 Emissions [326 IAC 2-2] [326 IAC 2-8-4]

(a) 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)
EU001 through EU007	Corn Receiving & Handling	CE001	1.41
EU008	Hammermill #1	CE002	0.28
EU009	Hammermill #2	CE003	0.28
EU010	Hammermill #3	CE004	0.28
EU040, EU041	DDGS handling and loadout operation	CE011	0.17

(b) The total corn received shall not exceed 1,010,164 tons per twelve (12) consecutive month period with compliance determined at the end of each month.

(c) The total DDGS produced shall not exceed 338,206 tons per twelve (12) consecutive month period with compliance determined at the end of each month.

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

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.1.6 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)
EU001	Truck Unloading Pits	560	70.32
EU002	Rail Unloading Pit	840	75.35
EU003	Corn Conveying and Handling System	1400	82.02
EU004	Corn Elevator	1400	82.02
EU005	Corn Conveying and Handling System	1400	82.02
EU006 and EU007	Corn Storage Silos	1400	82.02
EU008	Hammermill #1	115.32	52.72
EU009	Hammermill #2	115.32	52.72
EU010	Hammermill #3	115.32	52.72
EU040	DDGS Conveyor	40	42.53
EU041	DDGS Storage Building	44	43.40
EU042	DDGS Loadout Spout	44	43.40

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

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

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

Pursuant to 326 IAC 6-3-2(e)(3), when the process weight exceeds 200 tons per hour, the maximum allowable emission may exceed the emission limits shown in the table above, provided the concentration of particulate matter in the gas discharged to the atmosphere is less than 0.10 pounds per 1,000 pounds of gases.

D.1.7 Preventive Maintenance Plan [326 IAC 2-8-4(9)]

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

Compliance Determination Requirements

D.1.8 Particulate Control

(a) In order to comply with Conditions D.1.5(a) and D.1.6, 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 Description	Baghouse ID
Corn Receiving & Handling (EU001 – EU007)	CE001
Hammermill #1 (EU008)	CE002
Hammermill #2 (EU009)	CE003
Hammermill #3 (EU010)	CE004
DDGS handling (EU040, EU041)	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.1.9 Testing Requirements [326 IAC 2-8-5(a)(1), (4)] [326 IAC 2-1.1-11]

In order to demonstrate compliance with Conditions D.1.5(a) and D.1.6, the Permittee shall perform PM, and PM10 testing for baghouses CE001 and CE011, and for one of the baghouses CE002, CE003, or CE004, 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. PM10 includes filterable and condensible PM10. These tests shall be repeated at least once every five (5) years from the date of this valid compliance demonstration. Testing shall be conducted in accordance with Section C - Performance Testing.

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

D.1.10 Visible Emissions Notations

(a) Visible emission notations of the baghouse stack exhausts (stacks PS001 through PS004, and PS011) 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.1.11 Baghouse Parametric Monitoring

(a) The Permittee shall record the pressure drop across the baghouses (CE001 through CE004, and CE011) used in conjunction with the corn receiving and handling operations (EU001 through EU007), the hammermills (EU008, EU009, EU010), and the DDGS

handling and loadout operations (EU040, EU041), at least once per day when these units are in operation. When for any one reading, the pressure drop across the baghouse is outside the normal range of 1.0 to 6.0 inches of water or a range established during the latest stack test, the Permittee shall take reasonable response steps in accordance with Section C- Response to Excursions or Exceedances. A pressure reading that is outside the above mentioned range is not a deviation from this permit. Failure to take response steps in accordance with Section C - Response to Excursions or Exceedances shall be considered a deviation from this permit.

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

D.1.12 Broken or Failed Bag Detection [326 IAC 2-8-5(1)] [326 IAC 2-8-4(1)]

(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 baghouse controlling emissions from a batch process, the feed to the process shall be shut down immediately until the failed unit has been repaired or replaced. The emissions unit shall be shut down no later than the completion of the processing of the material in 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.1.13 Record Keeping Requirements

(a) To document compliance with Condition D.1.5(b), the Permittee shall maintain monthly records of the amount of corn received.

(b) To document compliance with Condition D.1.5(c), the Permittee shall maintain monthly records of the amount of DDGS produced.

(c) To document compliance with Condition D.1.10, the Permittee shall maintain records of once per day visible emission notations of the baghouse stack exhausts or maintain a record of the reason why the visible emission notations were not taken.

(d) To document compliance with Condition D.1.11, the Permittee shall maintain once per day records of the pressure drop across the baghouses or maintain a record of the reason why the pressure drops were not taken.

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

D.1.14 Reporting Requirements

A quarterly summary of the information to document compliance with Conditions D.1.5(b) and D.1.5(c) shall be submitted to the address listed in Section C - General Reporting Requirements, of this permit, using the reporting forms located at the end of this permit, or their equivalent, within

thirty (30) days after the end of the quarter being reported. The report submitted by the Permittee does require the certification by the "authorized individual" as defined by 326 IAC 2-1.1-1(1).

SECTION D.2 FACILITY OPERATION CONDITIONS – Fermentation and Distillation and Dehydration Process

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

(f) One (1) fermentation process, approved for construction in 2007, with a maximum beer production rate of 360 tons hour, using wet scrubber CE005 for VOC control and sodium bisulfite injection for HAP control, exhausting through stack PS005. This process consist of the following:

(1) One (1) pre-fermenter tank, identified as EU016.

(2) Six (6) fermentation tanks, identified as EU017 through EU22.

(3) One (1) beer well, identified as EU023.

(g) One (1) distillation and dehydration process, approved for construction in 2007, with a maximum ethanol production rate of 11,000 gallons per hour, using wet scrubber CE006 for VOC control and sodium bisulfite injection for HAP control, exhausting through stack PS006. This process consist of the following:

(1) One (1) beer stripper, identified as EU024.

(2) One (1) stripping column, identified as EU025.

(3) One (1) rectifying column, identified as EU026.

(4) Molecular sieve units, identified as EU027.

(5) One (1) thin stillage tank, identified as EU030.

(6) One (1) light evaporator, identified as EU031.

(7) One (1) intermediate stillage tank, identified as EU032.

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

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

Construction Conditions

General Construction Conditions

D.2.1 Permit No Defense

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

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

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

Effective Date of the Permit

D.2.3 Effective Date of the Permit [IC13-15-5-3]

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

D.2.4 Modification to Construction Conditions [326 IAC 2]

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

Operation Conditions

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

D.2.5 FESOP 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 scrubbers CE005, controlling the fermentation process, and CE006, controlling the distillation and dehydration process, shall not exceed the following:

Scrubber ID	VOC (pound per hour)	Total HAPs (pound per hour)	Acetaldehyde (HAP) (pound per hour)
CE005	11.0	0.90	0.80
CE006	1.40	0.50	0.40

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.2.6 VOC Emissions [326 IAC 8-1-6]

Pursuant to 326 IAC 8-1-6 (BACT), the Permittee shall control the VOC emissions from the fermentation process, 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 fermentation process shall be controlled by wet scrubber CE005 with sodium bisulfite injection.

(b) The VOC emissions from the distillation and dehydration process shall be controlled by wet scrubber CE006 with sodium bisulfite injection.

(c) The overall control efficiency for the fermentation wet scrubber (CE005) (including the capture efficiency and adsorption efficiency) shall be at least 99%, or the VOC outlet concentration shall not exceed 10 ppmv.

(d) The overall control efficiency for the distillation and dehydration wet scrubber (CE006) (including the capture efficiency and adsorption efficiency) shall be at least 99%, or the VOC outlet concentration shall not exceed 10 ppmv.

(e) The VOC emissions from wet scrubber CE005 shall not exceed 11.00 pounds per hour.

(f) The VOC emissions from wet scrubber CE006 shall not exceed 1.40 pounds per hour.

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

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

Compliance Determination Requirements

D.2.8 VOC and HAP Control

In order to comply with Conditions D.2.5 and D.2.6, the following shall apply:

(a) The wet scrubber CE005 shall be in operation and control emissions from the fermentation process at all times that this process is in operation.

(b) The wet scrubber CE006 shall be in operation and control emissions from the distillation and dehydration process at all times that this process is in operation.

D.2.9 VOC and HAP Control

In order to comply with the acetaldehyde limitations contained in Condition D.2.5, the following shall apply:

(a) The sodium bisulfite injection system shall be in operation, and injecting sodium bisulfite into scrubber CE005, at all times that the fermentation process is in operation.

(b) The sodium bisulfite injection system shall be in operation, and injecting sodium bisulfite into scrubber CE006, at all times that the distillation and dehydration process is in operation.

D.2.10 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 and D.2.6, the Permittee shall perform VOC (including emission rate, capture efficiency, and control efficiency) and acetaldehyde testing for scrubbers CE005 and CE006, 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.2.11 Parametric Monitoring

(a) The Permittee shall monitor and record the flow rate of scrubbers CE005 and CE006 at least once per day when the associated processes are in operation. When for any one reading, the flow rate of the any scrubber is less than the normal minimum stated in the table below, 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.

Scrubber ID	Associated Process	Minimum Flow Rate
CE005	Fermentation	120 gallons per minute
CE006	Distillation & Dehydration	12 gallons per minute

(b) The Permittee shall monitor and record the pressure drop across the scrubbers CE005 and CE006 at least once per day when the associated processes are in operation. When for any one reading, the pressure drop across a scrubber is outside the normal range of 1.0 and 6.0 inches of water, or a minimum established during the latest stack test, the Permittee shall take reasonable response steps in accordance with Section C - Response to Excursions or Exceedances. A pressure reading that is outside the above mentioned range 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 and pressure drop shall comply with Section C - Instrument Specifications, of this permit, shall be subject to approval by IDEM, OAQ, and shall be calibrated at least once every six (6) months.

D.2.12 Sodium Bisulfite Injection System

(a) Continuous monitoring systems shall be calibrated, maintained, and operated on the fermentation scrubber (CE005), and the distillation and dehydration scrubber (CE006) for measuring the sodium bisulfite injection rates. For the purpose of this condition, continuous means no less than once per minute. The output of each of these systems shall be recorded as a one-hour averages. From the date of issuance of this permit until the approved stack tests results are available, the Permittee shall inject sodium bisulfite at a minimum rate of 12 milliliters per minute per scrubber.

(b) The Permittee shall determine the one-hour average injection rates from the most recent valid stack tests that demonstrates compliance with limits in condition D.2.5, 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 rates as observed during the compliant stack tests.

D.2.13 Scrubber Detection

In the event that a scrubber malfunction has been observed:

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

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

D.2.14 Record Keeping Requirements

(a) To document compliance with Condition D.2.11, the Permittee shall maintain once per day records of the flow rate and pressure drop for scrubbers CE005 and CE006 or maintain a record of the reason why the flow rates and/or pressure drops were not taken.

(b) To document compliance with D.2.12, the Permittee shall maintain records of the one-hour average sodium bisulfite injection rates at scrubbers CE005 and CE006 or maintain a record of the reason why the one-hour sodium bisulfite injection rates were not taken.

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

SECTION D.3 FACILITY OPERATION CONDITIONS – DDGS Dryer and Cooling Process

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

(h) Two (2) natural gas fired regenerative thermal oxidizers, identified as CE008 and CE009, each with a maximum heat input capacity of 12 MMBtu/hr, exhausting to stack PS010.

(i) Equipment utilized in the process of dehydrating distillers grain, approved for construction in 2007, with emissions controlled by RTOs CE008 and CE009, exhausting to stack PS010. This process consist of the following:

(1) One (1) whole stillage tank, identified as EU028.

(2) Centrifuge, decanters, and centrate reciever, identified as EU029.

(3) Final evaporation concentrators, identified as EU033.

(4) One (1) syrup tank, identified as EU034.

(j) Two (2) natural gas fired DDGS dryers, identified as EU037 and EU038, approved for construction in 2007, each with a maximum heat input rate of 82.6 MMBtu/hr, and each with a total maximum throughput rate of 19.3 tons of DDGS per hour, each controlled by an internal multiclone, with emissions venting to RTOs CE008 and CE009, respectively, and exhausting to stack PS010.

(k) One (1) DDGS cooler, identified as EU039, approved for construction in 2007, with a maximum throughput rate of 38.6 tons of DDGS per hour, controlled by a baghouse identified as CE010. The exhaust from baghouse CE010 exhaust to DDGS dryers EU037 and EU038 and is used as dryer combustion air.

(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

D.3.5 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 RTOs (CE008 and CE009), which are used to control emissions from the DDGS dryers (EU037 and EU038) and DDGS cooler (EU039), and emission units EU028, EU029, EU033, and EU034:

(a) PM/PM10 emissions shall not exceed 9.18 lbs/hr for stack PS010.

(b) VOC emissions shall not exceed 4.54 lbs/hr for stack PS010.

(c) CO emissions shall not exceed 2.29 lbs/hr for stack PS010.

(d) SO2 emissions shall not exceed 0.11 lbs/hr for stack PS010.

(e) NOx emissions shall not exceed 7.57 lbs/hr for stack PS010.

(f) Acetaldehyde emissions shall not exceed 0.60 lbs/hr for stack PS010.

(g) Total HAP emissions shall not exceed 0.67 lbs/hr for stack PS010.

Combined with the PM/PM10, VOC, SO2, CO, and NOx emissions from other units, the PM/PM10, VOC, SO2, CO, and NOx 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) and 326 IAC 2-2 (PSD) are not applicable.

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

Pursuant to 326 IAC 8-1-6 (BACT), the Permittee shall control the VOC emissions from the DDGS dryers (EU037 and EU038) with a Best Available Control Technology (BACT), which has been determined to be the following:

(a) The VOC emissions from the DDGS dryer EU037 shall be controlled by RTO CE008.

(b) The VOC emissions from the DDGS dryer EU038 shall be controlled by RTO CE009.

(c) The overall control efficiency, including the capture efficiency and destruction efficiency, for the RTOs (CE008 and CE009) shall each be at least 99%, or the VOC outlet concentration shall not exceed 10 ppmv.

(d) The VOC emissions from the RTOs stack PS010, shall not exceed 4.54 lbs/hr.

D.3.7 Particulate Emission Limitations [326 IAC 6-3-2]

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

Unit ID	Unit Description	Max. Throughput Rate (tons/hr)	Particulate Emission Limit (lbs/hr)
EU037	DDGS Dryer	19.3	29.79
EU038	DDGS Dryer	19.3	29.79
EU039	DDGS Cooler	38.6	47.40

The pounds per hour limitations were calculated using 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 equations:

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

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

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

D.3.8 Preventive Maintenance Plan [326 IAC 2-8-4(9)]

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

Compliance Determination Requirements

D.3.9 VOC and HAP Control

In order to comply with Conditions D.3.5 and 3.6, the following conditions shall apply:

(a) The RTO CE008 shall be in operation and control emissions from the DDGS dryer EU037 and the DDGS cooler EU039, and emission units EU028, EU029, EU033, and EU034 at all times that these units are in operation.

(b) The RTO CE009 shall be in operation and control emissions from the DDGS dryer EU038 and the DDGS cooler EU039, and emission units EU028, EU029, EU033, and EU034 all times that these units are in operation.

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

In order to demonstrate compliance with Conditions D.3.5, D.3.6, and D.3.7, the Permittee shall perform PM, PM10, VOC (including emission rate, destruction efficiency, and capture efficiency), NOx, CO, and Acetaldehyde testing for the RTOs stack (PS010) within 60 days after achieving the maximum capacity, but not later than 180 days after initial startup, utilizing methods as approved by the Commissioner. PM10 includes filterable and condensible PM10. These tests shall be repeated at least once every five (5) years from the date of this valid compliance demonstration. Testing shall be conducted in accordance with Section C - Performance Testing.

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

D.3.11 Visible Emissions Notations

(a) Visible emission notations of the stack exhaust from the RTOs CE008 and CE009 (stack PS010) shall be performed once per day during normal daylight operations. A trained employee or a trained contractor shall record whether emissions are normal or abnormal.

(b) For processes operated continuously, "normal" means those conditions prevailing, or expected to prevail, eighty percent (80%) of the time the process is in operation, not counting startup or shut down time.

(c) In the case of batch or discontinuous operations, readings shall be taken during that part of the operation that would normally be expected to cause the greatest emissions.

(d) A trained employee or contractor is a person who has worked or trained at the plant at least one (1) month and has been trained in the appearance and characteristics of normal visible emissions for that specific process.

(e) If abnormal emissions are observed, the Permittee shall take reasonable response steps in accordance with Section C- Response to Excursions or Exceedances. Failure to take response steps in accordance with Section C - Response to Excursions or Exceedances shall be considered a deviation from this permit.

D.3.12 Thermal Oxidation Temperature

(a) A continuous monitoring system shall be calibrated, maintained, and operated on the RTOs (CE008 and CE009) for measuring operating temperature. For the purpose of this condition, continuous means no less than once per minute. The output of this system shall be recorded as 3-hour average. From the date of issuance of this permit until the approved stack test results are available, the Permittee shall operate the RTOs (CE008 and CE009) at or above the 3-hour average temperature of 1,400°F.

(b) The Permittee shall determine the 3-hour average temperature from the most recent valid stack test that demonstrates compliance with limits in Conditions D.3.5 and D.3.6, as approved by IDEM.

(c) On and after the date the approved stack test results are available, the Permittee shall operate the RTOs (CE008 and CE009) at or above the hourly average temperature as observed during the compliant stack test.

D.3.13 Parametric Monitoring

(a) The Permittee shall determine the appropriate duct pressure or fan amperage from the most recent valid stack test that demonstrates compliance with limits in Conditions D.3.5 and D.3.6, as approved by IDEM.

(b) The duct pressure or fan amperage shall be observed at least once per day when the RTOs (CE008 and CE009) are in operation. On and after the date the approved stack test results are available, the duct pressure or fan amperage shall be maintained within the normal range as established in most recent compliant stack test.

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

D.3.14 Record Keeping Requirements

(a) To document compliance with Condition D.3.11, the Permittee shall maintain records of once per day visible emission notations or maintain a record of the reason why the visible emission notations were not taken.

(b) To document compliance with Condition D.3.12, the Permittee shall maintain continuous temperature records for the RTOs (CE008 and CE009) and the 3-hour average temperature used to demonstrate compliance during the most recent compliant stack test or maintain a record of the reason why the continuous temperature records were not taken.

(c) To document compliance with Condition D.3.13, the Permittee shall maintain daily records of the duct pressure or fan amperage for the RTOs (CE008 and CE009) or maintain a record of the reason why the duct pressures or fan amperage flow rates were not taken.

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

SECTION D.4 FACILITY OPERATION CONDITIONS – Denatured Ethanol Loading Racks

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

(m) One (1) denatured ethanol loadout system, approved for construction in 2007, with emissions controlled by a enclosed flare, identified as CE007, with a maximum heat input capacity of 6.8 MMBtu/hr, and exhausting through stack PS009. This process consist of the following:

(1) One (1) railcar loading rack, utilizing submerged loading only, identified as EU035, with a maximum throughput rate of 60,000 gallons per hour.

(2) One (1) truck loading rack, utilizing submerged loading only, identified as EU036, with a maximum throughput rate of 48,000 gallons per hour

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

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

Construction Conditions

General Construction Conditions

D.4.1 Permit No Defense

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

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

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

Effective Date of the Permit

D.4.3 Effective Date of the Permit [IC13-15-5-3]

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

D.4.4 Modification to Construction Conditions [326 IAC 2]

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

Operation Conditions

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

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

Pursuant to 326 IAC 2-8-4 (FESOP), 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 the denatured ethanol loadout system (EU035 and EU036):

(a) The denatured ethanol load-out rate associated with the loadout system (EU035 and EU036) shall not exceed 101,420,000 gallons per twelve (12) consecutive month period, with compliance determined at the end of each month.

(b) The Permittee shall use flare CE007 to control the emissions from the denatured ethanol loadout system (EU035 and EU036) when loading denatured ethanol.

(c) VOC emissions from flare CE007 exhaust shall not exceed 0.10 pounds per thousand gallons.

(d) NOx emissions from flare CE007 exhaust shall not exceed 0.077 pounds per thousand gallons.

(e) CO emissions from flare CE007 exhaust shall not exceed 0.129 pounds per thousand gallons.

(f) The railcar loading rack (EU035), shall utilize only submerged fill loading and railcars that use dedicated non-vapor balance (normal) service.

(g) The truck loading rack (EU036), shall use only submerged fill loading.

(h) The railcars and trucks shall not use vapor balance service during ethanol loading.

Combined with the VOC, CO, NOx, and HAP emissions from other units, the VOC, CO, and NOx, 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.4.6 VOC Emissions [326 IAC 8-1-6]

Pursuant to 326 IAC 8-1-6 (BACT), the Permittee shall collect and control the VOC emissions from the denatured ethanol loadout system (EU035 and EU036) with a Best Available Control Technology (BACT). The BACT for this unit has been determined to be the following:

(a) VOC emissions from the denatured ethanol loadout system (EU035 and EU036) shall be collected and controlled by enclosed flare CE007 when loading denatured ethanol to truck.

(b) The overall control efficiency for the vapor collection system and enclosed flare CE007 shall be at least 98%.

(c) VOC emissions from flare CE007 exhaust shall not exceed 0.10 pounds per thousand gallons of denatured ethanol loaded.

(d) The denatured ethanol loading rack system (EU035 and EU036) shall use only submerged fill loading.

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

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

Compliance Determination Requirements

D.4.8 VOC Control

In order to comply with Conditions D.4.5 and D.4.6, the enclosed flare CE007 shall be in operation and control emissions from the railcar loading rack (EU035) and the truck loading rack (EU036) at all times when denatured ethanol is being loaded.

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

In order to demonstrate compliance with Conditions D.4.5(c), (d), and (e), and D.4.6(b) and (c), the Permittee shall perform VOC (including emission rate, destruction efficiency, and capture efficiency), CO, and NOx testing for enclosed flare CE007 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.4.10 Visible Emissions Notations

(a) Visible emission notations of the flare (CE007) stack exhaust (PS009) 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.4.11 Flare Pilot Flame

In order to comply with Conditions D.4.5 and D.4.6, the Permittee shall monitor the presence of a flare pilot flame using a thermocouple or any other equivalent device to detect the presence of a flame when the railcar loading rack (EU035) or the truck loading rack (EU036) is in operation and is loading denatured ethanol.

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

D.4.12 Record Keeping Requirements

(a) To document compliance with Conditions D.4.5(a), the Permittee shall maintain monthly records of the amount of denatured ethanol loaded out the loadout system (EU035 and EU036).

(b) To document compliance with Condition D.4.10, the Permittee shall maintain records of once per day visible emission notations or maintain a record of the reason why the visible emission notations were not taken.

(c) To document compliance with Condition D.4.11, the Permittee shall maintain records of temperature or other parameters sufficient to demonstrate the presence of a pilot flame when the railcar loading rack (EU035) or the truck loading rack (EU036) is in operation or maintain a record of the reason why the temperature or other parameters were not taken.

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

D.4.13 Reporting Requirements

A quarterly summary of the information to document compliance with Conditions D.4.5(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 "authorized individual" as defined by 326 IAC 2-1.1-1(1).

SECTION D.5 - FACILITY OPERATION CONDITIONS – Boilers

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

(n) Two (2) natural gas fired boilers, identified as EU046 and EU047, approved for construction in 2007, each with a rated heat capacity of 143.5 MMBtu/hr, with emissions venting through stacks PS012 and PS013, respectively.

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

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

Construction Conditions

General Construction Conditions

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

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

(a) The boilers shall only burn natural gas.

(b) The total input of the natural gas to the boilers shall not exceed 2514.1 MMCF per twelve (12) consecutive month period, with compliance determined at the end of each month.

(c) NOx emissions shall not exceed 30 pounds per MMCF.

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.5.6 FESOP CO Emissions [326 IAC 2-8-4] [326 IAC 2-2]

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

(a) The boilers shall only burn natural gas.

(b) The total input of natural gas to the boilers shall not exceed 2514.1 MMCF per twelve (12) consecutive month period, with compliance determined at the end of each month.

(c) CO emissions from the boilers shall not exceed 30 pounds per MMCF.

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.5.7 Particulate Emissions [326 IAC 6-2-4] [326 IAC 2-8-4]

Pursuant to 326 IAC 6-2-4 (Particulate Emission Limitations for Sources of Indirect Heating: Emission Limitations for facilities specified in 326 IAC 6-2-1(d)), the PM emissions from the boilers shall not exceed 0.25 pounds per million Btu heat input (lb/MMBtu). This limitation was calculated using the following equation:

$$Pt = \frac{1.09}{Q^{0.26}}$$

where Q = total source heat input capacity (MMBtu/hr)

For these units, Q = 287 MMBtu/hr.

D.5.8 Preventive Maintenance Plan [326 IAC 2-8-4(9)]

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

Compliance Determination Requirements

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

In order to demonstrate compliance with Conditions D.5.5(c) and D.5.6(c), the Permittee shall perform NOx and CO testing for the boilers, within sixty (60) days after achieving the maximum capacity, but not later than one hundred eighty (180) days after initial startup, utilizing methods as approved by the Commissioner. These tests shall be repeated at least once every five (5) years from the date of this valid compliance demonstration. Testing shall be conducted in accordance with Section C - Performance Testing.

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

D.5.10 Record Keeping Requirements

(a) In order to demonstrate compliance with Conditions D.5.5(b) and D.5.6(b) the Permittee shall record the quantity of natural gas combusted at the boilers.

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

D.5.11 Reporting Requirements

A quarterly summary of the information to document compliance with Conditions D.5.5(b) and D.5.6(b) shall be submitted to the address listed in Section C - General Reporting Requirements, of this permit, using the reporting forms located at the end of this permit, or their equivalent, within thirty (30) days after the end of the quarter being reported. The report submitted by the Permittee does require the certification by the "authorized individual" as defined by 326 IAC 2-1.1-1(1).

SECTION D.6 FACILITY OPERATION CONDITIONS – Storage Tanks

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

Insignificant Activities

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

(1) Two (2) shift tanks, identified as TK001 and TK002, approved for construction in 2007, each with a maximum capacity of 120,000 gallons of 200-proof ethanol. Under NSPS, Subpart Kb, these units are considered affected facilities.

(2) One (1) off-spec ethanol tank, identified as TK003, approved for construction in 2007 with a maximum capacity of 240,000 gallons. Under NSPS, Subpart Kb, this unit is considered an affected facility.

(3) One (1) denaturant tank, identified as TK004, approved for construction in 2007, with a maximum capacity of 120,000 gallons of denaturant (gasoline). Under NSPS, Subpart Kb, this unit is considered an affected facility.

(4) Two (2) denatured ethanol tanks, identified as TK005 and TK006, approved for construction in 2007, each with a maximum capacity of 1,000,000 gallons of denatured ethanol (190 proof). Under NSPS, Subpart Kb, these units are considered affected facilities.

(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.6.1 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.6.2 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.6.3 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.6.4 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.6.5 Volatile Organic Compounds (VOC) [326 IAC 8-4-3]

Pursuant to 326 IAC 8-4-3, the following conditions shall apply to storage tank TK004:

(a) Pursuant to 326 IAC 8-4-3(b)(1)(B), storage tank TK004 shall be maintained such that there are no visible holes, tears, or other openings in the seal or any seal fabric or materials.

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

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

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

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

(c) Pursuant to 326 IAC 8-4-3(d) (Petroleum Liquid Storage Facilities), the Permittee shall maintain the following records for a period of two (2) years for tank TK004:

(1) The types of volatile petroleum liquid stored;

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

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

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

D.6.6 Preventive Maintenance Plan [326 IAC 2-8-4(9)]

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

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

D.6.7 Record Keeping Requirements

(a) To document compliance with Condition D.6.5, the Permittee shall maintain the following records for tank TK004:

(1) The types of volatile petroleum liquid stored;

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

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

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

SECTION D.7 FACILITY OPERATION CONDITIONS – Other Insignificant Activities

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

Insignificant Activities

(a) Noncontact induced draft cooling tower system not regulated under a NESHAP, identified as EU050.

(d) Stationary fire pumps, including one (1) diesel fire pump, identified as EU048, approved for construction in 2007, with a maximum power output rate of 275 horsepower, and exhausting to stack PS014.

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

(5) One (1) digester for process water, identified as EU049, approved for construction in 2007. This unit has methane emissions controlled by methanator flare CE012, which is fueled by natural gas and has a maximum heat input capacity of 3.48 MMBtu per hour, and exhausting to stack PS015.

(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.7.1 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.7.2 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.7.3 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.7.4 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 Limitation and Standards [326 IAC 2-8-4(1)]

D.7.5 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 following conditions shall apply:

(a) The methanator flare (CE012) shall be designed as a smokeless flare.

(b) The emissions from the digester for process water (EU049) shall be vented to the methanator flare (CE012).

(c) The PM/PM10 emissions from the cooling towers shall not exceed 2.25 pounds per hour.

(d) The input of diesel fuel to the diesel fire pump (EU048) shall not exceed 7,025 gallons per twelve (12) consecutive month period with compliance determined at the end of each month.

Combined with the NOx, CO, PM/PM10, VOC, and HAP emissions from other units, the NOx, CO, PM/PM10, and 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) and 326 IAC 2-2 (PSD) are not applicable.

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

D.7.6 Record Keeping Requirements

(a) To document compliance with Condition D.7.5(d), the Permittee shall maintain monthly records of the diesel fuel usage for the diesel fire pump (EU048).

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

SECTION E.1 FACILITY OPERATION CONDITIONS - 40 CFR 60, Subpart Db - Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units

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

(n) Two (2) natural gas fired boilers, identified as EU046 and EU047, approved for construction in 2007, each with a rated heat capacity of 143.5 MMBtu/hr, with emissions venting through stacks PS012 and PS013, respectively. Under NSPS, Subpart Db, these units are considered affected facilities.

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

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

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

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

Indiana Department of Environmental Management
Compliance Branch, Office of Air Quality
100 North Senate Ave.
MC61-53
Indianapolis, Indiana 46204-2251

E.1.2 Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units [40 CFR 60, Subpart Db] [326 IAC 12]

Pursuant to 40 CFR 60, Subpart Db, the Permittee shall comply with the provisions of Standards of Performance Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units, which are incorporated by reference as 326 IAC 12, as specified as follows:

§ 60.40b Applicability and delegation of authority.

(a) The affected facility to which this subpart applies is each steam generating unit that commences construction, modification, or reconstruction after June 19, 1984, and that has a heat input capacity from fuels combusted in the steam generating unit of greater than 29 MW (100 million Btu/hour).

(b)
(c)
(d)
(e)
(f)

(g) In delegating implementation and enforcement authority to a State under section 111(c) of the Act, the following authorities shall be retained by the Administrator and not transferred to a State.

(1) Section 60.44b(f).

(2) Section 60.44b(g).

(3) Section 60.49b(a)(4).

(h)
(i)

(j) Any affected facility meeting the applicability requirements under paragraph (a) of this section and commencing construction, modification, or reconstruction after June 19, 1986 is not subject to Subpart D (Standards of Performance for Fossil-Fuel-Fired Steam Generators, §60.40).

(k)
(l)

§ 60.41b Definitions.

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

Annual capacity factor means the ratio between the actual heat input to a steam generating unit from the fuels listed in §60.42b(a), §60.43b(a), or §60.44b(a), as applicable, during a calendar year and the potential heat input to the steam generating unit had it been operated for 8,760 hours during a calendar year at the maximum steady state design heat input capacity. In the case of steam generating units that are rented or leased, the actual heat input shall be determined based on the combined heat input from all operations of the affected facility in a calendar year.

Byproduct/waste means any liquid or gaseous substance produced at chemical manufacturing plants, petroleum refineries, or pulp and paper mills (except natural gas, distillate oil, or residual oil) and combusted in a steam generating unit for heat recovery or for disposal. Gaseous substances with carbon dioxide levels greater than 50 percent or carbon monoxide levels greater than 10 percent are not byproduct/waste for the purpose of this subpart.

Chemical manufacturing plants means industrial plants which are classified by the Department of Commerce under Standard Industrial Classification (SIC) Code 28.

Coal means all solid fuels classified as anthracite, bituminous, subbituminous, or lignite by the American Society of Testing and Materials in ASTM D388–77, 90, 91, 95, or 98a, Standard Specification for Classification of Coals by Rank (IBR—see §60.17), coal refuse, and petroleum coke. Coal-derived synthetic fuels, including but not limited to solvent refined coal, gasified coal, coal-oil mixtures, and coal-water mixtures, are also included in this definition for the purposes of this subpart.

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

Cogeneration, also known as combined heat and power, means a facility that simultaneously produces both electric (or mechanical) and useful thermal energy from the same primary energy source.

Combined cycle system means a system in which a separate source, such as a gas turbine, internal combustion engine, kiln, etc., provides exhaust gas to a heat recovery steam generating unit.

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

Distillate oil means fuel oils that contain 0.05 weight percent nitrogen or less and comply with the specifications for fuel oil numbers 1 and 2, as defined by the American Society of Testing and Materials in ASTM D396–78, 89, 90, 92, 96, or 98, Standard Specifications for Fuel Oils (incorporated by reference—see §60.17).

Dry flue gas desulfurization technology means a sulfur dioxide control system that is located downstream of the steam generating unit and removes sulfur oxides from the combustion gases of the steam generating unit by contacting the combustion gases with an alkaline slurry or solution and forming a dry powder material. This definition includes devices where the dry powder material is subsequently

converted to another form. Alkaline slurries or solutions used in dry flue gas desulfurization technology include but are not limited to lime and sodium.

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

Emerging technology means any sulfur dioxide control system that is not defined as a conventional technology under this section, and for which the owner or operator of the facility has applied to the Administrator and received approval to operate as an emerging technology under §60.49b(a)(4).

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

Fluidized bed combustion technology means combustion of fuel in a bed or series of beds (including but not limited to bubbling bed units and circulating bed units) of limestone aggregate (or other sorbent materials) in which these materials are forced upward by the flow of combustion air and the gaseous products of combustion.

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

Full capacity means operation of the steam generating unit at 90 percent or more of the maximum steady-state design heat input capacity.

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

Heat release rate means the steam generating unit design heat input capacity (in MW or Btu/hour) divided by the furnace volume (in cubic meters or cubic feet); the furnace volume is that volume bounded by the front furnace wall where the burner is located, the furnace side waterwall, and extending to the level just below or in front of the first row of convection pass tubes.

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

High heat release rate means a heat release rate greater than 730,000 J/sec-m ^{3} (70,000 Btu/hour-ft ^{3}).

Lignite means a type of coal classified as lignite A or lignite B by the American Society of Testing and Materials in ASTM D388–77, 90, 91, 95, or 98a, Standard Specification for Classification of Coals by Rank (IBR—see §60.17).

Low heat release rate means a heat release rate of 730,000 J/sec-m ^{3} (70,000 Btu/hour-ft ^{3}) or less.

Mass-feed stoker steam generating unit means a steam generating unit where solid fuel is introduced directly into a retort or is fed directly onto a grate where it is combusted.

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

Municipal-type solid waste means refuse, more than 50 percent of which is waste consisting of a mixture of paper, wood, yard wastes, food wastes, plastics, leather, rubber, and other combustible materials, and noncombustible materials such as glass and rock.

Natural gas means (1) a naturally occurring mixture of hydrocarbon and nonhydrocarbon gases found in geologic formations beneath the earth's surface, of which the principal constituent is methane; or (2) liquid petroleum gas, as defined by the American Society for Testing and Materials in ASTM D1835–82, 86, 87, 91, or 97, "Standard Specification for Liquid Petroleum Gases" (IBR—see §60.17).

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

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

Petroleum refinery means industrial plants as classified by the Department of Commerce under Standard Industrial Classification (SIC) Code 29.

Potential sulfur dioxide emission rate means the theoretical sulfur dioxide emissions (ng/J, lb/million Btu heat input) that would result from combusting fuel in an uncleaned state and without using emission control systems.

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

Pulp and paper mills means industrial plants which are classified by the Department of Commerce under North American Industry Classification System (NAICS) Code 322 or Standard Industrial Classification (SIC) Code 26.

Pulverized coal-fired steam generating unit means a steam generating unit in which pulverized coal is introduced into an air stream that carries the coal to the combustion chamber of the steam generating unit where it is fired in suspension. This includes both conventional pulverized coal-fired and micropulverized coal-fired steam generating units.

Residual oil means crude oil, fuel oil numbers 1 and 2 that have a nitrogen content greater than 0.05 weight percent, and all fuel oil numbers 4, 5 and 6, as defined by the American Society of Testing and Materials in ASTM D396–78, Standard Specifications for Fuel Oils (IBR—see §60.17).

Spreader stoker steam generating unit means a steam generating unit in which solid fuel is introduced to the combustion zone by a mechanism that throws the fuel onto a grate from above. Combustion takes place both in suspension and on the grate.

Steam generating unit means a device that combusts any fuel or byproduct/waste to produce steam or to heat water or any other heat transfer medium. This term includes any municipal-type solid waste incinerator with a heat recovery steam generating unit or any steam generating unit that combusts fuel and is part of a cogeneration system or a combined cycle system. This term does not include process heaters as they are defined in this subpart.

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

Very low sulfur oil for units constructed, reconstructed, or modified on or before February 28, 2005, means an oil that contains no more than 0.5 weight percent sulfur or that, when combusted without sulfur dioxide emission control, has a sulfur dioxide emission rate equal to or less than 215 ng/J (0.5 lb/MMBtu) heat input. For units constructed, reconstructed, or modified after February 28, 2005, *very low sulfur oil* means an oil that contains no more than 0.3 weight percent sulfur or that, when combusted without sulfur dioxide emission control, has a sulfur dioxide emission rate equal to or less than 140 ng/J (0.32 lb/MMBtu) heat input.

Wet flue gas desulfurization technology means a sulfur dioxide control system that is located downstream of the steam generating unit and removes sulfur oxides from the combustion gases of the steam generating unit by contacting the combustion gas with an alkaline slurry or solution and forming a liquid material. This definition applies to devices where the aqueous liquid material product of this contact is subsequently converted to other forms. Alkaline reagents used in wet flue gas desulfurization technology include, but are not limited to, lime, limestone, and sodium.

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

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

§ 60.44b Standard for nitrogen oxides.

(a) Except as provided under paragraphs (k) and (l) of this section, on and after the date on which the initial performance test is completed or is required to be completed under §60.8 of this part, whichever date comes first, no owner or operator of an affected facility that is subject to the provisions of this section and that combusts only coal, oil, or natural gas shall cause to be discharged into the atmosphere from that affected facility any gases that contain nitrogen oxides (expressed as NO_2) in excess of the following emission limits:

Fuel/Steam generating unit type	Nitrogen oxide emission limits ng/J (lb/million Btu) (expressed as NO2) heat input
(1) Natural gas and distillate oil, except (4):	
(i) Low heat release rate	43 (0.10)
(ii) High heat release rate	86 (0.20)
(2) Residual oil:	
(i) Low heat release rate	130 (0.30)
(ii) High heat release rate	170 (0.40)
(3) Coal:	
(i) Mass-feed stoker	210 (0.50)
(ii) Spreader stoker and fluidized bed combustion	260 (0.60)
(iii) Pulverized coal.	300 (0.70)
(iv) Lignite, except (v)	260 (0.60)
(v) Lignite mined in North Dakota, South Dakota, or Montana and combusted in a slag tap furnace	340 (0.80)
(vi) Coal-derived synthetic fuels.	210 (0.50)
(4) Duct burner used in a combined cycle system:	
(i) Natural gas and distillate oil	86 (0.20)
(ii) Residual oil	170 (0.40)

(b)
(c)
(d)
(e)
(f)
(g)

(h) For purposes of paragraph (i) of this section, the nitrogen oxide standards under this section apply at all times including periods of startup, shutdown, or malfunction.

(i) Except as provided under paragraph (j) of this section, compliance with the emission limits under this section is determined on a 30-day rolling average basis.

(j)
(k)

(l)

§ 60.46b Compliance and performance test methods and procedures for particulate matter and nitrogen oxides.

(a) The particulate matter emission standards and opacity limits under §60.43b apply at all times except during periods of startup, shutdown, or malfunction, and as specified in paragraphs (i) and (j) of this section. The nitrogen oxides emission standards under §60.44b apply at all times.

(b)

(c) Compliance with the nitrogen oxides emission standards under §60.44b shall be determined through performance testing under paragraph (e) or (f), or under paragraphs (g) and (h) of this section, as applicable.

(d)

(e) To determine compliance with the emission limits for nitrogen oxides required under §60.44b, the owner or operator of an affected facility shall conduct the performance test as required under §60.8 using the continuous system for monitoring nitrogen oxides under §60.48(b).

(1) For the initial compliance test, nitrogen oxides from the steam generating unit are monitored for 30 successive steam generating unit operating days and the 30-day average emission rate is used to determine compliance with the nitrogen oxides emission standards under §60.44b. The 30-day average emission rate is calculated as the average of all hourly emissions data recorded by the monitoring system during the 30-day test period.

(2)
(3)
(4)
(5)

(f)
(g)
(h)
(i)
(j)

§ 60.48b Emission monitoring for particulate matter and nitrogen oxides.

(a)

(b) Except as provided under paragraphs (g), (h), and (i) of this section, the owner or operator of an affected facility subject to a nitrogen oxides standard under §60.44b shall comply with either paragraphs (b)(1) or (b)(2) of this section.

(1) Install, calibrate, maintain, and operate a continuous monitoring system, and record the output of the system, for measuring nitrogen oxides emissions discharged to the atmosphere; or

(2)

(c) The continuous monitoring systems required under paragraph (b) of this section shall be operated and data recorded during all periods of operation of the affected facility except for continuous monitoring system breakdowns and repairs. Data is recorded during calibration checks, and zero and span adjustments.

(d) The 1-hour average nitrogen oxides emission rates measured by the continuous nitrogen oxides monitor required by paragraph (b) of this section and required under §60.13(h) shall be

expressed in ng/J or lb/MMBtu heat input and shall be used to calculate the average emission rates under §60.44b. The 1-hour averages shall be calculated using the data points required under §60.13(h)(2).

(e) The procedures under §60.13 shall be followed for installation, evaluation, and operation of the continuous monitoring systems.

(1)

(2) For affected facilities combusting coal, oil, or natural gas, the span value for nitrogen oxides is determined as follows:

Fuel	Span values for oxides (PPM)
Natural gas	500
Oil	500
Coal	1,000
Mixtures	500(x+y) + 1,000z

where:
x is the fraction of total heat input derived from natural gas,
y is the fraction of total heat input derived from oil, and
z is the fraction of total heat input derived from coal.

(3)

(f) When nitrogen oxides emission data are not obtained because of continuous monitoring system breakdowns, repairs, calibration checks and zero and span adjustments, emission data will be obtained by using standby monitoring systems, Method 7, Method 7A, or other approved reference methods to provide emission data for a minimum of 75 percent of the operating hours in each steam generating unit operating day, in at least 22 out of 30 successive steam generating unit operating days.

(g) The owner or operator of an affected facility that has a heat input capacity of 73 MW (250 million Btu/hour) or less, and which has an annual capacity factor for residual oil having a nitrogen content of 0.30 weight percent or less, natural gas, distillate oil, or any mixture of these fuels, greater than 10 percent (0.10) shall:

(1) Comply with the provisions of paragraphs (b), (c), (d), (e)(2), (e)(3), and (f) of this section, or

(2) Monitor steam generating unit operating conditions and predict nitrogen oxides emission rates as specified in a plan submitted pursuant to §60.49b(c).

(h)
(i)
(j)
(k)

§ 60.49b Reporting and recordkeeping requirements.

(a) The owner or operator of each affected facility shall submit notification of the date of initial startup, as provided by §60.7. This notification shall include:

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

(2)

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

(4)

(b) The owner or operator of each affected facility subject to the sulfur dioxide, particulate matter, and/or nitrogen oxides emission limits under §§60.42b, 60.43b, and 60.44b shall submit to the Administrator the performance test data from the initial performance test and the performance evaluation of the CEMS using the applicable performance specifications in appendix B. The owner or operator of each affected facility described in §60.44b(j) or §60.44b(k) shall submit to the Administrator the maximum heat input capacity data from the demonstration of the maximum heat input capacity of the affected facility.

(c) The owner or operator of each affected facility subject to the nitrogen oxides standard of §60.44b who seeks to demonstrate compliance with those standards through the monitoring of steam generating unit operating conditions under the provisions of §60.48b(g)(2) shall submit to the Administrator for approval a plan that identifies the operating conditions to be monitored under §60.48b(g)(2) and the records to be maintained under §60.49b(j). This plan shall be submitted to the Administrator for approval within 360 days of the initial startup of the affected facility. The plan shall:

(1) Identify the specific operating conditions to be monitored and the relationship between these operating conditions and nitrogen oxides emission rates (i.e., ng/J or lbs/million Btu heat input). Steam generating unit operating conditions include, but are not limited to, the degree of staged combustion (i.e., the ratio of primary air to secondary and/or tertiary air) and the level of excess air (i.e., flue gas oxygen level);

(2) Include the data and information that the owner or operator used to identify the relationship between nitrogen oxides emission rates and these operating conditions;

(3) Identify how these operating conditions, including steam generating unit load, will be monitored under §60.48b(g) on an hourly basis by the owner or operator during the period of operation of the affected facility; the quality assurance procedures or practices that will be employed to ensure that the data generated by monitoring these operating conditions will be representative and accurate; and the type and format of the records of these operating conditions, including steam generating unit load, that will be maintained by the owner or operator under §60.49b(j).

If the plan is approved, the owner or operator shall maintain records of predicted nitrogen oxide emission rates and the monitored operating conditions, including steam generating unit load, identified in the plan.

(d) The owner or operator of an affected facility shall record and maintain records of the amounts of each fuel combusted during each day and calculate the annual capacity factor individually for coal, distillate oil, residual oil, natural gas, wood, and municipal-type solid waste for the reporting period. The annual capacity factor is determined on a 12-month rolling average basis with a new annual capacity factor calculated at the end of each calendar month.

(e)
(f)

(g) Except as provided under paragraph (p) of this section, the owner or operator of an affected facility subject to the nitrogen oxides standards under §60.44b shall maintain records of the following information for each steam generating unit operating day:

(1) Calendar date.

(2) The average hourly nitrogen oxides emission rates (expressed as NO_2) (ng/J or lb/million Btu heat input) measured or predicted.

(3) The 30-day average nitrogen oxides emission rates (ng/J or lb/million Btu heat input) calculated at the end of each steam generating unit operating day from the measured or predicted hourly nitrogen oxide emission rates for the preceding 30 steam generating unit operating days.

(4) Identification of the steam generating unit operating days when the calculated 30-day average nitrogen oxides emission rates are in excess of the nitrogen oxides emissions standards under §60.44b, with the reasons for such excess emissions as well as a description of corrective actions taken.

(5) Identification of the steam generating unit operating days for which pollutant data have not been obtained, including reasons for not obtaining sufficient data and a description of corrective actions taken.

(6) Identification of the times when emission data have been excluded from the calculation of average emission rates and the reasons for excluding data.

(7) Identification of "F" factor used for calculations, method of determination, and type of fuel combusted.

(8) Identification of the times when the pollutant concentration exceeded full span of the continuous monitoring system.

(9) Description of any modifications to the continuous monitoring system that could affect the ability of the continuous monitoring system to comply with Performance Specification 2 or 3.

(10) Results of daily CEMS drift tests and quarterly accuracy assessments as required under appendix F, Procedure 1.

(h)

(i) The owner or operator of any affected facility subject to the continuous monitoring requirements for nitrogen oxides under §60.48(b) shall submit reports containing the information recorded under paragraph (g) of this section.

(j)
(k)
(l)
(m)
(n)
(o)
(p)
(q)
(r)
(s)
(t)
(u)

(v) The owner or operator of an affected facility may submit electronic quarterly reports for SO_2 and/or NO_x and/or opacity in lieu of submitting the written reports required under paragraphs (h), (i), (j), (k) or (l) of this section. The format of each quarterly electronic report shall be coordinated with the permitting authority. The electronic report(s) shall be submitted no later than 30 days after the end of the calendar quarter and shall be accompanied by a certification statement from the owner or operator, indicating whether compliance with the applicable emission standards and

minimum data requirements of this subpart was achieved during the reporting period. Before submitting reports in the electronic format, the owner or operator shall coordinate with the permitting authority to obtain their agreement to submit reports in this alternative format.

(w) The reporting period for the reports required under this subpart is each 6 month period. All reports shall be submitted to the Administrator and shall be postmarked by the 30th day following the end of the reporting period.

(x)

SECTION E.2 FACILITY OPERATION CONDITIONS - 40 CFR 60, Subpart Kb - Standards of Performance for Volatile Organic Liquid Storage Vessels for which Construction, Reconstruction, or Modification Commenced after July 23, 1984

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

Insignificant Activities

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

(1) Two (2) shift tanks, identified as TK001 and TK002, approved for construction in 2007, each with a maximum capacity of 120,000 gallons of 200-proof ethanol. Under NSPS, Subpart Kb, these units are considered affected facilities.

(2) One (1) off-spec ethanol tank, identified as TK003, approved for construction in 2007 with a maximum capacity of 240,000 gallons. Under NSPS, Subpart Kb, this unit is considered an affected facility.

(3) One (1) denaturant tank, identified as TK004, approved for construction in 2007, with a maximum capacity of 120,000 gallons of denaturant (gasoline). Under NSPS, Subpart Kb, this unit is considered an affected facility.

(4) Two (2) denatured ethanol tanks, identified as TK005 and TK006, approved for construction in 2007, each with a maximum capacity of 1,000,000 gallons of denatured ethanol (190 proof). Under NSPS, Subpart Kb, these units are considered affected facilities.

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

E.2.1 General Provisions Relating to New Source Performance Standards [326 IAC 12-1] [40 CFR 60, Subpart A]

(a) The provisions of 40 CFR 60, Subpart A – General Provisions, which are incorporated by reference in 326 IAC 12-1, apply to the facilities described in this SECTION E.2, except when otherwise specified in 40 CFR 60, Subpart Kb.

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

Indiana Department of Environmental Management
Compliance Branch, Office of Air Quality
100 North Senate Ave.
MC61-53
Indianapolis, Indiana 46204-2251

E.2.2 Standards of Performance for Volatile Organic Liquid Storage Vessels for which Construction, Reconstruction, or Modification Commenced after July 23, 1984 [40 CFR 60, Subpart Kb] [326 IAC 12]

Pursuant to 40 CFR 60, Subpart Kb, the Permittee shall comply with the provisions of Standards of Performance for Volatile Organic Liquid Storage Vessels for which Construction, Reconstruction, or Modification Commenced after July 23, 1984, which are incorporated by reference as 326 IAC 12, as specified as follows:

§ 60.110b Applicability and designation of affected facility.

(a) Except as provided in paragraph (b) of this section, the affected facility to which this subpart applies is each storage vessel with a capacity greater than or equal to 75 cubic meters (m^3) that is used to store volatile organic liquids (VOL) for which construction, reconstruction, or modification is commenced after July 23, 1984.

(b) This subpart does not apply to storage vessels with a capacity greater than or equal to 151 m 3 storing a liquid with a maximum true vapor pressure less than 3.5 kilopascals (kPa) or with a capacity greater than or equal to 75 m 3 but less than 151 m 3 storing a liquid with a maximum true vapor pressure less than 15.0 kPa.

(c) [Reserved]

(d) This subpart does not apply to the following:

(1)

(2) Pressure vessels designed to operate in excess of 204.9 kPa and without emissions to the atmosphere.

(3) Vessels permanently attached to mobile vehicles such as trucks, railcars, barges, or ships.

(4)

(5)

(6)

(7) Vessels used to store beverage alcohol.

(8) Vessels subject to subpart GGGG of 40 CFR part 63.

(e) *Alternative means of compliance—*

(1) *Option to comply with part 65.* Owners or operators may choose to comply with 40 CFR part 65, subpart C, to satisfy the requirements of §§60.112b through 60.117b for storage vessels that are subject to this subpart that meet the specifications in paragraphs (e)(1)(i) and (ii) of this section. When choosing to comply with 40 CFR part 65, subpart C, the monitoring requirements of §60.116b(c), (e), (f)(1), and (g) still apply. Other provisions applying to owners or operators who choose to comply with 40 CFR part 65 are provided in 40 CFR 65.1.

(i) A storage *vessel* with a design capacity greater than or equal to 151 m^3 containing a VOL that, as stored, has a maximum true vapor pressure equal to or greater than 5.2 kPa; or

(ii)

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

(3) *Internal floating roof report.* If an owner or operator installs an internal floating roof and, at initial startup, chooses to comply with 40 CFR part 65, subpart C, a report shall be furnished to the Administrator stating that the control equipment meets the specifications of 40 CFR 65.43. This report shall be an attachment to the notification required by 40 CFR 65.5(b).

(4)

§ 60.111b Definitions.

Terms used in this subpart are defined in the Act, in subpart A of this part, or in this subpart as follows:

Bulk gasoline plant means any gasoline distribution facility that has a gasoline throughput less than or equal to 75,700 liters per day. Gasoline throughput shall be the maximum calculated design throughput as may be limited by compliance with an enforceable condition under Federal requirement or Federal, State or local law, and discoverable by the Administrator and any other person.

Condensate means hydrocarbon liquid separated from natural gas that condenses due to changes in the temperature or pressure, or both, and remains liquid at standard conditions.

Custody transfer means the transfer of produced petroleum and/or condensate, after processing and/or treatment in the producing operations, from storage vessels or automatic transfer facilities to pipelines or any other forms of transportation.

Fill means the introduction of VOL into a storage vessel but not necessarily to complete capacity.

Gasoline service station means any site where gasoline is dispensed to motor vehicle fuel tanks from stationary storage tanks.

Maximum true vapor pressure means the equilibrium partial pressure exerted by the volatile organic compounds (as defined in 40 CFR 51.100) in the stored VOL at the temperature equal to the highest calendar-month average of the VOL storage temperature for VOL's stored above or below the ambient temperature or at the local maximum monthly average temperature as reported by the National Weather Service for VOL's stored at the ambient temperature, as determined:

(1) In accordance with methods described in American Petroleum institute Bulletin 2517, Evaporation Loss From External Floating Roof Tanks, (incorporated by reference—see §60.17); or

(2) As obtained from standard reference texts; or

(3) As determined by ASTM D2879–83, 96, or 97 (incorporated by reference—see §60.17);

(4) Any other method approved by the Administrator.

Petroleum means the crude oil removed from the earth and the oils derived from tar sands, shale, and coal.

Petroleum liquids means petroleum, condensate, and any finished or intermediate products manufactured in a petroleum refinery.

Process tank means a tank that is used within a process (including a solvent or raw material recovery process) to collect material discharged from a feedstock storage vessel or equipment within the process before the material is transferred to other equipment within the process, to a product or by-product storage vessel, or to a vessel used to store recovered solvent or raw material. In many process tanks, unit operations such as reactions and blending are conducted. Other process tanks, such as surge control vessels and bottoms receivers, however, may not involve unit operations.

Reid vapor pressure means the absolute vapor pressure of volatile crude oil and volatile nonviscous petroleum liquids except liquified petroleum gases, as determined by ASTM D323--82 or 94 (incorporated by reference—see §60.17).

Storage vessel means each tank, reservoir, or container used for the storage of volatile organic liquids but does not include:

(1) Frames, housing, auxiliary supports, or other components that are not directly involved in the containment of liquids or vapors;

(2) Subsurface caverns or porous rock reservoirs; or

(3) Process tanks.

Volatile organic liquid (VOL) means any organic liquid which can emit volatile organic compounds (as defined in 40 CFR 51.100) into the atmosphere.

Waste means any liquid resulting from industrial, commercial, mining or agricultural operations, or from community activities that is discarded or is being accumulated, stored, or physically, chemically, or biologically treated prior to being discarded or recycled.

§ 60.112b Standard for volatile organic compounds (VOC).

(a) The owner or operator of each storage vessel either with a design capacity greater than or equal to 151 m^3 containing a VOL that, as stored, has a maximum true vapor pressure equal to or greater than 5.2 kPa but less than 76.6 kPa or with a design capacity greater than or equal to 75 m^3 but less than 151 m^3 containing a VOL that, as stored, has a maximum true vapor pressure equal to or greater than 27.6 kPa but less than 76.6 kPa, shall equip each storage vessel with one of the following:

(1) A fixed roof in combination with an internal floating roof meeting the following specifications:

(i) The internal floating roof shall rest or float on the liquid surface (but not necessarily in complete contact with it) inside a storage vessel that has a fixed roof. The internal floating roof shall be floating on the liquid surface at *all* times, except during initial fill and during those intervals when the storage vessel is completely emptied or subsequently emptied and refilled. When the roof is resting on the leg supports, the process of filling, emptying, or refilling shall be continuous and shall be accomplished as rapidly as possible.

(ii) Each internal floating roof shall be equipped with one of the following closure devices between the wall of the storage vessel and the edge of the internal floating roof:

(A) A foam- or liquid-filled seal mounted in contact with the liquid (liquid-mounted seal). A liquid-mounted seal means a foam- or liquid-filled seal mounted in contact with the liquid between the wall of the storage vessel and the floating roof continuously around the circumference of the tank.

(B) Two seals mounted one above the other so that each forms a continuous closure that completely covers the space between the wall of the storage vessel and the edge of the internal floating roof. The lower seal may be vapor-mounted, but both must be continuous.

(C) A mechanical shoe seal. A mechanical shoe seal is a metal sheet held vertically against the wall of the storage vessel by springs or weighted levers and is connected by braces to the floating roof. A flexible coated fabric (envelope) spans the annular space between the metal sheet and the floating roof.

(iii) Each *opening* in a noncontact internal floating roof except for automatic bleeder vents (vacuum breaker vents) and the rim space vents is to provide a projection below the liquid surface.

(iv) Each opening in the internal floating roof except for leg sleeves, automatic bleeder vents, rim space vents, column wells, ladder wells, sample wells, and stub drains is to be equipped with a cover or lid which is to be maintained in a *closed* position at all times (i.e., no visible gap) except when the device is in actual use. The cover or lid shall be equipped with a gasket. Covers on each access hatch and automatic gauge float well shall be bolted except when they are in use.

(v) Automatic bleeder *vents* shall be equipped with a gasket and are to be closed at all times when the roof is floating except when the roof is being floated off or is being landed on the roof leg supports.

(vi) Rim space *vents* shall be equipped with a gasket and are to be set to open only when the internal floating roof is not floating or at the manufacturer's recommended setting.

(vii) Each penetration *of* the internal floating roof for the purpose of sampling shall be a sample well. The sample well shall have a slit fabric cover that covers at least 90 percent of the opening.

(viii) Each penetration of the internal floating roof that allows for passage of a column supporting the fixed roof shall have a *flexible* fabric sleeve seal or a gasketed sliding cover.

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

(2)
(3)
(4)

(b)
(c)

§ 60.113b Testing and procedures.

The owner or operator of each storage vessel as specified in §60.112b(a) shall meet the requirements of paragraph (a), (b), or (c) of this section. The applicable paragraph for a particular storage vessel depends on the control equipment installed to meet the requirements of §60.112b.

(a) After installing the control equipment required to meet §60.112b(a)(1) (permanently affixed roof and internal floating roof), each owner or operator shall:

(1) Visually inspect the internal floating roof, the primary seal, and the secondary seal (if one is in service), prior to filling the storage vessel with VOL. If there are holes, tears, or other openings in the primary seal, the secondary seal, or the seal fabric or defects in the internal floating roof, or both, the owner or operator shall repair the items before filling the storage vessel.

(2) For Vessels equipped with a liquid-mounted or mechanical shoe primary seal, visually inspect the internal floating roof and the primary seal or the secondary seal (if one is in service) through manholes and roof hatches on the fixed roof at least once every 12 months after initial fill. If the internal floating roof is not resting on the surface of the VOL inside the storage vessel, or there is liquid accumulated on the roof, or the seal is detached, or there are holes or tears in the seal fabric, the owner or operator shall repair the items or empty and remove the storage vessel from service within 45 days. If a failure that is detected during inspections required in this paragraph cannot be repaired within 45 days and if the vessel cannot be emptied within 45 days, a 30-day extension may be requested from the Administrator in the inspection report required in §60.115b(a)(3). Such a request for an extension must document that alternate storage capacity is unavailable and specify a schedule of actions the company will take that will assure that the control equipment will be repaired or the vessel will be emptied as soon as possible.

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

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

(ii) Visually inspect the vessel as *specified* in paragraph (a)(2) of this section.

(4) Visually inspect the internal floating roof, the primary seal, the secondary seal (if one is in service), gaskets, slotted membranes and sleeve seals (if any) each time the storage vessel is emptied and degassed. If the internal floating roof has defects, the primary seal has holes, tears, or other openings in the seal or the seal fabric, or the secondary seal has holes, tears, or other openings in the seal or the seal fabric, or the gaskets no longer close off the liquid surfaces from the atmosphere, or the slotted membrane has more than 10 percent open area, the owner or operator shall repair the items as necessary so that none of the conditions specified in this paragraph exist before refilling the storage vessel with VOL. In no event shall inspections conducted in accordance with this provision occur at intervals greater than 10 years in the case of vessels conducting the annual visual inspection as specified in paragraphs (a)(2) and (a)(3)(ii) of this section and at intervals no greater than 5 years in the case of vessels specified in paragraph (a)(3)(i) of this section.

(5) Notify the Administrator in writing at least 30 days prior to the filling or refilling of each storage vessel for which an inspection is required by paragraphs (a)(1) and (a)(4) of this section to afford the Administrator the opportunity to have an observer present. If the inspection required by paragraph (a)(4) of this section is not planned and the owner or operator could not have known about the inspection 30 days in advance or refilling the tank, the owner or operator shall notify the Administrator at least 7 days prior to the refilling of the storage vessel. Notification shall be made by telephone immediately followed by written documentation demonstrating why the inspection was unplanned. Alternatively, this notification including the written documentation may be made in writing and sent by express mail so that it is received by the Administrator at least 7 days prior to the refilling.

(b)
(c)
(d)

§ 60.115b Reporting and recordkeeping requirements.

The owner or operator of each storage vessel as specified in §60.112b(a) shall keep records and furnish reports as required by paragraphs (a), (b), or (c) of this section depending upon the control equipment installed to meet the requirements of §60.112b. The owner or operator shall keep copies of all reports and records required by this section, except for the record required by (c)(1), for at least 2 years. The record required by (c)(1) will be kept for the life of the control equipment.

(a) After installing control equipment in accordance with §60.112b(a)(1) (fixed roof and internal floating roof), the owner or operator shall meet the following requirements.

(1) Furnish the Administrator with a report that describes the control equipment and certifies that the control equipment meets the specifications of §60.112b(a)(1) and §60.113b(a)(1). This report shall be an attachment to the notification required by §60.7(a)(3).

(2) Keep a record of each inspection performed as required by §60.113b (a)(1), (a)(2), (a)(3), and (a)(4). Each record shall identify the storage vessel on which the inspection was performed and shall contain the date the vessel was inspected and the observed condition of each component of the control equipment (seals, internal floating roof, and fittings).

(3) If any of the conditions described in §60.113b(a)(2) are detected during the annual visual inspection required by §60.113b(a)(2), a report shall be furnished to the Administrator within 30 days of the inspection. Each report shall identify the storage vessel, the nature of the defects, and the date the storage vessel was emptied or the nature of and date the repair was made.

(4) After each inspection required by §60.113b(a)(3) that finds holes or tears in the seal or seal fabric, or defects in the internal floating roof, or other control equipment defects listed in §60.113b(a)(3)(ii), a report shall be furnished to the Administrator within 30 days of the inspection. The report shall identify the storage vessel and the reason it did not meet the specifications of §61.112b(a)(1) or §60.113b(a)(3) and list each repair made.

(b)
(c)
(d)

§ 60.116b Monitoring of operations.

(a) The owner or operator shall keep copies of all records required by this section, except for the record required by paragraph (b) of this section, for at least 2 years. The record required by paragraph (b) of this section will be kept for the life of the source.

(b) The owner or operator of each storage vessel as specified in §60.110b(a) shall keep readily accessible records showing the dimension of the storage vessel and an analysis showing the capacity of the storage vessel.

(c) Except as provided in paragraphs (f) and (g) of this section, the owner or operator of each storage vessel either with a design capacity greater than or equal to 151 m^3 storing a liquid with a maximum true vapor pressure greater than or equal to 3.5 kPa or with a design capacity greater than or equal to 75 m^3 but less than 151 m^3 storing a liquid with a maximum true vapor pressure greater than or equal to 15.0 kPa shall maintain a record of the VOL stored, the period of storage, and the maximum true vapor pressure of that VOL during the respective storage period.

(d)

(e) Available data on the storage temperature may be used to determine the maximum true vapor pressure as determined below.

(1) For vessels operated above or below ambient temperatures, the maximum true vapor pressure is calculated based upon the highest expected calendar-month average of the storage temperature. For vessels operated at ambient temperatures, the maximum true vapor pressure is calculated based upon the maximum local monthly average ambient temperature as reported by the National Weather Service.

(2) For crude oil or refined petroleum products the vapor pressure may be obtained by the following:

(i) Available data on the Reid vapor pressure and the maximum expected storage temperature based on the highest expected calendar-month average temperature of the stored product may be used to determine the maximum true vapor pressure from nomographs contained in API Bulletin 2517 (incorporated by reference—see §60.17), unless the Administrator specifically requests that the liquid be sampled, the actual storage temperature determined, and the Reid vapor pressure determined from the sample(s).

(ii) The true vapor pressure of each type of *crude* oil with a Reid vapor pressure less than 13.8 kPa or with physical properties that preclude determination by the recommended method is to be determined from available data and recorded if the estimated maximum true vapor pressure is greater than 3.5 kPa.

(3) For other liquids, the vapor pressure:

(i) May be obtained from standard reference texts, or

(ii) Determined by ASTM D2879–83, 96, or 97 (incorporated by reference—see §60.17); or

(iii) Measured by an appropriate method approved by the Administrator; or

(iv) Calculated by an appropriate method approved by the Administrator.

(f)
(g)

§ 60.117b Delegation of authority.

(a) In delegating implementation and enforcement authority to a State under section 111(c) of the Act, the authorities contained in paragraph (b) of this section shall be retained by the Administrator and not transferred to a State.

(b) Authorities which will not be delegated to States: §§60.111b(f)(4), 60.114b, 60.116b(e)(3)(iii), 60.116b(e)(3)(iv), and 60.116b(f)(2)(iii).

SECTION E.3 FACILITY OPERATION CONDITIONS - 40 CFR 60, Subpart VV - Standards of Performance for Equipment Leaks of VOC in the Synthetic Organic Chemicals Manufacturing Industry

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

(e) One (1) liquefaction process, approved for construction in 2007, with a maximum throughput rate of 363 tons of mash per hour, with emissions uncontrolled and exhausting to atmosphere. This process consist of the following:

(1) Mix tank and hot water tank, identified as EU011.

(2) Cook tubes, flash tanks, and mash cooling, identified as EU012.

(3) Two (2) conversion tanks, identified as EU013 and EU014.

(4) One (1) yeast tank, identified as EU015.

Under NSPS, Subpart VV, the pumps, compressors, pressure relief devices in gas/vapor service, sampling connection systems, open-ended valves or lines, and valves of this process are considered to be affected facilities.

(f) One (1) fermentation process, approved for construction in 2007, with a maximum beer production rate of 360 tons hour, using wet scrubber CE005 for VOC control and sodium bisulfite injection for HAP control, exhausting through stack PS005. This process consist of the following:

(1) One (1) pre-fermenter tank, identified as EU016.

(2) Six (6) fermentation tanks, identified as EU017 through EU22.

(3) One (1) beer well, identified as EU023.

Under NSPS, Subpart VV, the pumps, compressors, pressure relief devices in gas/vapor service, sampling connection systems, open-ended valves or lines, and valves of this process are considered to be affected facilities.

(g) One (1) distillation and dehydration process, approved for construction in 2007, with a maximum ethanol production rate of 11,000 gallons per hour, using wet scrubber CE006 for VOC control and sodium bisulfite injection for HAP control, exhausting through stack PS006. This process consist of the following:

(1) One (1) beer stripper, identified as EU024.

(2) One (1) stripping column, identified as EU025.

(3) One (1) rectifying column, identified as EU026.

(4) Molecular sieve units, identified as EU027.

(5) One (1) thin stillage tank, identified as EU030.

(continued on next page)

(continued from prior page)

(6) One (1) light evaporator, identified as EU031.

(7) One (1) intermediate stillage tank, identified as EU032.

Under NSPS, Subpart VV, the pumps, compressors, pressure relief devices in gas/vapor service, sampling connection systems, open-ended valves or lines, and valves of this process are considered to be affected facilities.

(h) Two (2) natural gas fired regenerative thermal oxidizers, identified as CE008 and CE009, each with a maximum heat input capacity of 12 MMBtu/hr, exhausting to stack PS010.

(i) Equipment utilized in the process of dehydrating distillers grain, approved for construction in 2007, with emissions controlled by RTOs CE008 and CE009, exhausting to stack PS010. This process consist of the following:

(1) One (1) whole stillage tank, identified as EU028.

(2) Centrifuge, decanters, and centrate reciever, identified as EU029.

(3) Final evaporation concentrators, identified as EU033.

(4) One (1) syrup tank, identified as EU034.

Under NSPS, Subpart VV, the pumps, compressors, pressure relief devices in gas/vapor service, sampling connection systems, open-ended valves or lines, and valves of this process are considered to be affected facilities.

(m) One (1) denatured ethanol loadout system, approved for construction in 2007, with emissions controlled by a enclosed flare, identified as CE007, with a maximum heat input capacity of 6.8 MMBtu/hr, and exhausting through stack PS009. This process consist of the following:

(1) One (1) railcar loading rack, utilizing submerged loading only, identified as EU035, with a maximum throughput rate of 60,000 gallons per hour.

(2) One (1) truck loading rack, utilizing submerged loading only, identified as EU036, with a maximum throughput rate of 48,000 gallons per hour

Under NSPS, Subpart VV, the pumps, compressors, pressure relief devices in gas/vapor service, sampling connection systems, open-ended valves or lines, and valves of this process are considered to be affected facilities.

(continued on next page)

(continued from prior page)

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

(1) Two (2) shift tanks, identified as TK001 and TK002, approved for construction in 2007, each with a maximum capacity of 120,000 gallons of 200-proof ethanol. Under NSPS, Subpart Kb, these units are considered affected facilities.

(2) One (1) off-spec ethanol tank, identified as TK003, approved for construction in 2007 with a maximum capacity of 240,000 gallons. Under NSPS, Subpart Kb, this unit is considered an affected facility.

(3) One (1) denaturant tank, identified as TK004, approved for construction in 2007, with a maximum capacity of 120,000 gallons of denaturant (gasoline). Under NSPS, Subpart Kb, this unit is considered an affected facility.

(4) Two (2) denatured ethanol tanks, identified as TK005 and TK006, approved for construction in 2007, each with a maximum capacity of 1,000,000 gallons of denatured ethanol (190 proof). Under NSPS, Subpart Kb, these units are considered affected facilities.

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

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

(a) The provisions of 40 CFR 60, Subpart A – General Provisions, which are incorporated by reference in 326 IAC 12-1, apply to the facilities described in this SECTION E.3, except when otherwise specified in 40 CFR 60, Subpart VV.

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

Indiana Department of Environmental Management
Compliance Branch, Office of Air Quality
100 North Senate Ave.
MC61-53
Indianapolis, Indiana 46204-2251

E.3.2 Standards of Performance for Equipment Leaks of VOC in the Synthetic Organic Chemicals Manufacturing Industry [40 CFR 60, Subpart VV] [326 IAC 12]

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

§ 60.480 Applicability and designation of affected facility.

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

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

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

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

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

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

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

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

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

(e) Alternative *means of compliance*—

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

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

§ 60.481 Definitions.

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

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

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

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

$A = Y \times (B \div 100)$;

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

(3) The applicable basic annual asset guideline repair allowance, B, is selected from the

Table for Determining Applicable for B

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

§ 60.482-1 Standards: General.

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

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

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

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

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

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

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

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

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

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

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

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

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

(1) Each dual mechanical seal system is—

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

§ 60.482-3 Standards: Compressors.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

§ 60.482-5 Standards: Sampling connection systems.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

(1) Tightening of bonnet bolts;

(2) Replacement of bonnet bolts;

(3) Tightening of packing gland nuts;

(4) Injection of lubricant into lubricated packing.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

§ 60.482-9 Standards: Delay of repair.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

§ 60.485 Test methods and procedures.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Where:
V_{max} = Maximum permitted velocity, m/sec (ft/sec)
H_T = Net heating value of the gas being combusted, MJ/scm (Btu/scf).
K_1 = 8.706 m/sec (metric units)
= 28.56 ft/sec (English units)
K_2 = 0.7084 m^4/(MJ-sec) (metric units)
= 0.087 ft^4/(Btu-sec) (English units)

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

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

Where:
K = Conversion constant, 1.740 × 10^7 (g-mole)(MJ)/ (ppm-scm-kcal) (metric units)
= 4.674 × 10^8 [(g-mole)(Btu)/(ppm-scf-kcal)] (English units)
C_i = Concentration of sample component "i," ppm
H_i = net heat of combustion of sample component "i" at 25 °C and 760 mm Hg (77 °F and 14.7 psi), kcal/g-mole

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

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

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

§ 60.486 Recordkeeping requirements.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

(1) A schedule of monitoring.

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

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

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

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

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

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

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

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

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

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

§ 60.487 Reporting requirements.

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

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

(1) Process unit identification.

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

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

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

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

(1) Process unit identification.

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

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

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

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

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

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

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

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

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

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

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

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

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

§ 60.489 List of chemicals produced by affected facilities.

The following chemicals are produced, as intermediates or final products, by process units covered under this subpart. The applicability date for process units producing one or more of these chemicals is January 5, 1981.

CAS No. a	Chemical
105-57-7	Acetal.
75-07-0	Acetaldehyde.
107-89-1	Acetaldol.
60-35-5	Acetamide.
103-84-4	Acetanilide.
64-19-7	Acetic acid.
108-24-7	Acetic anhydride.
67-64-1	Acetone.
75-86-5	Acetone cyanohydrin.
75-05-8	Acetonitrile.
98-86-2.	Acetophenone.
75-36-5.	Acetyl chloride.
74-86-2	Acetylene.
107-02-8	Acrolein.
79-06-1	Acrylamide.
79-10-7	Acrylic acid.
107-13-1	Acrylonitrile.
124-04-9	Adipic acid.
111-69-3	Adiponitrile.
(b)	Alkyl naphthalenes.
107-18-6.	Allyl alcohol.
107-05-1	Allyl chloride.
1321-11-5	Aminobenzoic acid.
111-41-1	Aminoethylethanolamine.
123-30-8	p-Aminophenol.
628-63-7, 123-92-2	Amyl acetates.
71-41-0 c	Amyl alcohols.
110-58-7	Amyl amine.
543-59-9	Amyl chloride.
110-66-7 c	Amyl mercaptans.
1322-06-1	Amyl phenol.
62-53-3	Aniline.
142-04-1	Aniline hydrochloride.
29191-52-4	Anisidine.
100-66-3	Anisole.
118-92-3	Anthranilic acid.
84-65-1	Anthraquinone.

CAS No. a	Chemical
100-52-7	Benzaldehyde.
55-21-0	Benzamide.
71-43-2	Benzene.
98-48-6	Benzenedisulfonic acid.
98-11-3.	Benzenesulfonic acid.
134-81-6	Benzil.
76-93-7	Benzilic acid.
65-85-0	Benzoic acid.
119-53-9	Benzoin.
100-47-0	Benzonitrile.
119-61-9	Benzophenone.
98-07-7	Benzotrichloride.
98-88-4	Benzoyl chloride.
100-51-6	Benzyl alcohol.
100-46-9	Benzylamine.
120-51-4	Benzyl benzoate.
100-44-7	Benzyl chloride.
98-87-3	Benzyl dichloride.
92-52-4	Biphenyl.
80-05-7	Bisphenol A.
10-86-1	Bromobenzene.
27497-51-4	Bromonaphthalene.
106-99-0	Butadiene.
106-98-9	1-butene.
123-86-4	n-butyl acetate.
141-32-2	n-butyl acrylate.
71-36-3	n-butyl alcohol.
78-92-2	s-butyl alcohol.
75-65-0	t-butyl alcohol.
109-73-9	n-butylamine.
13952-84-6	s-butylamine.
75-64-9	t-butylamine.
98-73-7	p-tert-butyl benzoic acid.
107-88-0	1,3-butylene glycol.
123-72-8	n-butyraldehyde.
107-92-6	Butyric acid.
106-31-0	Butyric anhydride.
109-74-0	Butyronitrile.
105-60-2	Caprolactam.
75-1-50	Carbon disulfide.
558-13-4	Carbon tetrabromide.
56-23-5	Carbon tetrachloride.
9004-35-7	Cellulose acetate.
79-11-8	Chloroacetic acid.
108-42-9	m-chloroaniline.
95-51-2	o-chloroaniline.
106-47-8	p-chloroaniline.
35913-09-8	Chlorobenzaldehyde.
108-90-7	Chlorobenzene.
118-91-2, 535-80-8, 74-11-3 c	Chlorobenzoic acid.
2136-81-4, 2136-89-2, 5216-25-1c	Chlorobenzotrichloride.
1321-03-5	Chlorobenzoyl chloride.
25497-29-4	Chlorodifluoromethane.
75-45-6	Chlorodifluoroethane.
67-66-3	Chloroform.

CAS No. a	Chemical
25586-43-0	Chloronaphthalene.
88-73-3.	o-chloronitrobenzene.
100-00-5	p-chloronitrobenzene.
25167-80-0	Chlorophenols.
126-99-8	Chloroprene.
7790-94-5	Chlorosulfonic acid.
108-41-8	m-chlorotoluene.
95-49-8.	o-chlorotoluene.
106-43-4	p-chlorotoluene.
75-72-9	Chlorotrifluoromethane.
108-39-4	m-cresol.
95-48-7	o-cresol.
106-44-5	p-cresol.
1319-77-3	Mixed cresols.
1319-77-3	Cresylic acid.
4170-30-0	Crotonaldehyde.
3724-65-0	Crotonic acid.
98-82-8	Cumene.
80-15-9	Cumene hydroperoxide.
372-09-8	Cyanoacetic acid.
506-77-4	Cyanogen chloride.
108-80-5	Cyanuric acid.
108-77-0	Cyanuric chloride.
110-82-7	Cyclohexane.
108-93-0	Cyclohexanol.
108-94-1	Cyclohexanone.
110-83-8	Cyclohexene.
108-91-8	Cyclohexylamine.
111-78-4	Cyclooctadiene.
112-30-1	Decanol.
123-42-2	Diacetone alcohol.
27576-04-1	Diaminobenzoic acid.
95-76-1, 95-82-9, 554-00-7, 608-27-5, 608-31-1, 626-43-7, 27134-27-6, 57311-92-9 c.	Dichloroaniline.
541-73-1	m-dichlorobenzene.
95-50-1	o-dichlorobenzene.
106-46-7	p-dichlorobenzene.
75-71-8	Dichlorodifluoromethane.
111-44-4	Dichloroethyl ether.
107-06-2	1,2-dichloroethane (EDC).
96-23-1	Dichlorohydrin.
26952-23-8	Dichloropropene.
101-83-7	Dicyclohexylamine.
109-89-7	Diethylamine.
111-46-6	Diethylene glycol.
112-36-7	Diethylene glycol diethyl ether.
111-96-6	Diethylene glycol dimethyl ether.
112-34-5	Diethylene glycol monobutyl ether.
124-17-4	Diethylene glycol monobutyl ether acetate.
111-90-0	Diethylene glycol monoethyl ether.
112-15-2	Diethylene glycol monoethyl ether acetate.
111-77-3	Diethylene glycol monomethyl ether.
64-67-5	Diethyl sulfate.
75-37-6	Difluoroethane.

CAS No. a	Chemical
25167-70-8	Diisobutylene.
26761-40-0	Diisodecyl phthalate.
27554-26-3	Diisooctyl phthalate.
674-82-8	Diketene.
124-40-3	Dimethylamine.
121-69-7	N,N-dimethylaniline.
115-10-6	N,N-dimethyl ether.
68-12-2	N,N-dimethylformamide.
57-14-7	Dimethylhydrazine.
77-78-1	Dimethyl sulfate.
75-18-3.	Dimethyl sulfide.
67-68-5.	Dimethyl sulfoxide.
120-61-6	Dimethyl terephthalate.
99-34-3	3,5-dinitrobenzoic acid.
51-28-5	Dinitrophenol.
25321-14-6	Dinitrotoluene.
123-91-1	Dioxane.
646-06-0	Dioxilane.
122-39-4	Diphenylamine.
101-84-8	Diphenyl oxide.
102-08-9	Diphenyl thiourea.
25265-71-8	Dipropylene glycol.
25378-22-7	Dodecene.
28675-17-4	Dodecylaniline.
27193-86-8	Dodecylphenol.
106-89-8	Epichlorohydrin.
64-17-5	Ethanol.
141-43-5 c	Ethanolamines.
141-78-6	Ethyl acetate.
141-97-9	Ethyl acetoacetate.
140-88-5.	Ethyl acrylate.
75-04-7	Ethylamine.
100-41-4	Ethylbenzene.
74-96-4	Ethyl bromide.
9004-57-3	Ethylcellulose.
75-00-3	Ethyl chloride.
105-39-5	Ethyl chloroacetate.
105-56-6	Ethylcyanoacetate.
74-85-1	Ethylene.
96-49-1	Ethylene carbonate.
107-07-3	Ethylene chlorohydrin.
107-15-3	Ethylenediamine.
106-93-4	Ethylene dibromide.
107-21-1	Ethylene glycol.
111-55-7	Ethylene glycol diacetate.
110-71-4	Ethylene glycol dimethyl ether.
111-76-2	Ethylene glycol monobutyl ether.
112-07-2	Ethylene glycol monobutyl ether acetate.
110-80-5	Ethylene glycol monoethyl ether.
111-15-9	Ethylene glycol monethyl ether acetate.
109-86-4	Ethylene glycol monomethyl ether.
110-49-6	Ethylene glycol monomethyl ether acetate.
122-99-6	Ethylene glycol monophenyl ether.
2807-30-9	Ethylene glycol monopropyl ether.
75-21-8	Ethylene oxide.

CAS No. a	Chemical
60-29-7	Ethyl ether
104-76-7	2-ethylhexanol.
122-51-0	Ethyl orthoformate.
95-92-1	Ethyl oxalate.
41892-71-1	Ethyl sodium oxalacetate.
50-00-0	Formaldehyde.
75-12-7	Formamide.
64-18-6	Formic acid.
110-17-8	Fumaric acid.
98-01-1	Furfural.
56-81-5	Glycerol.
26545-73-7	Glycerol dichlorohydrin.
25791-96-2	Glycerol triether.
56-40-6	Glycine.
107-22-2	Glyoxal.
118-74-1	Hexachlorobenzene.
67-72-1	Hexachloroethane.
36653-82-4	Hexadecyl alcohol.
124-09-4	Hexamethylenediamine.
629-11-8	Hexamethylene glycol.
100-97-0	Hexamethylenetetramine.
74-90-8	Hydrogen cyanide.
123-31-9	Hydroquinone.
99-96-7	p-hydroxybenzoic acid.
26760-64-5	Isoamylene.
78-83-1	Isobutanol.
110-19-0	Isobutyl acetate.
115-11-7	Isobutylene.
78-84-2	Isobutyraldehyde.
79-31-2	Isobutyric acid.
25339-17-7	Isodecanol.
26952-21-6	Isooctyl alcohol.
78-78-4	Isopentane.
78-59-1	Isophorone.
121-91-5	Isophthalic acid.
78-79-5	Isoprene.
67-63-0	Isopropanol.
108-21-4	Isopropyl acetate.
75-31-0	Isopropylamine.
75-29-6	Isopropyl chloride.
25168-06-3	Isopropylphenol.
463-51-4	Ketene.
(b)	Linear alkyl sulfonate.
123-01-3	Linear alkylbenzene (linear dodecylbenzene).
110-16-7	Maleic acid.
108-31-6	Maleic anhydride.
6915-15-7	Malic acid.
141-79-7	Mesityl oxide.
121-47-1	Metanilic acid.
79-41-4	Methacrylic acid.
563-47-3	Methallyl chloride.
67-56-1	Methanol.
79-20-9	Methyl acetate.
105-45-3	Methyl acetoacetate.
74-89-5	Methylamine.

CAS No. a	Chemical
100-61-8	n-methylaniline.
74-83-9	Methyl bromide.
37365-71-2	Methyl butynol.
74-87-3	Methyl chloride.
108-87-2	Methylcyclohexane.
1331-22-2	Methylcyclohexanone.
75-09-2	Methylene chloride.
101-77-9	Methylene dianiline.
101-68-8	Methylene diphenyl diisocyanate.
78-93-3	Methyl ethyl ketone.
107-31-3	Methyl formate.
108-11-2	Methyl isobutyl carbinol.
108-10-1	Methyl isobutyl ketone.
80-62-6	Methyl methacrylate.
77-75-8	Methylpentynol.
98-83-9	a-methylstyrene.
110-91-8	Morpholine.
85-47-2	a-naphthalene sulfonic acid.
120-18-3	b-naphthalene sulfonic acid.
90-15-3	a-naphthol.
135-19-3	b-naphthol.
75-98-9	Neopentanoic acid.
88-74-4	o-nitroaniline.
100-01-6	p-nitroaniline.
91-23-6	o-nitroanisole.
100-17-4	p-nitroanisole.
98-95-3	Nitrobenzene.
27178-83-2c	Nitrobenzoic acid (o,m, and p).
79-24-3	Nitroethane.
75-52-5	Nitromethane.
88-75-5	2-Nitrophenol.
25322-01-4	Nitropropane.
1321-12-6	Nitrotoluene.
27215-95-8	Nonene.
25154-52-3	Nonylphenol.
27193-28-8	Octylphenol.
123-63-7	Paraldehyde.
115-77-5	Pentaerythritol.
109-66-0	n-pentane.
109-67-1	1-pentene
127-18-4	Perchloroethylene.
594-42-3.	Perchloromethyl mercaptan.
94-70-2	o-phenetidine.
156-43-4	p-phenetidine.
108-95-2	Phenol.
98-67-9, 585-38-6, 609-46-1, 1333-39- 7 c.	Phenolsulfonic acids.
91-40-7	Phenyl anthranilic acid.
(b)	Phenylenediamine.
75-44-5	Phosgene.
85-44-9	Phthalic anhydride.
85-41-6	Phthalimide.
108-99-6	b-picoline.
110-85-0	Piperazine.
9003-29-6, 25036-29-7c.	Polybutenes:
25322-68-3	Polyethylene glycol.

CAS No. a	Chemical
25322-69-4	Polypropylene glycol.
123-38-6	Propionaldehyde.
79-09-4	Propionic acid.
71-23-8	n-propyl alcohol.
107-10-8	Propylamine.
540-54-5	Propyl chloride.
115-07-1	Propylene.
127-00-4	Propylene chlorohydrin.
78-87-5	Propylene dichloride.
57-55-6	Propylene glycol.
75-56-9	Propylene oxide.
110-86-1	Pyridine.
106-51-4	Quinone.
108-46-3	Resorcinol.
27138-57-4	Resorcylic acid.
69-72-7	Salicylic acid.
127-09-3	Sodium acetate.
532-32-1	Sodium benzoate.
9004-32-4	Sodium carboxymethyl cellulose.
3926-62-3	Sodium chloroacetate.
141-53-7	Sodium formate.
139-02-6	Sodium phenate.
110-44-1	Sorbic acid.
100-42-5	Styrene.
110-15-6	Succinic acid.
110-61-2	Succinonitrile.
121-57-3	Sulfanilic acid.
126-33-0	Sulfolane.
1401-55-4	Tannic acid.
100-21-0	Terephthalic acid.
79-34-5 c	Tetrachloroethanes.
117-08-8	Tetrachlorophthalic anhydride.
78-00-2	Tetraethyl lead.
119-64-2	Tetrahydronaphthalene.
85-43-8	Tetrahydrophthalic anhydride.
75-74-1	Tetramethyl lead.
110-60-1	Tetramethylenediamine.
110-18-9	Tetramethylethylenediamine.
108-88-3	Toluene.
95-80-7	Toluene-2,4-diamine.
584-84-9	Toluene-2,4-diisocyanate.
26471-62-5	Toluene diisocyanates (mixture).
1333-07-9	Toluenesulfonamide.
104-15-4 c	Toluenesulfonic acids.
98-59-9	Toluenesulfonyl chloride.
26915-12-8	Toluidines.
87-61-6, 108-70-3, 120-82-1 c	Trichlorobenzenes.
71-55-6	1,1,1-trichloroethane.
79-00-5	1,1,2-trichloroethane.
79-01-6	Trichloroethylene.
75-69-4	Trichlorofluoromethane.
96-18-4	1,2,3-trichloropropane.
76-13-1	1,1,2-trichloro-1,2,2- trifluoroethane.
121-44-8	Triethylamine.
112-27-6	Triethylene glycol.

CAS No. a	Chemical
112-49-2	Triethylene glycol dimethyl ether.
7756-94-7	Triisobutylene.
75-50-3	Trimethylamine.
57-13-6.	Urea.
108-05-4	Vinyl acetate.
75-01-4	Vinyl chloride.
75-35-4	Vinylidene chloride.
25013-15-4	Vinyl toluene.
1330-20-7	Xylenes (mixed).
95-47-6	o-xylene.
106-42-3	p-xylene.
1300-71-6	Xylenol.
1300-73-8	Xylidine.

a CAS numbers refer to the Chemical Abstracts Registry numbers assigned to specific chemicals, isomers, or mixtures of chemicals. Some isomers or mixtures that are covered by the standards do not have CAS numbers assigned to them. The standards apply to all of the chemicals listed, whether CAS numbers have been assigned or not.

b No CAS number(s) have been assigned to this chemical, its isomers, or mixtures containing these chemicals.

c CAS numbers for some of the isomers are listed; the standards apply to all of the isomers and mixtures, even if CAS numbers have not been assigned.

SECTION E.4 FACILITY OPERATION CONDITIONS - 40 CFR 60, Subpart IIII - Standards of Performance for Stationary Compression Ignition Internal Combustion Engines

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

Insignificant Activities

(d) Stationary fire pumps, including one (1) diesel fire pump, identified as EU048, approved for construction in 2007, with a maximum power output rate of 275 horsepower, and exhausting to stack PS014. Under NSPS, Subpart IIII, this unit is considered an affected fire pump engine.

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

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

(a) The provisions of 40 CFR 60, Subpart A – General Provisions, which are incorporated by reference in 326 IAC 12-1, apply to the facilities described in this SECTION E.4, except when otherwise specified in 40 CFR 60, Subpart IIII.

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

Indiana Department of Environmental Management
Compliance Branch, Office of Air Quality
100 North Senate Ave.
MC61-53
Indianapolis, Indiana 46204-2251

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

Pursuant to 40 CFR 60, Subpart IIII, the Permittee shall comply with the provisions of Standards of Performance for Stationary Compression Ignition Internal Combustion Engines as specified as follows:

What This Subpart Covers

§ 60.4200 Am I subject to this subpart?

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

(1)

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

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

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

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

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

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

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

Emission Standards for Owners and Operators

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

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

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

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

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

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

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

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

(b) Owners and operators of 2007 model year and later emergency stationary CI ICE with a displacement of less than 30 liters per cylinder that are not fire pump engines must comply with

the emission standards for new nonroad CI engines in §60.4202, for all pollutants, for the same model year and maximum engine power for their 2007 model year and later emergency stationary CI ICE.

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

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

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

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

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

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

Fuel Requirements for Owners and Operators

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

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

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

(c) Owners and operators of pre-2011 model year stationary CI ICE subject to this subpart may petition the Administrator for approval to use remaining non-compliant fuel that does not meet the fuel requirements of paragraphs (a) and (b) of this section beyond the dates required for the purpose of using up existing fuel inventories. If approved, the petition will be valid for a period of up to 6 months. If additional time is needed, the owner or operator is required to submit a new petition to the Administrator.

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

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

Other Requirements for Owners and Operators

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

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

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

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

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

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

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

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

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

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

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

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

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

Compliance Requirements

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

(a) If you are an owner or operator and must comply with the emission standards specified in this subpart, you must operate and maintain the stationary CI internal combustion engine and control device according to the manufacturer's written instructions or procedures developed by the owner or operator that are approved by the engine manufacturer. In addition, owners and operators may only change those settings that are permitted by the manufacturer. You must also meet the requirements of 40 CFR parts 89, 94 and/or 1068, as they apply to you.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Testing Requirements for Owners and Operators

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Where:
Ci = concentration of NOX or PM at the control device inlet,
Co = concentration of NOX or PM at the control device outlet, and
R = percent reduction of NO_X or PM emissions.

(2) You must normalize the NO_X or PM concentrations at the inlet and outlet of the control device to a dry basis and to 15 percent oxygen (O_2) using Equation 3 of this section, or

an equivalent percent carbon dioxide (CO_2) using the procedures described in paragraph (d)(3) of this section.

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

Where:
Cadj = Calculated NOX or PM concentration adjusted to 15 percent O2.
Cd = Measured concentration of NOX or PM, uncorrected.
5.9 = 20.9 percent O2−15 percent O2, the defined O2 correction value, percent.
%O2 = Measured O2 concentration, dry basis, percent.

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

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

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

Where:
Fo = Fuel factor based on the ratio of O2 volume to the ultimate CO2 volume produced by the fuel at zero percent excess air.
0.209 = Fraction of air that is O2, percent/100.
Fd = Ratio of the volume of dry effluent gas to the gross calorific value of the fuel from Method 19, dsm 3 /J (dscf/10 6 Btu).
Fc = Ratio of the volume of CO2 produced to the gross calorific value of the fuel from Method 19, dsm 3 /J (dscf/10 6 Btu).

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

$$X_{CO_2} = \frac{5.9}{F_o} \quad \text{(Eq. 5)}$$

Where:
XCO2 = CO2 correction factor, percent.
5.9 = 20.9 percent O2−15 percent O2, the defined O2 correction value, percent.

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

$$C_{adj} = C_d \frac{X_{CO_2}}{\%CO_2} \quad \text{(Eq. 6)}$$

Where:
Cadj = Calculated NOX or PM concentration adjusted to 15 percent O2.
Cd = Measured concentration of NO_X or PM, uncorrected.
%CO2 = Measured CO2 concentration, dry basis, percent.

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

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

Where:
ER = Emission rate in grams per KW-hour.
C_d = Measured NO_X concentration in ppm.
1.912×10^{-3} = Conversion constant for ppm NO_X to grams per standard cubic meter at 25 degrees Celsius.
Q = Stack gas volumetric flow rate, in standard cubic meter per hour.
T = Time of test run, in hours.
KW-hour = Brake work of the engine, in KW-hour.

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

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

Where:
ER = Emission rate in grams per KW-hour.
Cadj = Calculated PM concentration in grams per standard cubic meter.
Q = Stack gas volumetric flow rate, in standard cubic meter per hour.
T = Time of test run, in hours.
KW-hour = Energy output of the engine, in KW.

Notification, Reports, and Records for Owners and Operators

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

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

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

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

(ii) The address of the affected source;

(iii) Engine information including make, model, engine family, serial number, model year, maximum engine power, and engine displacement;

(iv) Emission control equipment; and

(v) Fuel used.

(2) Keep records of the information in paragraphs (a)(2)(i) through (iv) of this section.

(i) All notifications submitted to comply with this subpart and all documentation supporting any notification.

(ii) Maintenance conducted on the engine.

(iii) If the stationary CI internal combustion is a certified engine, documentation from the manufacturer that the engine is certified to meet the emission standards.

(iv) If the stationary CI internal combustion is not a certified engine, documentation that the engine meets the emission standards.

(b) If the stationary CI internal combustion engine is an emergency stationary internal combustion engine, the owner or operator is not required to submit an initial notification. Starting with the model years in table 5 to this subpart, if the emergency engine does not meet the standards applicable to non-emergency engines in the applicable model year, the owner or operator must keep records of the operation of the engine in emergency and non-emergency service that are recorded through the non-resettable hour meter. The owner must record the time of operation of the engine and the reason the engine was in operation during that time.

(c) If the stationary CI internal combustion engine is equipped with a diesel particulate filter, the owner or operator must keep records of any corrective action taken after the backpressure monitor has notified the owner or operator that the high backpressure limit of the engine is approached.

Special Requirements

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

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

(b) [Reserved]

General Provisions

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

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

Definitions

§ 60.4219 What definitions apply to this subpart?

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

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

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

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

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

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

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

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

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

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

Model year means either:

(1) The calendar year in which the engine was originally produced, or

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

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

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

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

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

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

vehicle used solely for competition. Stationary ICE include reciprocating ICE, rotary ICE, and other ICE, except combustion turbines.

Subpart means 40 CFR part 60, subpart IIII.

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

Tables to Subpart IIII of Part 60

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

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

Maximum engine power	Emission standards for stationary pre-2007 model year engines with a displacement of <10 liters per cylinder and 2007-2010 model year engines >2,237 KW (3,000 HP) and with a displacement of <10 liters per cylinder in g/KW-hr (g/HP-hr)				
	NMHC + NOX	HC[*]	NOX	CO	PM
KW<8 (HP<11)	10.5 (7.8)	.....	.....	8.0 (6.0)	1.0 (0.75)
8[le]KW<19 (11[le]HP<25)	9.5 (7.1)	.....	.....	6.6 (4.9)	0.80 (0.60)
19[le]KW<37 (25[le]HP<50)	9.5 (7.1)	.....	.....	5.5 (4.1)	0.80 (0.60)
37[le]KW<56 (50[le]HP<75)	.....	.....	9.2 (6.9)	.....	.....
56[le]KW<75 (75[le]HP<100)	.....	.....	9.2 (6.9)	.....	.....
75[le]KW<130 (100[le]HP<175)	.....	.....	9.2 (6.9)	.....	.....
130[le]KW<225 (175[le]HP<300)	.....	1.3 (1.0)	9.2 (6.9)	11.4 (8.5)	0.54 (0.40)
225[le]KW<450 (300[le]HP<600)	.....	1.3 (1.0)	9.2 (6.9)	11.4 (8.5)	0.54 (0.40)
450[le]KW[le]560 (600[le]HP[le]750)	.....	1.3 (1.0)	9.2 (6.9)	11.4 (8.5)	0.54 (0.40)
KW>560 (HP>750)	.....	1.3 (1.0)	9.2 (6.9)	11.4 (8.5)	0.54 (0.40)

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

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

Engine power	Emission standards for 2008 model year and later emergency stationary CI ICE <37 KW (50 HP) with a displacement of <10 liters per cylinder in g/KW-hr (g/HP-hr)			
	Model year(s)	NOX + NMHC	CO	PM
KW<8 (HP<11)	2008+	7.5 (5.6)	8.0 (6.0)	0.40 (0.30)
8[le]KW<19 (11[le]HP<25)	2008+	7.5 (5.6)	6.6 (4.9)	0.40 (0.30)
19[le]KW<37 (25[le]HP<50)	2008+	7.5 (5.6)	5.5 (4.1)	0.30 (0.22)

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

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

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

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

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

Maximum engine power	Model year(s)	NMHC + NOX	CO	PM
KW<8 (HP<11)	2010 and earlier	10.5 (7.8)	8.0 (6.0)	1.0 (0.75)
	2011+	7.5 (5.6)		0.40 (0.30)
8[le]KW<19 (11[le]HP<25)	2010 and earlier	9.5 (7.1)	6.6 (4.9)	0.80 (0.60)
	2011+	7.5 (5.6)		0.40 (0.30)
19[le]KW<37 (25[le]HP<50)	2010 and earlier	9.5 (7.1)	5.5 (4.1)	0.80 (0.60)
	2011+	7.5 (5.6)		0.30 (0.22)
37[le]KW<56 (50[le]HP<75)	2010 and earlier	10.5 (7.8)	5.0 (3.7)	0.80 (0.60)
	2011+ \1\	4.7 (3.5)		0.40 (0.30)
56[le]KW<75 (75[le]HP<100)	2010 and earlier	10.5 (7.8)	5.0 (3.7)	0.80 (0.60)
	2011+ \1\	4.7 (3.5)		0.40 (0.30)
75[le]KW<130 (100[le]HP<175)	2009 and earlier	10.5 (7.8)	5.0 (3.7)	0.80 (0.60)
	2010+ \2\	4.0 (3.0)		0.30 (0.22)
130[le]KW<225 (175[le]HP<300)	2008 and earlier	10.5 (7.8)	3.5 (2.6)	0.54 (0.40)
	2009+ \3\	4.0 (3.0)		0.20 (0.15)
225[le]KW<450	2008 and earlier	10.5 (7.8)	3.5 (2.6)	0.54 (0.40)

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

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

Maximum engine power	Model year(s)	NMHC + NOX	CO	PM
(300[le]HP<600)	2009+ \3\	4.0 (3.0)		0.20 (0.15
450[le]KW[le]560 (600[le]HP[le]750).	2008 and earlier	10.5 (7.8)	3.5 (2.6)	0.54 (0.40)
	2009+	4.0 (3.0)		0.20 (0.15)
KW>560 (HP>750)	2007 and earlier	10.5 (7.8)	3.5 (2.6)	0.54 (0.40)
	2008+	6.4 (4.8)		0.20 (0.15)

\1\ For model years 2011-2013, manufacturers, owners and operators of fire pump stationary CI ICE in this engine power category with a rated speed of greater than 2,650 revolutions per minute (rpm) may comply with the emission limitations for 2010 model year engines.
\2\ For model years 2010-2012, manufacturers, owners and operators of fire pump stationary CI ICE in this engine power category with a rated speed of greater than 2,650 rpm may comply with the emission limitations for 2009 model year engines.
\3\ In model years 2009-2011, manufacturers of fire pump stationary CI ICE in this engine power category with a rated speed of greater than 2,650 rpm may comply with the emission limitations for 2008 model year engines.

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

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

Engine power	Starting model year
19[le]KW<56 (25[le]HP<75)	2013
56[le]KW<130 (75[le]HP<175)	2012
KW>=130 (HP>=175)	2011

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

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

General Provisions citation	Subject of citation	Applies to subpart	Explanation
§ 60.1	General applicability of the General Provisions.	Yes.	
§ 60.2	Definitions	Yes	Additional terms defined in § 60.4219.
§ 60.3	Units and abbreviations	Yes.	
§ 60.4	Address.	Yes.	
§ 60.5	Determination of construction or modification.	Yes.	
§ 60.6	Review of plans	Yes.	
§ 60.7	Notification and Recordkeeping.	Yes	Except that § 60.7 only applies as specified in § 60.4214(a).

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

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

§ 60.8	Performance tests.....	Yes	Except that § 60.8 only applies to stationary CI ICE with a displacement of (>=30 liters per cylinder and engines that are not certified.
§ 60.9	Availability of information.	Yes.	
§ 60.10	State Authority	Yes.	
§ 60.11	Compliance with standards and maintenance requirements.	No.....	Requirements are specified in subpart IIII.
§ 60.12	Circumvention.....	Yes.	
§ 60.13	Monitoring requirements	Yes	Except that § 60.13 only applies to stationary CI ICE with a displacement of (>=30 liters per cylinder.
§ 60.14	Modification	Yes.	
§ 60.15	Reconstruction.....	Yes.	
§ 60.16	Priority list	Yes.	
§ 60.17	Incorporations by reference.	Yes.	
§ 60.18	General control device requirements. ...	No.	
§ 60.19	General notification and reporting requirements.	Yes.	

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF AIR QUALITY

FEDERALLY ENFORCEABLE STATE OPERATING PERMIT (FESOP) CERTIFICATION

Source Name: Maize AgriProducts, Inc.
Source Address: 6301 South U.S. Highway 41, Boswell, IN 47921
Mailing Address: P.O Box 90077, Indianapolis, IN 46290
FESOP No.: 007-24059-00019

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
MC61-53
Indianapolis, Indiana 46204-2251
Phone: 317-233-0178
Fax: 317-233-6865

FEDERALLY ENFORCEABLE STATE OPERATING PERMIT (FESOP)
EMERGENCY OCCURRENCE REPORT

Source Name:	Maize AgriProducts, Inc.
Source Address:	6301 South U.S. Highway 41, Boswell, IN 47921
Mailing Address:	P.O Box 90077, Indianapolis, IN 46290
FESOP No.:	007-24059-00019

This form consists of 2 pages **Page 1 of 2**

☐ This is an emergency as defined in 326 IAC 2-7-1(12)
- The Permittee must notify the Office of Air Quality (OAQ), within four (4) business hours (1-800-451-6027 or 317-233-0178, ask for Compliance Section); and
- The Permittee must submit notice in writing or by facsimile within two (2) working days (Facsimile Number: 317-233-6865), and follow the other requirements of 326 IAC 2-7-16

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

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

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

Page 2 of 2

Date/Time Emergency started:
Date/Time Emergency was corrected:
Was the facility being properly operated at the time of the emergency? Y N Describe:
Type of Pollutants Emitted: TSP, PM-10, SO_2, VOC, NO_X, CO, Pb, other:
Estimated amount of pollutant(s) emitted during emergency:
Describe the steps taken to mitigate the problem:
Describe the corrective actions/response steps taken:
Describe the measures taken to minimize emissions:
If applicable, describe the reasons why continued operation of the facilities are necessary to prevent imminent injury to persons, severe damage to equipment, substantial loss of capital investment, or loss of product or raw materials of substantial economic value:

Form Completed by: _____
Title / Position: _____
Date: _____
Phone: _____

A certification is not required for this report.

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

FESOP Quarterly Report

Source Name: Maize AgriProducts, Inc.
Source Address: 6301 South U.S. Highway 41, Boswell, IN 47921
Mailing Address: P.O Box 90077, Indianapolis, IN 46290
FESOP No.: 007-24059-00019
Facility: Corn Receiving and Handling
Parameter: Corn Received
Limit: Shall not exceed 1,010,164 tons per twelve (12) consecutive month period with compliance determined at the end of each month.

QUARTER:_____ YEAR:_____

Month	Column 1 This Month	Column 2 Previous 11 Months	Column 1 + Column 2 12 Month Total
	Corn Received (tons)	Corn Received (tons)	Corn Received (tons)
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: Maize AgriProducts, Inc.
Source Address: 6301 South U.S. Highway 41, Boswell, IN 47921
Mailing Address: P.O Box 90077, Indianapolis, IN 46290
FESOP No.: 007-24059-00019
Facility: DDGS Handling and Loadout Operations
Parameter: DDGS produced
Limit: Shall not exceed 338,206 tons per twelve (12) consecutive month period with compliance determined at the end of each month.

QUARTER:_____ YEAR:_____

Month	Column 1 This Month	Column 2 Previous 11 Months	Column 1 + Column 2 12 Month Total
	DDGS Produced (tons)	DDGS Produced (tons)	DDGS Produced (tons)
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: Maize AgriProducts, Inc.
Source Address: 6301 South U.S. Highway 41, Boswell, IN 47921
Mailing Address: P.O Box 90077, Indianapolis, IN 46290
FESOP No.: 007-24059-00019
Facility: Denatured Ethanol Loading Rack System (EU035 and EU036)
Parameter: Denatured Ethanol Throughput Rate
Limit: Shall not exceed 101,420,000 gallons combined per twelve (12) consecutive month period with compliance determined at the end of each month.

QUARTER:_____ YEAR:_____

Month	Column 1 This Month	Column 2 Previous 11 Months	Column 1 + Column 2 12 Month Total
	Denatured Ethanol (gallons)	Denatured Ethanol (gallons)	Denatured Ethanol (gallons)
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: Maize AgriProducts, Inc.
Source Address: 6301 South U.S. Highway 41, Boswell, IN 47921
Mailing Address: P.O Box 90077, Indianapolis, IN 46290
FESOP No.: 007-24059-00019
Facility: Boilers EU046 and EU047
Parameter: Natural Gas Usage
Limit: Shall not exceed 2514.1 MMCF natural gas usage combined per twelve (12) consecutive month period with compliance determined at the end of each month.

QUARTER:_____ YEAR:_____

Month	Column 1 This Month	Column 2 Previous 11 Months	Column 1 + Column 2 12 Month Total
	Natural gas Usage (MMCF)	Natural gas Usage (MMCF)	Natural gas Usage (MMCF)
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:	Maize AgriProducts, Inc.
Source Address:	6301 South U.S. Highway 41, Boswell, IN 47921
Mailing Address:	P.O Box 90077, Indianapolis, IN 46290
FESOP No.:	007-24059-00019
Facility:	Diesel Fire Pump (EU048)
Parameter:	Diesel Fuel Usage
Limit:	Shall not exceed 7,025 gallons per twelve (12) consecutive month period with compliance determined at the end of each month.

QUARTER:_____ YEAR:_____

Month	Column 1 This Month	Column 2 Previous 11 Months	Column 1 + Column 2 12 Month Total
	Diesel Fuel Usage (gallons)	Diesel Fuel Usage (gallons)	Diesel Fuel Usage (gallons)
Month 1			
Month 2			
Month 3			

☐ No deviation occurred in this quarter.

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

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

Attach a signed certification to complete this report.

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

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

Source Name: Maize AgriProducts, Inc.
Source Address: 6301 South U.S. Highway 41, Boswell, IN 47921
Mailing Address: P.O Box 90077, Indianapolis, IN 46290
FESOP No.: 007-24059-00019

Months: _____ **to** _____ **Year:** _____

This report shall be submitted quarterly based on a calendar year. Any deviation from the requirements, the date(s) of each deviation, the probable cause of the deviation, and the response steps taken must be reported. A deviation required to be reported pursuant to an applicable requirement that exists independent of the permit, shall be reported according to the schedule stated in the applicable requirement and does not need to be included in this report. Additional pages may be attached if necessary. If no deviations occurred, please specify in the box marked "No deviations occurred this reporting period".

☐ NO DEVIATIONS OCCURRED THIS REPORTING PERIOD.

☐ THE FOLLOWING DEVIATIONS OCCURRED THIS REPORTING PERIOD

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

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

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

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

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

Form Completed By: ______________________________

Title/Position: ______________________________

Date: ______________________________

Phone: ______________________________

Attach a signed certification to complete this report.

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

Maize AgriProducts, Inc.
6301 South U.S. Highway 41
Boswell, IN 47921

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 knowledge of the representations contained in this affidavit and am authorized to make these representations on behalf of _____.
(Company Name) (Company Name)

4. I hereby certify that Maize AgriProducts, Inc., 6301 South U.S. Highway 41, Boswell, IN 47921, 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. 007-24059-00019, Plant ID No. 007-00019** 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

Addendum to the
Technical Support Document for a New Source Construction and
Federally Enforceable State Operating Permit

Source Name:	Maize AgriProducts, Inc.
Source Location:	6301 South U.S. Highway 41, Boswell, IN 47921
County:	Benton
SIC Code:	2869
NAICS Code:	325193
Operating Permit No.:	F 007-24059-00019
Permit Reviewer:	Jenny Acker

On February 7, 2007, the Office of Air Quality (OAQ) had a notice published in The Benton Review, Fowler, Indiana, stating that Maize AgriProducts, Inc applied for a Federally Enforceable State Operating Permit (FESOP) to operate a fuel grade 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.

Upon further review, the OAQ has decided to make the following revisions to the permit (bolded language has been added, the language with a line through it has been deleted).

1. IDEM, OAQ has determined that it is not necessary to list the Authorized Individual name or title in Section A.1, General Information, of the permit. However, OAQ will still be evaluating if a change in an Authorized Individual meets the criteria specified in 326 IAC 2-2.1-1(1). The revised permit condition is as follows:

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

The Permittee owns and operates a stationary ethanol production plant.

~~Authorized individual:~~	~~Chairman and CEO~~
Source Address:	6301 South U.S. Highway 41, Boswell, IN 47921
Mailing Address:	P.O. Box 90077, Indianapolis, IN 46290
General Source Phone:	N/A
SIC Code:	2869
NAICS Code:	325193
County:	Benton
Source Location Status:	Attainment for all criteria pollutants
Source Status:	Federally Enforceable State Operating Permit (FESOP) Minor Source, under PSD; Minor Source, Section 112 of the Clean Air Act 1 of 28 Source Categories

2. All references to IDEM, OAQ's mailing address have been revised as follows:

Indiana Department of Environmental Management
Permits Branch, Office of Air Quality
100 North Senate Avenue
MC61-53
Indianapolis, Indiana 46204-2251

Indiana Department of Environmental Management
Modeling Section, Office of Air Quality
100 North Senate Avenue
MC61-50
Indianapolis, Indiana 46204-2251

Indiana Department of Environmental Management
Asbestos Section, Office of Air Quality
100 North Senate Avenue
MC61-52
Indianapolis, Indiana 46204-2251

Indiana Department of Environmental Management
Compliance Branch, Office of Air Quality
100 North Senate Avenue
MC61-53
Indianapolis, Indiana 46204-2251

Indiana Department of Environmental Management
Compliance Data Section, Office of Air Quality
100 North Senate Avenue
MC61-53
Indianapolis, Indiana 46204-2251

Indiana Department of Environmental Management
Air Compliance Section, Office of Air Quality
100 North Senate Avenue
MC61-53
Indianapolis, Indiana 46204-2251

3. In order to preclude the routing of railcar and truck emissions during denatured ethanol loading back to the denatured ethanol storage tank (vapor balance), and to ensure all emissions associated with the denatured ethanol loading process are routed to the flare, Condition D.4.5(h) has been added as follows:

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

Pursuant to 326 IAC 2-8-4 (FESOP), 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 the denatured ethanol loadout system (EU035 and EU036):

****

(h) The railcars and trucks shall not use vapor balance service during ethanol loading.

****

4. The emission calculations, as shown in Appendix A to the addendum to the TSD, for paved and unpaved roads have been revised to account for a silt loading multiplier of 4 during the winter months. This change in methodology is consistent with AP-42 Table 13.2.1-3 (11/06). The emission summary table of the calculations has also been updated.

No change will be made to the original TSD. The OAQ prefers that the TSD reflect the permit that was on public notice. Changes to the permit or technical support material that occur after the public notice are documented in this Addendum to the Technical Support Document. This accomplishes the desired result of ensuring that these types of concerns are documented and part of the record regarding this permit decision.

ATSD Appendix A: Emission Calculations
Emissions Summary

Company Name: Maize AgriProducts, Inc.
Address: 6301 South U.S. Highway 41, Boswell, IN 47921
FESOP: F 007-24059-00019
Reviewer: Jenny Acker
Date: December 22, 2006

Process	Potential to Emit Before Control					
	PM	PM10	VOC	NOx	SO2	CO
Baghouse - Grain Receiving and Handling (EU001 - EU007)	619.46	619.46	--	--	--	--
Hammermill #1 (EU008)	122.01	122.01	--	--	--	--
Hammermill #2 (EU009)	122.01	122.01	--	--	--	--
Hammermill #3 (EU010)	122.01	122.01	--	--	--	--
DDGS Handling/Loadout (EU040, EU041, EU042)	75.64	75.22	--	--	--	--
Scrubber - Fermentation (EU016 - EU023)	--	--	4818.00			
Scrubber - Distillation Scrubber (EU024 - EU027, EU030 - EU032)	--	--	613.20	--	--	--
RTOs - (EU028, EU029, EU033, EU034, EU037 - EU039)	197.90	197.90	1932.16	33.15	0.50	69.61
Ethanol Loadout Flare (EU035 and EU036)	--	--	1035.58	20.24	--	33.90
Fire Pump (EU048)	1.06	1.06	3.03	20.72	0.62	6.91
Methanator Flare (EU049)	--	--	0.79	1.04	-	5.64
Boilers #1 and #2 (EU046, EU047)	9.55	9.55	6.91	37.71	0.75	37.71
Truck Traffic (EU045)	53.19	10.38	--	--	--	--
Equipment Leaks	--	--	44.50	--	--	--
Cooling Towers (EU050)	9.87	9.87	--	--	--	--
Wet Cake Production	--	--		--	--	--
Storage Tanks (TK001 - TK006)	--	--	2.89	--	--	--
Totals:	**1332.72**	**1289.49**	**8457.06**	**112.85**	**1.87**	**153.77**

Appendix A: Emission Calculations
Emissions Summary (continued)

Process	Control Device	Potential to Emit After Control (ton/yr)					
		PM	PM10	VOC	NOx	SO2	CO
Baghouse - Grain Receiving and Handling (EU001 - EU007)	CE001	6.19	6.19	--	--	--	--
Hammermill #1 (EU008)	CE002	1.22	1.22	--	--	--	--
Hammermill #2 (EU009)	CE003	1.22	1.22	--	--	--	--
Hammermill #3 (EU010)	CE004	1.22	1.22	--	--	--	--
DDGS Handling/Loadout (EU040, EU041, EU042)	CE011	1.31	0.89	--	--	--	--
Scrubber - Fermentation (EU016 - EU023)	CE005	--	--	48.18	--	--	--
Scrubber - Distillation Scrubber (EU024 - EU027, EU030 - EU032)	CE006	--	--	6.13	-	--	--
RTOs - (EU028, EU029, EU033, EU034, EU037 - EU039)	CE008 CE009	40.22	40.22	19.89	33.15	0.50	10.05
Ethanol Loadout Flare (EU035 and EU036)	CE007	--	--	5.00	3.90	--	6.54
Fire Pump (EU048)	--	0.06	0.06	0.17	1.18	0.04	0.39
Methanator Flare (EU049)		--	--	0.79	1.04	-	5.64
Boilers #1 and #2 (EU046, EU047)	--	9.55	9.55	6.91	37.71	0.75	37.71
Truck Traffic (EU045)	--	26.81	5.25	--	--	--	--
Equipment Leaks	--	--	--	9.33	--	--	--
Cooling Towers (EU050)	--	9.87	9.87	--	--	--	--
Wet Cake Production		--	--	--	--	--	--
Storage Tanks (TK001 - TK006)	--	--	--	2.89	--	--	--
Totals:		**97.68**	**75.70**	**99.30**	**76.98**	**1.29**	**60.33**

Notes:
This facility can produce both DDGS and WDGS. The site PTE has conservatively assumed that 100% of the DGS will be dried to produced DDGS.

ATSD Appendix A: Emission Calculations
HAPs Emissions Summary

Company Name: Maize AgriProducts, Inc.
Address: 6301 South U.S. Highway 41, Boswell, IN 47921
FESOP: F 007-24059-00019
Reviewer: Jenny Acker
Date: December 22, 2006

Pollutant	Emission Source								
	RTOs Stack (ton/yr)	Boilers (ton/yr)	Fermentation (ton/yr)	Distillation (ton/yr)	Equipment Leaks (ton/yr)	Tanks (ton/yr)	Ethanol Loadout (ton/yr)	Water Pump (ton/yr)	Total Facility (ton/yr)
2-Methylnaphthalene	1.99E-05	3.05E-05	---	---	---	---	---	---	5.0E-05
3-Methylchloranthrene	1.49E-06	2.29E-06	---	---	---	---	---	---	3.8E-06
7,12-Dimethylbenz(a)anthracene	1.33E-05	2.04E-05	---	---	---	---	---	---	3.4E-05
1,3-Butadiene	--	---	---	---	---	---	---	---	2.7E-03
2,2,4-trimethylpentane	--	---	---	---	---	---	---	---	
Acenaphthene	1.49E-06	2.29E-06	---	---	3.65E-03	1.02E-02	4.00E-02	2.69E-03	3.8E-06
Acenaphthlyene	1.49E-06	2.29E-06	---	---	---	---	---	---	3.8E-06
Acetaldehyde*	2.65E+00	---	3.50E+00	1.75E+00	9.02E-02	---	---	---	8.05
Acrolein	1.93E-02	---	2.19E-01	1.31E-01	---	---	---	5.27E-02	3.8E-01
Anthracene	1.99E-06	3.05E-06	---	---	---	---	---	6.36E-03	5.0E-06
Benz(a)anthracene	1.49E-06	2.29E-06	---	---	---	---	---	---	3.8E-06
Benzene	1.74E-03	2.67E-03	---	---	---	---	---	---	1.3E-01
Benzo(a)pyrene	9.94E-07	1.53E-06	---	---	1.01E-03	1.15E-02	4.50E-02	6.41E-02	2.5E-06
Benzo(b)fluoranthene	1.49E-06	2.29E-06	---	---	---	---	---	---	3.8E-06
Benzo(g,h,i)perylene	9.94E-07	1.53E-06	---	---	---	---	---	---	2.5E-06
Benzo(k)fluoranthene	1.49E-06	2.29E-06	---	---	---	---	---	---	3.8E-06
Carbon Disulfide	--	---	---	---	---	---	---	---	2.5E-06
Chrysene	1.49E-06	2.29E-06	---	---	---	---	---	---	3.8E-06
Cumene	--	---	---	---	---	---	---	---	0.0E+00
Dibenzo(a,h)anthracene	9.94E-07	1.53E-06	---	---	---	---	---	---	3.8E-06
Dichlorobenzene	9.94E-04	1.53E-03	---	---	---	---	---	---	0.0E+00
Ethyl Benzene	--	---	---	---	---	---	---	---	2.5E-06
Fluoranthene	2.49E-06	3.82E-06	---	---	5.50E-03	1.28E-03	5.00E-03	---	2.5E-03
Fluorene	2.32E-06	3.56E-06	---	---	---	---	---	---	1.2E-02
Formaldehyde	1.93E-02	9.55E-02	2.19E-01	1.31E-01	---	---	---	---	6.3E-06
Hexane	1.49E+00	2.29E+00	---	---	---	---	---	---	5.9E-06
Indeno(1,2,3-cd)pyrene	1.49E-06	2.29E-06	---	---	1.37E-03	2.05E-02	7.99E-02	8.11E-02	5.5E-01
Methanol	5.79E-02	---	8.76E-03	4.38E-03	---	---	---	---	3.88
Napthalene	5.06E-04	7.76E-04	---	---	1.20E-02	---	---	---	3.8E-06
Phenanathrene	1.41E-05	2.16E-05	---	---	---	---	---	---	0.08
Propylene	--	---	---	---	---	---	---	---	1.3E-03
Pyrene	4.14E-06	6.36E-06	---	---	---	---	---	---	3.6E-05
Toluene	2.82E-03	4.33E-03	---	---	---	---	---	1.77E-01	1.8E-01
Xylenes	--	---	---	---	2.67E-03	1.66E-02	6.49E-02	---	1.1E-05
Arsenic	1.99E-04	3.05E-04	---	---	1.82E-02	6.40E-03	2.50E-02	2.81E-02	1.2E-01
Beryllium	--	---	---	---	---	---	---	1.96E-02	6.9E-02
Cadmium	9.12E-04	1.40E-03	---	---	---	---	---	---	5.0E-04
Chromium	1.16E-03	1.78E-03	---	---	---	---	---	---	0.00
Cobalt	6.96E-05	1.07E-04	---	---	---	---	---	---	2.3E-03
Manganese	3.15E-04	4.84E-04	---	---	---	---	---	---	2.9E-03
Mercury	2.15E-04	3.31E-04	---	---	---	---	---	---	1.8E-04
Nickel	1.74E-02	2.67E-02	---	---	---	---	---	---	8.0E-04
PAH/POM	--	--	---	---	---	---	---	---	5.5E-04
Totals (ton/yr)	4.26	2.43	3.95	2.02	4.44E-03	6.40E-04	2.50E-03	1.16E-02	4.4E-02
*Largest individual HAP.					0.14	0.07	0.26	0.44	0.02
other HAPs	8.44E-02	4.06E-02	8.76E-03	4.38E-03	4.74E-02	4.67E-02	1.82E-01	3.03E-01	13.52
									6.64E-01

Company Name: Maize AgriProducts, Inc.
Address: 6301 South U.S. Highway 41, Boswell, IN 47921
FESOP: F 007-24059-00019
Reviewer: Jenny Acker
Date: December 22, 2006

Combustion HAP Calculations

Pollutant	Emission Factor* (lb/MMBtu)	RTOs 24 MMBtu/hr Potential to Emit Emissions (lb/hr)	RTOs 24 MMBtu/hr Potential to Emit Emissions (ton/yr)	Dryers 165.2 MMBtu/hr Potential to Emit Emissions (lb/hr)	Dryers 165.2 MMBtu/hr Potential to Emit Emissions (ton/yr)	Boilers 290.6 MMBtu/hr Potential to Emit Emissions (lb/hr)	Boilers 290.6 MMBtu/hr Potential to Emit Emissions (ton/yr)
2-Methylnaphthalene	2.40E-08	5.8E-07	2.5E-06	4.0E-06	1.7E-05	6.97E-06	3.05E-05
3-Methylchloranthrene	1.80E-09	4.3E-08	1.9E-07	3.0E-07	1.3E-06	5.23E-07	2.29E-06
7,12-Dimethylbenz(a)anthracene	1.60E-08	3.8E-07	1.7E-06	2.6E-06	1.2E-05	4.65E-06	2.04E-05
Acenaphthene	1.80E-09	4.3E-08	1.9E-07	3.0E-07	1.3E-06	5.23E-07	2.29E-06
Acenaphthlyene	1.80E-09	4.3E-08	1.9E-07	3.0E-07	1.3E-06	5.23E-07	2.29E-06
Anthracene	2.40E-09	5.8E-08	2.5E-07	4.0E-07	1.7E-06	6.97E-07	3.05E-06
Benz(a)anthracene	1.80E-09	4.3E-08	1.9E-07	3.0E-07	1.3E-06	5.23E-07	2.29E-06
Benzene	2.10E-06	5.0E-05	2.2E-04	3.5E-04	1.5E-03	6.10E-04	2.67E-03
Benzo(a)pyrene	1.20E-09	2.9E-08	1.3E-07	2.0E-07	8.7E-07	3.49E-07	1.53E-06
Benzo(b)fluoranthene	1.80E-09	4.3E-08	1.9E-07	3.0E-07	1.3E-06	5.23E-07	2.29E-06
Benzo(g,h,i)perylene	1.20E-09	2.9E-08	1.3E-07	2.0E-07	8.7E-07	3.49E-07	1.53E-06
Benzo(k)fluoranthene	1.80E-09	4.3E-08	1.9E-07	3.0E-07	1.3E-06	5.23E-07	2.29E-06
Chrysene	1.80E-09	4.3E-08	1.9E-07	3.0E-07	1.3E-06	5.23E-07	2.29E-06
Dibenzo(a,h)anthracene	1.20E-09	2.9E-08	1.3E-07	2.0E-07	8.7E-07	3.49E-07	1.53E-06
Dichlorobenzene	1.20E-06	2.9E-05	1.3E-04	2.0E-04	8.7E-04	3.49E-04	1.53E-03
Fluoranthene	3.00E-09	7.2E-08	3.2E-07	5.0E-07	2.2E-06	8.72E-07	3.82E-06
Fluorene	2.80E-09	6.7E-08	2.9E-07	4.6E-07	2.0E-06	8.14E-07	3.56E-06
Formaldehyde	7.50E-05	1.8E-03	7.9E-03	1.2E-02	5.4E-02	2.18E-02	9.55E-02
Hexane	1.80E-03	4.3E-02	1.9E-01	3.0E-01	1.3E+00	5.23E-01	2.29E+00
Indeno(1,2,3-cd)pyrene	1.80E-09	4.3E-08	1.9E-07	3.0E-07	1.3E-06	5.23E-07	2.29E-06
Napthalene	6.10E-07	1.5E-05	6.4E-05	1.0E-04	4.4E-04	1.77E-04	7.76E-04
Phenanathrene	1.70E-08	4.1E-07	1.8E-06	2.8E-06	1.2E-05	4.94E-06	2.16E-05
Pyrene	5.00E-09	1.2E-07	5.3E-07	8.3E-07	3.6E-06	1.45E-06	6.36E-06
Toluene	3.40E-06	8.2E-05	3.6E-04	5.6E-04	2.5E-03	9.88E-04	4.33E-03
Arsenic	2.40E-07	5.8E-06	2.5E-05	4.0E-05	1.7E-04	6.97E-05	3.05E-04
Cadmium	1.10E-06	2.6E-05	1.2E-04	1.8E-04	8.0E-04	3.20E-04	1.40E-03
Chromium	1.40E-06	3.4E-05	1.5E-04	2.3E-04	1.0E-03	4.07E-04	1.78E-03
Cobalt	8.40E-08	2.0E-06	8.8E-06	1.4E-05	6.1E-05	2.44E-05	1.07E-04
Manganese	3.80E-07	9.1E-06	4.0E-05	6.3E-05	2.7E-04	1.10E-04	4.84E-04
Mercury	2.60E-07	6.2E-06	2.7E-05	4.3E-05	1.9E-04	7.56E-05	3.31E-04
Nickel	2.10E-05	5.0E-04	2.2E-03	3.5E-03	1.5E-02	6.10E-03	2.67E-02
Totals		**0.05**	**0.20**	**0.32**	**1.38**	**0.55**	**2.43**

*Emission Factors are from AP-42, 5th Edition, Section 1.4, "Natural Gas Combustion ," 7/98

ATSD Appendix A: Emission Calculations
PM and PM10 Emissions
From the Corn Receiving, Handling, and Hammermilling Operations
and the DDGS Handling Operations

Company Name: Maize AgriProducts, Inc.
Address: 6301 South U.S. Highway 41, Boswell, IN 47921
FESOP: F 007-24059-00019
Reviewer: Jenny Acker
Date: December 22, 2006

1. Potential to Emit PM/PM10 - Captured Emissions:

Baghouse ID	Process Description	Outlet Grain Loading (gr/dscf)	Maximum Air Flow Rate (scfm)	PTE of PM/PM10 after Control (lbs/hr)	PTE of PM/PM10 after Control (tons/yr)	Control Efficiency (%)	PTE of PM/PM10 before Control (tons/yr)
CE001	Corn Receiving and Handling (EU001 - EU07)	0.005	33,000	1.41	6.19	99%	619
CE002	Hammermill #1 EU008	0.005	6,500	0.28	1.22	99%	122
CE003	Hammermill #2 EU009	0.005	6,500	0.28	1.22	99%	122
CE004	Hammermill #3 EU010	0.005	6,500	0.28	1.22	99%	122
CE011	DDGS Handling (EU040, EU41)	0.005	4,000	0.17	0.75	99%	75
Total				**2.42**	**10.6**		**1,061**

Assume all PM emissions equal PM10 emissions.

Methodology

PTE of PM/PM10 after Control (lbs/hr) = Grain Loading (gr/dscf) x Max. Air Flow Rate (scfm) x 60 mins/hr x 1/7000 lb/gr
PTE of PM/PM10 after Control (tons/yr) = Grain Loading (gr/dscf) x Max. Air Flow Rate (scfm) x 60 mins/hr x 1/7000 lb/gr x 8760 hr/yr x 1 ton/2000 lbs
PTE of PM/PM10 before Control (tons/yr) = PTE of PM/PM10 after Control (tons/yr) / (1-Control Efficiency)

2. Potential to Emit PM/PM10 - Fugitive Emissions:

Unit ID	Unit Description	Annual Throughput Limit (tons/yr)	Uncontrolled PM Emission Factor (lbs/ton)	Uncontrolled PM10 Emission Factor (lbs/ton)	Fugitive PM Emissions (tons/yr)	Fugitive PM10 Emissions (tons/yr)
EU042	Uncaptured Emissions From DDGS Handling (Loadout)	338,206	0.003	0.0008	0.56	0.14

Note: Emission factors are from AP-42, Chapter 9.9.1-1 and AP-42, Chapter 9.9.1-2. Assume all the corn receiving and loadout is by truck, which is the worst case scenario.
The Permittee stated that there are no fugitive emissions from the corn handling operations because the emissions from these units are 100% captured.

Methodology

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

ATSD Appendix A: Emission Calculations
Fermentation Scrubber (CE005)

Company Name: Maize AgriProducts, Inc.
Address: 6301 South U.S. Highway 41, Boswell, IN 47921
FESOP: F 007-24059-00019
Reviewer: Jenny Acker
Date: December 22, 2006

Emission Unit: **Fermentation Process Area Sources - EU016 through EU023**

Source description: Potential VOC and HAP emissions from Pre-Fermenter Tank, Fermentation Tanks 1-6, and Beer Well. Uncontrolled emissions vented to the Fermentation (VOC) Scrubber (CE005).

OPERATION/PRODUCTION RELATED INFORMATION

Parameter	*value*	*units*	*Reference*
Maximum saccharified mash input	363	tons/hr	plant design - specification basis
Maximum beer output	360	tons/hr	plant design - specification basis

EMISSION RELATED INFORMATION AND CALCULATION METHODOLOGY

VOC/HAP emission factors provided by process and control equipment supplier and calculated using process simulation program CHEMCAD VS 5.5.

Pollutant	*value*	*units*	*Reference*
VOC capture efficiency	100	percent	enclosed process design
Scrubber VOC control efficiency (minimum)	99	percent	equipment design specification
VOC - controlled	11.0	lbs/hr	equipment supplier specification
acetaldehyde - controlled	0.80	lb/hr	equipment supplier specification
acrolein -controlled	0.05	lb/hr	equipment supplier specification
formaldehyde - controlled	0.05	lb/hr	equipment supplier specification
methanol - controlled	0.002	lb/hr	equipment supplier specification

Note: Equipment supplier reports 0.90 lb/hr acetaldehyde including trace amounts of acrolein and formaldehyde - 0.05 lb/hr for each was assumed.

POTENTIAL EMISSION CALCULATIONS - based on 8,760 hrs/yr operation

Pollutant	Potential Emissions	
	lbs/hr	tpy
NMHC (VOC)	11.00	48.18
Total HAPs	0.90	3.95
acetaldehyde	0.80	3.50
acrolein	0.05	0.22
formaldehyde	0.05	0.22
methanol	0.00	0.01

ATSD Appendix A: Emission Calculations
Distillation and Dehydration Scrubber (CE006)

Company Name: Maize AgriProducts, Inc.
Address: 6301 South U.S. Highway 41, Boswell, IN 47921
FESOP: F 007-24059-00019
Reviewer: Jenny Acker
Date: December 22, 2006

Emission Units: **Distillation/Dehydration Process Area Sources - EU024 through EU027**

Source description: Potential VOC and HAP emissions from Beer Stripper, Stripping Column, Rectifying Column, and Molecular Sieves. Uncontrolled emissions are vented to the Distillation Scrubber (CE006). Vents from insignificant sources: thin stillage tank (EU030), light evaporator (EU031), and intermediate stillage tank (EU032) are tied into the scrubber system.

OPERATION/PRODUCTION RELATED INFORMATION

Parameter	*value*	*units*	*Reference*
Nominal beer input	360	tons/hr	plant design - specification basis
Nominal anhydrous ethanol output	11,000	gal/hr	plant design - specification basis
Nominal whole stillage output	288	tons/hr	plant design - specification basis

EMISSION RELATED INFORMATION AND CALCULATION METHODOLOGY

VOC/HAP emission factors provided by process and control equipment supplier and calculated using process simulation program CHEMCAD VS 5.5.

Pollutant	*value*	*units*	*Reference*
VOC capture efficiency	100	percent	enclosed process design
Scrubber VOC control efficiency (overall)	99	percent	equipment design specification
VOC - controlled	1.4	lbs/hr	equipment supplier specification
acetaldehyde - controlled	0.40	lb/hr	equipment supplier specification
acrolein -controlled	0.03	lb/hr	equipment supplier specification
formaldehyde - controlled	0.03	lb/hr	equipment supplier specification
methanol - controlled	0.001	lb/hr	equipment supplier specification

Note: Equipment supplier reports 0.46 lb/hr acetaldehyde including trace amounts of acrolein and formaldehyde - 0.03 lb/hr for each was assumed.

POTENTIAL EMISSION CALCULATIONS - based on 8,760 hrs/yr operation

Pollutant	Potential Emissions	
	lbs/hr	tpy
VOC	1.40	6.13
Total HAPs	0.46	2.02
acetaldehyde	0.40	1.75
acrolein	0.03	0.13
formaldehyde	0.03	0.13
methanol	0.00	0.00

ATSD Appendix A: Emission Calculations
RTOs CE008 and CE009

Company Name: Maize AgriProducts, Inc.
Address: 6301 South U.S. Highway 41, Boswell, IN 47921
FESOP: F 007-24059-00019
Reviewer: Jenny Acker
Date: December 22, 2006

Emission Units controlled by RTOs CE008 and CE009: DDGS dryers (EU037 and EU038), and DDGS cooler (EU039), and vents from the following: whole stillage tank (EU028), centrifuge/decanters and centrate receiver (EU029), final evaporation concentrators (EU033), and syrup tank (EU034).

1. Emissions from natural gas combustion:
NG combustion emissions based on AP-42 emission factors

Heat input capacity:

DDGS dryers (EU037 and EU038)	=	165.2 MMBtu/hr	=	0.1652 MMcf/hr
RTOs (CE008 and CE009)	=	24 MMBtu/hr		0.024 MMcf/hr

	PM*	PM10*	SO_2	NOx**	VOC	CO**
Emission Factor in lbs/MMCF	7.6	7.6	0.6	40	5.5	84.0
Emission Factor, lb/MMBtu	0.0076	0.0076	0.0006	0.04	0.0055	0.084
Hourly Emissions Dryers (lbs/hour)	1.26	1.26	0.10	6.61	0.91	13.88
Hourly Emissions RTO (lbs/hour)	0.18	0.18	0.01	0.96	0.13	2.02
Potential to Emit in tons/yr	**6.30**	**6.30**	**0.50**	**33.15**	**4.56**	**69.61**

Hazardous Air Pollutant (HAPs)	Emission Factor lb/MMcf	PTE - Dryers (lb/hr)	PTE - RTOs (lb/hr)
2-Methylnaphthalene	2.45E-05	4.05E-06	5.88E-07
Benzene	2.10E-03	3.47E-04	5.04E-05
Dichlorobenzene	1.20E-03	1.98E-04	2.88E-05
Formaldehyde	7.50E-02	1.24E-02	1.80E-03
Hexane	1.80E+00	2.97E-01	4.32E-02
Naphthalene	6.10E-04	1.01E-04	1.46E-05
Phenanathrene	1.70E-05	2.81E-06	4.08E-07
Pyrene	5.00E-06	8.26E-07	1.20E-07
Acetaldehyde ***	1.47E-02	2.43E-03	3.53E-04
Toluene	3.40E-03	5.62E-04	8.16E-05
Totals:		3.13E-01	4.55E-02

2. Pre-RTO Emissions (Dryer natural gas combustion and process related emissions):
VOC emisson factors provided by process supplier and calculated using process program CHEMCAD VS 5.5. Factors for acetaldehyde and methanol are based on percent of uncontrolled VOC emissions at distillation stage. Equipment supplier reports acetaldehyde include trace amounts of acrolein and formaldehyde - 0.05 percent was assumed for each compound. Includes emissions from natural gas combustion by dryers.

Pollutant	lb/hr	tpy	Reference
PM*	45.00	197.10	plant design - vendor spec
PM10*	45.00	197.10	plant design - vendor spec
SO_2	0.10	0.43	Natural Gas Combustion
NOx**	6.61	28.94	Natural Gas Combustion
CO**	13.88	60.78	Natural Gas Combustion
VOC	441.00	1931.58	plant design - vendor spec
acetaldehyde	60.42	264.63	13.70 % VOC engineering assumption
acrolein	0.44	1.93	0.10 % VOC engineering assumption
formaldehyde	0.44	1.93	0.10 % VOC engineering assumption
methanol	1.32	5.79	0.30 % VOC engineering assumption
Other HAPs	0.30	1.31	Natural Gas Combustion

3. Post-RTO Emissions (pre-RTO emissions and RTO natural gas combustion emissions):

RTO VOC control efficiency based on prelinimary equipment design	99.00%
RTO PM control efficiency based on prelinimary equipment design	80.00%
RTO CO control efficiency based on prelinimary equipment design	98.00%

Pollutant	lb/hr	tpy
PM - Pre-RTO Controlled	9.00	39.42
PM - RTO NG comb.	0.18	0.80
PM - Post RTO	**9.18**	**40.22**
PM10 - Pre-RTO Controlled	9.00	39.42
PM10 - RTO NG comb.	0.18	0.80
PM10 - Post RTO	**9.18**	**40.22**
SO_2 - Pre-RTO Controlled	0.10	0.43
SO_2 - RTO NG comb.	0.01	0.06
SO_2 - POST RTO	**0.11**	**0.50**
NOx - Pre-RTO Controlled	6.61	28.94
NOx - RTO NG comb.	0.96	4.20
NOx - POST RTO	**7.57**	**33.15**
CO - Pre-RTO Controlled	0.28	1.22
CO - RTO NG comb.	2.02	8.83
CO - Post RTO	**2.29**	**10.05**
VOC - Pre-RTO Controlled	4.41	19.32
VOC - RTO NG comb.	0.13	0.58
VOC - Post RTO	**4.54**	**19.89**
Total HAPs - Post RTO	**0.67**	**2.96**
acetaldehyde - Post RTO	0.60	2.65
acrolein - Post RTO	0.00	0.02
formaldehyde - Post RTO	0.00	0.02
methanol - Post RTO	0.01	0.06
Other HAPs - Post RTO	0.05	0.21

Methodology:
Total emissions = Pre-RTO emissions * control efficiency + RTOs natural gas combustion emissions

ATSD Appendix A: Emission Calculations
Emissions from Railcar Loading Rack (EU035) and
from Truck Loading Rack (EU036)
and Flare (CE007) Combustion

Company Name: Maize AgriProducts, Inc.
Address: 6301 South U.S. Highway 41, Boswell, IN 47921
FESOP: F 007-24059-00019
Reviewer: Jenny Acker
Date: December 22, 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 controlled by flare CE007, which has a control efficiency of 98% for VOC and HAPs.

According to AP-42, Chapter 5.2 - Transportation and Marketing of Petroleum Liquids (01/95), the VOC emission factors for the truck and rail loading rack can be estimated from the following equation:

$$L = 12.46 \times (SPM)/T$$

where:

L = loading loss (lbs/kgal)
S = a saturation factor (see AP-42, Table 5.2-1)
P = true vapor pressure of the liquid loaded (psia)
M = molecular weight of vapors
T = temperature of the bulk liquid loaded (degree R)

Previously Stored Liquid	*S	P (psia)	M (lbs/mole lbs)	T (degree R)	L (lbs/kgal)
[1] Gasoline (submerged, dedicated vapor balanced)	1.0	5.7	66	510	9.19
Gasoline (submerged, clean cargo)	0.5	5.7	66	510	4.60
Denatured Ethanol (submerged, dedicated normal)	0.6	0.58	46.6	510	0.40
Denatured Ethanol (submerged, clean cargo)	0.5	0.58	46.6	510	0.33

[1] Therefore, the emission factor for loading denatured ethanol to the trucks which stored gasoline previously
= L (gasoline, normal) - L (gasoline, clean cargo) + L (denatured ethanol, clean cargo) = 4.93 (lbs/kgal)

[1] Therefore, the emission factor for loading denatured ethanol to the dedicated railcars utilizing submerged fill only 0.40 (lbs/kgal)

2. Unlimited Potential to Emit VOC Before Control:

The worst case scenario is assuming that all the trucks are used to ship gasoline before filling with denatured ethanol and all the denatured ethanol is shipped by trucks.

Max. Loading Rate for EU036 = 48.0 Kgal/hr

PTE of VOC before Control (tons/yr) = 48 kgal/hr x 4.93 lbs/kgal x 8760 hr/yr x 1 ton/2000 lbs = **1,036 tons/yr**

[1] The emission factor (lbs/kgal) for loading denatured ethanol to trucks assumed that all the trucks use vapor balance systems.
Therefore, a requirement to use only trucks in non-vapor balance service is not necessary in the permit.
The emission factor (lb/kgal) for loading denatured ethanol to railcars assumed all railcars are in dedicated normal (non-vapor balanced) service.
Therefore, a requirement to use only railcars in dedicated normal (non-vapor balanced) service is required in the permit.

ATSD Appendix A: Emission Calculations (Continued)
Emissions from Railcar Loading Rack (EU035) and
from Truck Loading Rack (EU036)
and Flare (CE007) Combustion

3. Limited Potential to Emit VOC after Throughput Limits and Control:

Annual Production Limit:	101.42 Mgal/yr
Railcar Loading Rack Limited Throughput:	101.42 Mgal/yr
Truck Loading Rack Limited Throughput:	101.42 Mgal/yr
Flare Control Efficiency:	98.0%

Railcar Loading Rack Limited Throughput PTE [101,400 kgal/yr x 0.40 lb/kgal / 2000 lb/ton] =	20.09 ton/yr
Truck Loading Rack Limited Throughput PTE [101.42 kgal/yr x 4.93 lb/kgal / 2000 lb/ton] =	249.78 ton/yr
PTE of Railcar loadout [(101.42 kgal/yr * 0.40 lb/kgal / 2000) * (1-.98)] =	0.40 ton/yr
Controlled PTE of VOC by Truck (lb/kgal) [(101.42 kgal/yr x 4.93 lb/kgal/2000) * (1-98%)] =	5.00 ton/yr
Worst Case PTE - All denatured ethanol is loaded out by truck =	5.00 ton/yr
Worst Case VOC (lb/kgal) emitted from flare [4.93 (lb/kgal) x (1-.98)] =	0.10 lb/kgal

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	Relative %	Trucks Limited PTE of HAP before Control (tons/yr)	Trucks Limited PTE of HAP after Control (tons/yr)
2,2,4-trimethylpentane	0.80	2.00	0.040
Benzene	0.90	2.25	0.045
Ethyl benzene	0.10	0.25	0.005
n-Hexane	1.60	4.00	0.080
PAH	0.05	0.12	0.002
Toluene	1.30	3.25	0.065
Xylene	0.50	1.25	0.025
Total	**4.450**	**11.1**	**0.222**

* 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 (Continued)
Emissions from Railcar Loading Rack (EU035) and
from Truck Loading Rack (EU036)
and Flare (CE007) Combustion

5. Potential to Emit (NOx and CO) from Flare Combustion

Maximum Heat Input Capacity	6.8 MMBtu/hr
Maximum Loadout Rate	60 kgal/hr
Annual Limited Loadout Rate	101,420 kgal/yr

Emission Factor (lbs/kgal)	**NO_x 0.077	**CO 0.129
Unlimited Potential to Emit in tons/yr	**20.2**	**33.9**
Limited Potential to Emit in tons/yr	**3.90**	**6.54**

*PM, PM10, and SO_2 emission factors are negligible due to the smokeless design and minimal H_2S levels.
**Emission factors for NO_x and CO are provided by the source based on the test results for a similar source.

Methodology

PTE of PM/PM10 and SO_2 (tons/yr) = Max. Heat Input (MMBtu/hr) x 1 MMCF/1,000 MMBtu x Emission Factor (lbs/MMCF) x 8760 hr/yr x 1 ton/2000 lbs
Unlimited PTE of NOx and CO (tons/yr) = Max. Load-out Rate (kgal/hr) x Emission Factor (lbs/kgal) x 8760 hr/yr x 1 ton/2000 lbs
Limited PTE of NOx and CO (tons/yr) = Annual Production Limit (kgal/yr) x Emission Factor (lbs/kgal) x 1 ton/2000 lbs
Limited PTE of PM/PM10 and SO_2 (tons/yr) = Unlimited PTE (tons/yr) x Annual Production Limit (Mgal/yr) / (Max. Load-out Rate Mgal/hr x 8760 hr/yr)

ATSD Appendix A: Emission Calculations
Internal Combustion Engines
From the Diesel Fire Pump EU048 (Insignificant)

Company Name: Maize AgriProducts, Inc.
Address: 6301 South U.S. Highway 41, Boswell, IN 47921
FESOP: F 007-24059-00019
Reviewer: Jenny Acker
Date: December 22, 2006

Emission Factors NSPS for Model Year (MY) 2008 and Earlier - Emergency Fire Pumps Between 130 and 225 kw (175 to 300 hp)

Nox + NMHC	10.5 g/kwh	7.8 g/hp-hr
CO	3.5 g/kwh	2.6 g/hp-hr
PM-10/PM-2.5/TSP	0.54 g/kwh	0.4 g/hp-hr

Emission Factors from AP-42 Gasoline and Diesel Industrial Engines, Table 3.3-1 (10-96)

SOx Emission Factors	0.00205 lb/hp-hr	0.0005125 lb/hp-hr	LSD fuel assume 75% reduction in emissions
TOC Emission Factor	0.0025141 lb/hp-hr		

A. Potential emissions from emergency fire pumps (EFP).

Rated Capacity:	275	Horsepower	=	1.93	MMBtu/hr
Limited hours of Operation:	500		=	7,026	Gal/yr

Emission Calculations	NOx (TPY)	CO (TPY)	SOx (TPY)	PM/PM10 (TPY)	TOC (TPY)
Fire Pump (Unlimited)	20.715	6.905	0.617	1.062	3.028
Fire Pump (Limited)	1.182	0.394	0.035	0.061	0.173

B. HAP Emissions

Pollutant	Emission Factor (lb/hp-hr)	Unlimited Emissions (ton/yr)	Limited Emissions (TPY)
Hazardous Air Pollutants:			
Benzene	9.33E-04	1.12E+00	6.41E-02
Toluene	4.09E-04	4.93E-01	2.81E-02
Xylenes	2.85E-04	3.43E-01	1.96E-02
Propylene	2.58E-03	3.11E+00	1.77E-01
1,3-Butadiene	3.91E-05	4.71E-02	2.69E-03
Formaldehyde	1.18E-03	1.42E+00	8.11E-02
Acetaldehyde	7.67E-04	9.24E-01	5.27E-02
Acrolein	9.25E-05	1.11E-01	6.36E-03
POM	Various Factors	2.02E-01	1.16E-02
TOTAL HAZARDOUS AIR POLLUTANTS		**7.773**	**0.44**

Methodology:
- A factor of 453.54 g/lb was used to convert g/hp-hr to lb/hp-hr
- HAPs Emission Factors (lb/MMBtu) [AP-42 Gasoline and Diesel Industrial Engines, Table 3.3-2 (10-96)]
- To convert from Horsepower to Btu a factor of 2544.434 Btu/hp-hr was used
- A factor of 137,000 Btu per gallon of diesel fuel was used to determine annual fuel usage

- Emission (tons/yr) = [Maximum Operationg (hp-hr/yr) x Emission Factor (g/hp-hr) / 453.54] / (2,000 lb/ton)

ATSD Appendix A: Emission Calculations
Fugitive Emissions From Paved and Unpaved Roads

Company Name: Maize AgriProducts, Inc.
Address: 6301 South U.S. Highway 41, Boswell, IN 47921
FESOP: F 007-24059-00019
Reviewer: Jenny Acker
Date: December 22, 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 (non-Winter) =	road surface silt loading (g/m^2) =	0.6 (g/m^2) (AP-42, Table 13.2.1-3)
sL (Winter) =	sL (non-Winter) x 4 (g/m^2) =	2.4 (g/m^2) (AP-42, Table 13.2.1-3)
w =	mean vehicle weight (tons) =	29.0 tons
k =	empirical constant =	0.082 for PM and 0.016 for PM10
a =	empirical constant =	0.65
b =	empirical constant =	1.5
C =	emission factor for exhaust, brake and tire wear	0.00047 for PM and PM10
p =	number of days per year with 0.01 inches precipitation	117

PM Emission Factor (non-Winter) = $(0.082 \times (0.6/2)^{0.65} \times (29/3)^{1.5} - 0.00047) \times (1 - 117/1460)$ = **1.04** lbs/mile
PM10 Emission Factor (non-Winter) = $(0.016 \times (0.6/2)^{0.65} \times (29/3)^{1.5} - 0.00047) \times (1 - 117/1460)$ = **0.20** lbs/mile

PM Emission Factor (Winter) = $(0.082 \times (2.4/2)^{0.65} \times (29/3)^{1.5} - 0.00047) \times (1 - 117/1460)$ = **2.55** lbs/mile
PM10 Emission Factor (Winter) = $(0.016 \times (2.4/2)^{0.65} \times (29/3)^{1.5} - 0.00047) \times (1 - 117/1460)$ = **0.50** lbs/mile

PM Emission Factor (Average Annual) = ((PM Emission Factor (non-Winter) x 9) + (PM Emission Factor (Winter) x 3))/12
PM Emission Factor (Average Annual) = **1.42** lbs/mile
PM10 Emission Factor (Average Annual) = ((PM10 Emission Factor (non-Winter) x 9) + (PM10 Emission Factor (Winter) x 3))/12
PM10 Emission Factor (Average Annual) = **0.28** lbs/mile

2. Potential to Emit (PTE) of PM/PM10 from Paved Roads:

Vehicle Type	Ave Weight of Vehicles* (tons)	Maximum Trip Number* (trips/yr)	Round Trip Distance* (mile/trip)	Vehicle Mile Traveled (VMT) (miles/yr)	Traffic Component (%)	Component Vehicle Weight (tons)	PTE of PM (tons/yr)	PTE of PM10 (tons/yr)
Cron Receiving	27.5	40,407	1.10	44,448	59.6%	16.40	31.4	6.11
DDGS Loadout	27.5	13,528	1.10	14,881	20.0%	5.49	10.53	2.05
Ethanol Loadout	27.5	13,288	1.10	14,617	19.6%	5.39	10.34	2.01
Denaturant Delivery	27.5	568	1.10	625	0.84%	0.23	0.44	0.09
Total **				74,570	100%	27.5	52.8	10.3

* This information is provided by the source.

Methodology
Vehicle Mile Traveled (miles/yr) = Trip Number (trips/yr) x Round Trip Distance (mile/trip)
Traffic Component (%) = VMT / Total VMT
Component Vehicle Weight = Ave. Weight of Vehicles (tons) x Traffic Component (%)
PTE of PM/PM10 before Control (tons/yr) = VMT (miles/yr) x PM/PM10 Emission Factors (Average Annual) x 1 ton/2000 lbs

3. Potential to Emit (PTE) of PM/PM10 after Control from Paved Roads:

The source will use periodic sweeping to control the fugitive dust emissions.
The control efficiency from sweeping is assumed to be 50%.

PTE of PM after Control = 52.8 tons/yr x (1-50%) = **26.38** tons/yr

PTE of PM10 after Control = 10.26 tons/yr x (1-50%) = **5.13** tons/yr

4. Unpaved Road Emission Factors: AP-42

According to AP-42, Section 13.2.2 Unpaved Roads, November 2006, the PM/PM10 emission factors for unpaved roads can be estimated from the following equation:

lbs/VMT Equation: $E = k (s/12)^a (W/3)^b [(365 - P)/365]$

Where:

Particle size multiplier	k	4.9 dimensionless (PM-30 or TSP)	1.5 dimensionless PM-10
surface material silt content (%)	s	8.5 Table 13.2.2-1	
mean vehicle weight	W	5.00 tons	
Equation constants	a	0.7 PM-30 or TSP Table 13.2.2-2	0.9 PM-10 Table 13.2.2-2
	b	0.45 PM-30 or TSP Table 13.2.2-2	0.45 PM-10 Table 13.2.2-2
days with at least 0.01" precipitation	P	117	

PM Emission Factor = $(4.9) \times (8.5/12)^{0.7} \times (5/3)^{0.45} [(365-117)/365]$ = **3.29** lbs/mile
PM10 Emission Factor = $(1.5) \times (8.5/12)^{0.9} \times (5/3)^{0.45} [(365-117)/365]$ = **0.94** lbs/mile

5. Potential to Emit (PTE) of PM/PM10 from unpaved Roads:

Emission Area	Vehicle Weight (tons)	Unpaved Total VMT	Total Vehicle Emissions (lb/yr)	Total Vehicle Emissions (tpy)
Maintenance Roads (PM)	5.00	263	866	**0.43**
Maintenance Roads (PM10)	5.00	263	247	**0.12**

Methodology
Total Vehicle Emissions (tons/yr) = Unpaved Total VMT (miles/yr) x PM/PM10 Emission Factors x 1 ton/2000 lbs

ATSD Appendix A: Emission Calculations
Two (2) Natural Gas Fired Boilers (EU046 and EU047)

Company Name: Maize AgriProducts, Inc.
Address: 6301 South U.S. Highway 41, Boswell, IN 47921
FESOP: F 007-24059-00019
Reviewer: Jenny Acker
Date: December 22, 2006

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

Heat Input Capacity MMBtu/hr	Limited Throughput MMCF/yr
[redacted]	2,514.1

	Pollutant					
	PM*	PM10*	SO_2	NOx**	VOC	CO**
Emission Factor in lbs/MMCF	7.6	7.6	0.6	30	5.5	30.0
Emission Factor, lb/MMBtu	0.0076	0.0076	0.0006	0.03	0.0055	0.03
Hourly Emissions Limit (lbs/hour)	2.1812	2.1812	0.1722	8.61	1.5785	8.61
Potential to Emit in tons/yr	**9.55**	**9.55**	**0.75**	**37.71**	**6.91**	**37.7**

	Pollutant										
Emission Factor (lb/MMcf)	2-Methylnaphthalene 2.45E-05	Benzene 2.10E-03	Dichlorobenzene 1.20E-03	Formaldehyde 7.50E-02	Hexane 1.80E+00	Naphthalene 6.10E-04	Phenanathrene 1.70E-05	Pyrene 5.00E-06	Acetaldehyde *** 1.47E-02	Toluene 3.40E-03	Total HAPs 1.90E+00
HAP Emissions (tons/yr)	3.08E-05	2.64E-03	1.51E-03	9.43E-02	2.26E+00	7.67E-04	2.14E-05	6.29E-06	1.85E-02	4.27E-03	2.38E+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).
*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/catef_detail.php?id=878&scc=10100601).

ATSD Appendix A: Emission Calculations
Methanator Flare EU049

Company Name: Maize AgriProducts, Inc.
Address: 6301 South U.S. Highway 41, Boswell, IN 47921
FESOP: F 007-24059-00019
Reviewer: Jenny Acker
Date: December 22, 2006

1. PTE Flaring Emissions

Heat Input Capacity
MMBtu/hr

[redacted]

	Pollutant		
Emission Factor in lbs/MMBtu	VOC 0.052	CO 0.370	NOx 0.068
Potential to Emit (tons/yr)	**0.79**	**5.64**	**1.04**

Methodology
Emission factors are from AP-42, Chapter 13.5, Tables 13.5-1 and 13.5-2 (AP-42, 1/95).
PM, PM10, and SO_2 emission factors are negligible due to the smokeless design and minimal H_2S levels.
Emission factors for NO_x and CO are provided by the source based on the test results for a similar source.

ATSD Appendix A: Emission Calculations
Equipment Leaks

Company Name: Maize AgriProducts, Inc.
Address: 6301 South U.S. Highway 41, Boswell, IN 47921
FESOP: F 007-24059-00019
Reviewer: Jenny Acker
Date: December 22, 2006

Process area/equipment	No. of pieces of equipment	TOC concentration, wt. pct.	Liquid definition	Operating hours	average SOCMI default factor, kg/hr/source	average SOCMI default factor, lb/hr/source	Unmitigated loss rate, tpy	Control effectiveness, pct.	Fugitive loss rate, tpy
Fermentation area (PF-F4)									
valves - gas/vapor service	15	10	gas/vapor	8,760	0.00597	1.31E-02	0.09	87.0	0.011
valves - liquid service	146	10	heavy	8,760	0.00023	5.06E-04	0.03	84.0	0.005
pumps	13	10	heavy	8,760	0.00862	1.90E-02	0.11	69.0	0.03
pressure-relief valves	20	10	gas/vapor	8,760	0.104	2.29E-01	2.00	87.0	0.26
sampling valves	8	10	heavy	8,760	0.0150	3.30E-02	0.12	84.0	0.02
flanges/connectors	293	10	heavy	8,760	0.00183	4.03E-03	0.52	55.4	0.23
Fermentation area (F4-BWell)									
valves - gas/vapor service	15	15	gas/vapor	8,760	0.00597	1.31E-02	0.13	87.0	0.02
valves - liquid service	89	15	heavy	8,760	0.00023	5.06E-04	0.03	84.0	0.005
pumps	9	15	heavy	8,760	0.00862	1.90E-02	0.11	69.0	0.03
pressure-relief valves	12	15	gas/vapor	8,760	0.104	2.29E-01	1.80	87.0	0.23
sampling valves	6	15	heavy	8,760	0.0150	3.30E-02	0.13	84.0	0.02
flanges/connectors	197	15	heavy	8,760	0.00183	4.03E-03	0.52	55.4	0.23
Beer Preheat									
valves - gas/vapor service	0	15	gas/vapor	8,760	0.00597	1.31E-02	0	87.0	0
valves - liquid service	33	15	heavy	8,760	0.00023	5.06E-04	0.01	84.0	0.002
pumps	0	15	heavy	8,760	0.00862	1.90E-02	0	69.0	0
pressure-relief valves	5	15	gas/vapor	8,760	0.104	2.29E-01	0.75	87.0	0.10
sampling valves	0	15	heavy	8,760	0.0150	3.30E-02	0	84.0	0
flanges/connectors	51	15	heavy	8,760	0.00183	4.03E-03	0.13	55.4	0.06
Degas/Beer Column									
valves - gas/vapor service	15	50	gas/vapor	8,760	0.00597	1.31E-02	0.43	87.0	0.06
valves - liquid service	53	50	light	8,760	0.00403	8.87E-03	1.03	84.0	0.16
pumps	5	50	light	8,760	0.0199	4.38E-02	0.48	69.0	0.15
pressure-relief valves	5	50	gas/vapor	8,760	0.104	2.29E-01	2.51	87.0	0.33
sampling valves	7	50	light	8,760	0.0150	3.30E-02	0.51	84.0	0.08
flanges/connectors	125	50	light	8,760	0.00183	4.03E-03	1.10	55.4	0.49

ATSD Appendix A: Emission Calculations (continued)
Equipment Leaks

Process area/equipment	No. of pieces of equipment	TOC concentration, wt. pct.	Liquid definition	Operating hours	average SOCMI default factor, kg/hr/source	lb/hr/source	Unmitigated loss rate, tpy	Control effectiveness, pct.	Fugitive loss rate, tpy
Rectifying Column									
valves - gas/vapor service	28	93	gas/vapor	8,760	0.00597	1.31E-02	1.50	87.0	0.19
valves - liquid service	59	93	light	8,760	0.00403	8.87E-03	2.13	84.0	0.34
pumps	4	93	light	8,760	0.0199	4.38E-02	0.71	69.0	0.22
pressure-relief valves	3	93	gas/vapor	8,760	0.104	2.29E-01	2.80	87.0	0.36
sampling valves	5	93	light	8,760	0.0150	3.30E-02	0.67	84.0	0.11
flanges/connectors	129	93	light	8,760	0.00183	4.03E-03	2.12	55.4	0.94
Molecular Sieve Purge									
valves - gas/vapor service	23	75	gas/vapor	8,760	0.00597	1.31E-02	0.99	87.0	0.13
valves - liquid service	27	75	light	8,760	0.00403	8.87E-03	0.79	84.0	0.13
pumps	2	75	light	8,760	0.0199	4.38E-02	0.29	69.0	0.09
pressure-relief valves	5	75	gas/vapor	8,760	0.104	2.29E-01	3.76	87.0	0.49
sampling valves	2	75	light	8,760	0.0150	3.30E-02	0.22	84.0	0.03
flanges/connectors	86	75	light	8,760	0.00183	4.03E-03	1.14	55.4	0.51
Molecular Sieve Product									
valves - gas/vapor service	30	100	gas/vapor	8,760	0.00597	1.31E-02	1.73	87.0	0.22
valves - liquid service	44	100	light	8,760	0.00403	8.87E-03	1.71	84.0	0.27
pumps	2	100	light	8,760	0.0199	4.38E-02	0.38	69.0	0.12
pressure-relief valves	2	100	gas/vapor	8,760	0.104	2.29E-01	2.00	87.0	0.26
sampling valves	3	100	light	8,760	0.0150	3.30E-02	0.43	84.0	0.07
flanges/connectors	103	100	light	8,760	0.00183	4.03E-03	1.82	55.4	0.81
Storage Tank Farm									
valves - gas/vapor service	2	100	gas/vapor	8,760	0.00597	1.31E-02	0.12	87.0	0.01
valves - liquid service	79	100	light	8,760	0.00403	8.87E-03	3.07	84.0	0.49
pumps	5	100	light	8,760	0.0199	4.38E-02	0.96	69.0	0.30
pressure-relief valves	1	100	gas/vapor	8,760	0.104	2.29E-01	1.00	87.0	0.13
sampling valves	4	100	light	8,760	0.0150	3.30E-02	0.58	84.0	0.09
flanges/connectors	60	100	light	8,760	0.00183	4.03E-03	1.06	55.4	0.47
						Total estimated fugitive VOC emission rate, tpy	**44.50**		**9.33**

Notes:

1. Component counts provided by design engineer and process equipment supplier based on preliminary P&IDs.
2. Average SOCMI default emission factors used; see Table 2-1 from Protocol for Equipment Leak Emission Estimates (EPA-453/R-95-017, November 1995).
3. Control effectiveness based on implementation of an LDAR program per NSPS Subpart VV for all components.
4. Value for LDAR program effectiveness, excluding flanges/connectors, taken from Table 5-2 from Protocol for Equipment Leak Emission Estimates (EPA-453/R-95-017, November 1995).
5. Control effectiveness for flanges/connectors estimated by process equipment supplier - see attached derivation.
6. Streams containing trace amounts of VOC (less than 1 wt. pct.) were assumed to be negligible for calculation purposes.
7. Adjustment of annual loss to air was made for equipment based on the relative predicted VOC concentrations.

POTENTIAL HAP EMISSION CALCULATIONS - *Fermentation areas*

	Relative pct	Unmitigated	Fugitive
TOTAL VOC (tpy)	100	5.59	1.10
acetaldehyde	0.26	1.5E-02	2.9E-03
methanol	0.07	3.9E-03	7.7E-04
TOTAL HAP (tpy)	0.33	0.018	0.004

Note: HAP percentages based on percentage of uncontrolled VOC emissions at Fermentation Scrubber provided by process equipment supplier simulation model.

POTENTIAL HAP EMISSION CALCULATIONS - *Distillation/Dehydration areas*

	Relative pct	Unmitigated	Fugitive
TOTAL VOC (tpy)	100	32.13	6.73
acetaldehyde	0.5	2.8E-02	5.5E-03
methanol	0.05	2.8E-03	5.5E-04
TOTAL HAP (tpy)	0.55	0.031	0.006

Note: HAP percentages based on percentage of uncontrolled VOC emissions at Distillation Scrubber provided by process equipment supplier simulation model.

POTENTIAL HAP EMISSION CALCULATIONS - *Storage Tank Farm*

	Relative pct	Relative pct	Unmitigated	Fugitive
TOTAL VOC (tpy)	95	5	6.78	1.50
acetaldehyde	0.50		3.2E-02	7.1E-03
methanol	0.05		3.2E-03	7.1E-04
2,2,4-trimethylpentane		0.8	3.1E-03	6.0E-04
benzene		0.9	3.4E-04	6.7E-04
ethyl benzene		0.1	5.4E-03	7.5E-05
n-hexane		1.6	1.7E-04	1.2E-03
PAH		0.05	4.4E-03	3.7E-05
toluene		1.3	1.7E-03	9.7E-04
xylene		0.5	1.8E-02	3.7E-04
TOTAL HAP (tpy)	0.55	5.25	0.07	0.012

Note: Worse case HAP emission calculations assume that all material in area is represented as denatured alcohol.

Note: HAP percentages (ethanol) based on percentage of uncontrolled VOC emissions at Distillation Scrubber provided by process equipment supplier simulation model.

Note: HAP percentages (gasoline) of VOC emissions taken from Table 11.3-2 of Gasoline Marketing (Stage I and II), January 2001
(Emission Inventory Improvement Program, Volume III: Chapter 11, STAPPA-ALAPCO-EPA)

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

Company Name: Maize AgriProducts, Inc.
Address: 6301 South U.S. Highway 41, Boswell, IN 47921
FESOP: F 007-24059-00019
Reviewer: Jenny Acker
Date: December 22, 2006

1. Process Description:

Type of Cooling Tower:	Induced Draft
Circulation Flow Rate:	36,000 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.

PTE of PM/PM10 (lbs/hr) = 36,000 gal/min x 60 min/hr x 0.005% x 8.345 lbs/gal x 2,500 ppm x 1/1,000,000 ppm = **2.25 lbs/hr**

PTE of PM/PM10 (tons/yr) = 2.25 lbs/hr x 8760 hr/yr x 1 ton/2000 lbs = **9.87 tons/yr**

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

Company Name: Maize AgriProducts, Inc.
Address: 6301 South U.S. Highway 41, Boswell, IN 47921
FESOP: F 007-24059-00019
Reviewer: Jenny Acker
Date: December 22, 2006

1. Process Description:

Production Rates: 64.4 tons/hr wetcake (wet basis) production - plant design
564,144 tons/yr wetcake (wet basis) production - plant design

2. Potential to Emit (PTE) of VOC:

Pollutant	Emission Factor (lbs/ton wetcake)	PTE VOC (tons/yr)	PTE HAP (tons/yr)
NMHC (VOC)	6.00E-03	1.69E+00	
Acetaldehyde	5.56E-05		1.57E-02
Acrolein	8.33E-06		2.35E-03
Formaldehyde	3.33E-04		9.39E-02
Methanol	6.94E-05		1.96E-02
Total VOC		**1.69E+00**	**1.32E-01**

Emission factors based on review of other ethanol plants.

Methodology
PTE VOC (tons/yr) = Max. Throughput Rate (tons/hr) x Emission Factor (lbs/ton) x 8760 hr/yr x 1 ton/2000 lbs
PTE HAP (lb/hr) = Results (lb/hr) x Scaling Factor
PTE HAP (ton/yr) = Results (lb/hr) x Scaling Factor x 8760 hr/yr x 1 ton/2000 lbs

ATSD Appendix A: Emission Calculations
Storage Tanks TK001 through TK006
From the Wetcake Storage

Company Name: Maize AgriProducts, Inc.
Address: 6301 South U.S. Highway 41, Boswell, IN 47921
FESOP: F 007-24059-00019
Reviewer: Jenny Acker
Date: December 22, 2006

Source description: Potential VOC and HAP emissions from five internal floating roof tanks. Summary of TANKS 4.0.9d emission models.

OPERATION/PRODUCTION RELATED INFORMATION

Parameter	*value*	*units*	*Reference*
Maximum dehydrated ethanol throughput	96,360,000	gal/yr	plant design - specification basis
Maximum denaturant (gasoline) throughput	5,072,000	gal/yr	plant design - specification basis
Maximum denatured ethanol - plant output	101,432,000	gal/yr	plant design - specification basis

POTENTIAL VOC EMISSION CALCULATIONS

Potential VOC emissions calculated using EPA TANKS 4.0.9d software and preliminary storage tank design.

Storage Tank ID	Total VOC emissions lbs/yr	Ethanol emissions lbs/yr	Gasoline emissions lbs/yr
Tank TK001	615	615	-
Tank TK002	615	615	-
Tank TK003	*905*	*905*	-
Tank TK004	2,235	-	2,235
Tank TK005	705	543	162
Tank TK006	705	543	162
TOTAL EMISSIONS, lbs/yr	**5,780**	**3,221**	**2,559**
TOTAL EMISSIONS, tpy	**2.89**	**1.61**	**1.28**

Note: Total VOC emissions exclude Tank TK003 (Off-Spec) as total VOC emissions from Tanks TK001 and TK002 are worse-case.

POTENTIAL HAP EMISSION CALCULATIONS - *calculated assuming HAP percentage of VOC/gasoline vapor emissions.*

TOTAL VOC (tpy)	Relative percent 100	HAP tpy
2,2,4-trimethylpentane	0.8	0.010
benzene	0.9	0.012
ethyl benzene	0.1	0.001
n-hexane	1.6	0.020
PAH	0.05	6.4E-04
toluene	1.3	0.017
xylene	0.5	0.006
TOTAL HAP (tpy)	-	**0.067**

Note: HAP percentages of VOC emissions taken from Table 11.3-2 of Gasoline Marketing (Stage I and II), January 2001 (Emission Inventory Improvement Program, Volume III: Chapter 11, STAPPA-ALAPCO-EPA)

Indiana Department of Environmental Management
Office of Air Quality

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

Source Description and Location

Source Name:	**Maize AgriProducts, Inc.**
Source Location:	**6301 South U.S. Highway 41, Boswell, IN 47921**
County:	**Benton**
SIC Code:	**2869**
NAICS Code:	**325193**
Operation Permit No.:	**F 007-24059-00019**
Permit Reviewer:	**Jenny Acker**

County Attainment Status

The source is located in Benton County.

Pollutant	Status
PM10	Attainment
PM2.5	Attainment
SO_2	Attainment
NO_2	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. Benton 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) Benton 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 PM2.5 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.

(c) Benton County has been classified as attainment or unclassifiable for PM10, SO_2, NO_2, CO, and Lead. Therefore, these emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2.

(d) Since this source is classified as a chemical process plant, it is considered one of the twenty-eight (28) listed source categories, as specified in 326 IAC 2-2-1(gg)(1).

(e) Fugitive Emissions
Since this type of operation is in one of the twenty-eight (28) listed source categories under 326 IAC 2-2 or 326 IAC 2-3, fugitive emissions are counted toward the determination of PSD and Emission Offset applicability.

Description of Proposed Project

The Office of Air Quality (OAQ) has reviewed a new source construction application, submitted by Maize AgriProducts, Inc. on December 13, 2006, relating to the construction of a stationary ethanol production plant. The following is a list of the proposed emission units and pollution control devices:

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

(a) Two (2) truck unloading pits, collectively identified as EU001, approved for construction in 2007, with a maximum combined throughput rate of 20,000 bushels of corn per hour, controlled by baghouse CE001, and exhausting through stack PS001.

(b) One (1) rail unloading pit, identified as EU002, approved for construction in 2007, with a maximum throughput rate of 30,000 bushels of corn per hour, controlled by baghouse CE001, and exhausting through stack PS001.

(c) One (1) corn handling process, approved for construction in 2007, controlled by baghouse CE001, and exhausting through stack PS001. This process consists of the following:

(1) One (1) corn conveying and handling system, identified as EU003, with a maximum throughput rate of 50,000 bushels of corn per hour.

(2) One (1) corn elevator, identified as EU004, with a maximum throughput rate of 50,000 bushels of corn per hour.

(3) One (1) corn conveying and handling system, identified as EU005, with a maximum throughput rate of 50,000 bushels of corn per hour.

(4) Two (2) corn storage silos, identified as EU006 and EU007, each with a maximum storage capacity of 500,000 bushels.

(d) Three (3) hammermills, identified as EU008, EU009, and EU010, approved for construction in 2007, with a combined maximum throughput rate of 115.32 tons of corn per hour, controlled by baghouses CE002, CE003, and CE004, respectively, and exhausting through stacks PS002, PS003, and PS004, respectively.

(e) One (1) liquefaction process, approved for construction in 2007, with a maximum throughput rate of 363 tons of mash per hour, with emissions uncontrolled and exhausting to atmosphere. This process consist of the following:

(1) Mix tank and hot water tank, identified as EU011.

(2) Cook tubes, flash tanks, and mash cooling, identified as EU012.

(3) Two (2) conversion tanks, identified as EU013 and EU014.

(4) One (1) yeast tank, identified as EU015.

Under NSPS, Subpart VV, the pumps, compressors, pressure relief devices in gas/vapor service, sampling connection systems, open-ended valves or lines, and valves of this process are considered to be affected facilities.

(f) One (1) fermentation process, approved for construction in 2007, with a maximum beer production rate of 360 tons hour, using wet scrubber CE005 for VOC control and sodium bisulfite injection for HAP control, exhausting through stack PS005. This process consist of the following:

(1) One (1) pre-fermenter tank, identified as EU016.

(2) Six (6) fermentation tanks, identified as EU017 through EU22.

(3) One (1) beer well, identified as EU023.

Under NSPS, Subpart VV, the pumps, compressors, pressure relief devices in gas/vapor service, sampling connection systems, open-ended valves or lines, and valves of this process are considered to be affected facilities.

(g) One (1) distillation and dehydration process, approved for construction in 2007, with a maximum ethanol production rate of 11,000 gallons per hour, using wet scrubber CE006 for VOC control and sodium bisulfite injection for HAP control, exhausting through stack PS006. This process consist of the following:

(1) One (1) beer stripper, identified as EU024.

(2) One (1) stripping column, identified as EU025.

(3) One (1) rectifying column, identified as EU026.

(4) Molecular sieve units, identified as EU027.

(5) One (1) thin stillage tank, identified as EU030.

(6) One (1) light evaporator, identified as EU031.

(7) One (1) intermediate stillage tank, identified as EU032.

Under NSPS, Subpart VV, the pumps, compressors, pressure relief devices in gas/vapor service, sampling connection systems, open-ended valves or lines, and valves of this process are considered to be affected facilities.

(h) Two (2) natural gas fired regenerative thermal oxidizers, identified as CE008 and CE009, each with a maximum heat input capacity of 12 MMBtu/hr, exhausting to stack PS010.

(i) Equipment utilized in the process of dehydrating distillers grain, approved for construction in 2007, with emissions controlled by RTOs CE008 and CE009, exhausting to stack PS010. This process consist of the following:

(1) One (1) whole stillage tank, identified as EU028.

(2) Centrifuge, decanters, and centrate reciever, identified as EU029.

(3) Final evaporation concentrators, identified as EU033.

(4) One (1) syrup tank, identified as EU034.

Under NSPS, Subpart VV, the pumps, compressors, pressure relief devices in gas/vapor service, sampling connection systems, open-ended valves or lines, and valves of this process are considered to be affected facilities.

(j) Two (2) natural gas fired DDGS dryers, identified as EU037 and EU038, approved for construction in 2007, each with a maximum heat input rate of 82.6 MMBtu/hr, and each with a total maximum throughput rate of 19.3 tons of DDGS per hour, each controlled by an internal multiclone, with emissions venting to RTOs CE008 and CE009, respectively, and exhausting to stack PS010.

(k) One (1) DDGS cooler, identified as EU039, approved for construction in 2007, with a maximum throughput rate of 38.6 tons of DDGS per hour, controlled by a baghouse identified as CE010. The exhaust from baghouse CE010 exhaust to DDGS dryers EU037 and EU038 and is used as dryer combustion air.

(l) One (1) DDGS handling and loadout operation, approved for construction in 2007. This process consist of the following:

(1) One (1) DDGS conveyor and handling system, identified as EU040, with a maximum handling rate of 40 tons of DDGS per hour, controlled by bagbouse CE011, and exhausting to stack PS011.

(2) One (1) DDGS storage building, identified as EU041, controlled by bagbouse CE011, and exhausting to stack PS011.

(3) One (1) DDGS truck loadout spout, identified as EU042, with a maximum throughput rate of 44 tons of DDGS per hour.

(m) One (1) denatured ethanol loadout system, approved for construction in 2007, with emissions controlled by a enclosed flare, identified as CE007, with a maximum heat input capacity of 6.8 MMBtu/hr, and exhausting through stack PS009. This process consist of the following:

(1) One (1) railcar loading rack, utilizing submerged loading only, identified as EU035, with a maximum throughput rate of 60,000 gallons per hour.

(2) One (1) truck loading rack, utilizing submerged loading only, identified as EU036, with a maximum throughput rate of 48,000 gallons per hour

Under NSPS, Subpart VV, the pumps, compressors, pressure relief devices in gas/vapor service, sampling connection systems, open-ended valves or lines, and valves of this process are considered to be affected facilities.

(n) Two (2) natural gas fired boilers, identified as EU046 and EU047, approved for construction in 2007, each with a rated heat capacity of 143.5 MMBtu/hr, with emissions venting through stacks PS012 and PS013, respectively. Under NSPS, Subpart Db, these units are considered affected facilities.

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

(a) Noncontact induced draft cooling tower system not regulated under a NESHAP, identified as EU050.

(b) Replacement or repair of electrostatic precipitators, bags in baghouses and filters in other air filtration equipment.

(c) Paved roads and parking lots with public access.

(d) Stationary fire pumps, including one (1) diesel fire pump, identified as EU048, approved for construction in 2007, with a maximum power output rate of 275 horsepower, and

exhausting to stack PS014. Under NSPS, Subpart IIII, this unit is considered an affected fire pump engine.

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

(1) Two (2) shift tanks, identified as TK001 and TK002, approved for construction in 2007, each with a maximum capacity of 120,000 gallons of 200-proof ethanol. Under NSPS, Subpart Kb, these units are considered affected facilities.

(2) One (1) off-spec ethanol tank, identified as TK003, approved for construction in 2007 with a maximum capacity of 240,000 gallons. Under NSPS, Subpart Kb, this unit is considered an affected facility.

(3) One (1) denaturant tank, identified as TK004, approved for construction in 2007, with a maximum capacity of 120,000 gallons of denaturant (gasoline). Under NSPS, Subpart Kb, this unit is considered an affected facility.

(4) Two (2) denatured ethanol tanks, identified as TK005 and TK006, approved for construction in 2007, each with a maximum capacity of 1,000,000 gallons of denatured ethanol (190 proof). Under NSPS, Subpart Kb, these units are considered affected facilities.

(5) One (1) digester for process water, identified as EU049, approved for construction in 2007. This unit has methane emissions controlled by methanator flare CE012, which is fueled by natural gas and has a maximum heat input capacity of 3.48 MMBtu per hour, and exhausting to stack PS015.

Stack Summary

Stack ID	Operation	Height (feet)	Diameter (feet)	Flow Rate (acfm	Temp (^{0}F)
PS001	CE001	TBD	TBD	33,000	70
PS002	CE002	TBD	TBD	6,500	70
PS003	CE003	TBD	TBD	6,500	70
PS004	CE004	TBD	TBD	6,500	70
PS005	CE005	TBD	TBD	TBD	TBD
PS006	CE006	TBD	TBD	TBD	TBD
PS009	CE007	TBD	TBD	TBD	TBD
PS010	CE008, CE009	TBD	TBD	TBD	TBD
PS011	CE011	TBD	TBD	4,000	70
PS012	EU046	TBD	TBD	TBD	TBD
PS013	EU047	TBD	TBD	TBD	TBD
PS014	EU048	TBD	TBD	TBD	TBD
PS015	CE012	TBD	TBD	TBD	TBD

Emission Calculations

See Appendix A of this document for detailed emission calculations. The emissions calculations for the tanks, which was calculated using EPS TANKS 4.0.9d, were provided by the applicant and have been verified and found to be accurate.

Uncontrolled 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 emission 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, IDEM, or the appropriate local air pollution control agency."

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

Pollutant	Potential To Emit (tons/year)
PM	1315.38
PM10	1286.03
SO_2	1.87
VOC	8457.06
CO	153.77
NO_x	112.85

HAPs	Potential To Emit (tons/year)
Any one (1) single HAP	Greater than 10
Total HAPs	Greater than 25

(a) The potential to emit (as defined in 326 IAC 2-7-1(29)) of PM10, VOC, CO, and NOx are equal to or greater than one hundred (100) tons per year. This source, which would otherwise be subject to the provisions of 326 IAC 2-7, will limit its PM10, VOC, CO, and NOx emissions below the Title V levels.

(b) The potential to emit (as defined in 326 IAC 2-7-1(29)) of any single HAP is greater than ten (10) tons per year and the potential to emit (as defined in 326 IAC 2-7-1(29)) of a combination of HAPs is greater than twenty-five (25) tons per year. This source, which would otherwise be subject to the provisions of 326 IAC 2-7, will limit its HAPs emissions below the Title V levels.

Potential to Emit after Issuance

The table below summarizes the total potential to emit, reflecting all limits, of the significant emission units after control. Any control equipment is considered federally enforceable only after

issuance of this permit (007-24059-00019) and only to the extent that the effect of the control equipment is made practically enforceable in the permit.

Process	Potential to Emit After Control (ton/yr)					
	PM	PM10	VOC	NOx	SO2	CO
Corn Receiving and Handling (EU001 - EU007)	6.19	6.19	--	--	--	--
Hammermill #1 (EU008)	1.22	1.22	--	--	--	--
Hammermill #2 (EU009)	1.22	1.22	--	--	--	--
Hammermill #3 (EU010)	1.22	1.22	--	--	--	--
DDGS Handling/Loadout (EU040, EU041, EU042)	1.30	0.89	--	--	--	--
Scrubber - Fermentation (EU016 - EU023)	--	--	48.18	--	--	--
Scrubber - Distillation (EU024 - EU027, EU030 - EU032)	--	--	6.13	-	--	--
RTOs - (EU028, EU029, EU033, EU034, EU037 - EU039)	40.22	40.22	19.89	33.15	0.50	10.05
Ethanol Loadout Flare (EU035 and EU036)	--	--	5.00	3.90	--	6.54
Fire Pump (EU048)	0.06	0.06	0.17	1.18	0.04	0.39
Methanator Flare (EU049)	--	--	0.79	1.04	-	5.64
Boilers #1 and #2 (EU046, EU047)	9.55	9.55	6.91	37.71	0.75	37.71
Truck Traffic (EU245)	17.93	3.47	--	--	--	--
Equipment Leaks	--	--	9.33	--	--	--
Cooling Towers (EU050)	9.87	9.87	--	--	--	--
Wet Cake Production	--	--	--	--	--	--
Storage Tanks (TK001 - TK006)	--	--	2.89	--	--	--
Totals:	**88.79**	**73.91**	**99.30**	**76.98**	**1.29**	**60.33**

Note: This plant is capable of producing both DDGS and WDGS. The emissions from the DDGS production are the worst case scenario. Therefore, the PTE of the WET Cake storage is not included in the PTE for the entire source.

Process	HAPs Potential to Emit After Control (ton/yr)				
	Acetaldehyde	Acrolein	Formaldehyde	Hexane	Other HAPs
RTOs - (EU028, EU029, EU033, EU034, EU037 - EU039)	2.65	0.02	0.02	1.49	0.08
Boilers (EU046, EU047)	--	--	0.10	2.29	0.04
Fermentation Scrubber (CE005)	3.50	0.22	0.22	--	0.01
Distillation Scrubber (CE006)	1.75	0.13	0.13	--	0.004
Equipment Leaks	0.01	--	--	--	0.05
Tanks		--	--	0.02	0.05
Ethanol Loadout		--	--	0.051	0.019
Fire Pump	.05	0.01	0.08	--	0.30
Totals:	**8.05**	**0.38**	**0.55**	**3.85**	**0.55**

Federal Rule Applicability Determination

New Source Performance Standards (NSPS)

(a) Two (2) natural gas fired boilers, identified as EU046 and EU047, will each have a maximum capacity greater than 100 MMBtu/hr and will be constructed after June 19, 1984. Therefore, the boilers are subject to the requirements of the New Source Performance Standards for Industrial-Commercial-Institutional Steam Generating Units (326 IAC 12, 40 CFR 60.40b – 60.49b, Subpart Db).

Nonapplicable portions of the NSPS will not be included in the permit. The proposed natural gas-fired boilers (EU046 and EU047) are subject to the following portions of 40 CFR 60, Subpart Db.

(1) 40 CFR 60.40b (a), (g), and (j)
(2) 40 CFR 60.41b
(3) 40 CFR 60.44b (a), (h), and (i)
(4) 40 CFR 60.46b (a), (c), and (e) (1)
(5) 40 CFR 60.48b (b)(1), (c), (d), (e)(2), (f), and (g)
(6) 40 CFR 60.49b (a) (1), and (3), (b), (c), (d), (g), (i), (v) and (w)

The provisions of 40 CFR 60, Subpart A – General Provisions, which are incorporated as 326 IAC 12-1, apply to the gas-fired boilers (EU43 and EU44), except when otherwise specified in 40 CFR 60, Subpart Db.

(b) The tanks identified as TK001 through TK006 have storage capacities greater than 75 m^3 (19,812 gallons) and will be used to store volatile organic liquids (VOL). 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 TK001 through TK006 have design capacities greater than 151 m^3 (39,890 gallons) containing a VOL that, as stored, has a maximum true vapor pressure greater than 5.2 kPa but less than 76.6 kPa. Therefore, these tanks are subject to the requirements in 40 CFR 60.112b(a).

Nonapplicable portions of the NSPS will not be included in the permit. The Permittee has elected to install internal floating roofs with these fixed roof tanks. These tanks are subject to the following portions of Subpart Kb.

(1) 40 CFR 60.110b (a), (b), (d) (2), (3), (7) and (8), (e)(1)(i), (2) and (3)
(2) 40 CFR 60.111b
(3) 40 CFR 60.112b(a)(1)
(4) 40 CFR 60.113b(a)
(5) 40 CFR 60.115b(a)
(6) 40 CFR 60.116b(a) through (c), and (e)
(7) 40 CFR 60.117

The provisions of 40 CFR 60, Subpart A – General Provisions, which are incorporated as 326 IAC 12-1, apply to Tanks TK001 through TK006, except when otherwise specified in 40 CFR 60, Subpart Kb.

(c) Ethanol is one of the chemicals listed in 40 CFR 60.489. Therefore, this ethanol production plant is subject to the requirements of New Source Performance Standards for Volatile Organic Liquid Storage Vessels for Equipment Leaks of VOC in the Synthetic

Organic Chemical Manufacturing Industry (326 IAC 12-1, 40 CFR 60.480-489, Subpart VV).

Nonapplicable portions of the NSPS will not be included in the permit. The proposed ethanol production plant is subject to the following portions of 40 CFR 60, Subpart VV.

(1) 40 CFR 60.480
(2) 40 CFR 60.481
(3) 40 CFR 60.482-1
(4) 40 CFR 60.482-2
(5) 40 CFR 60.482-3
(6) 40 CFR 60.482-4
(7) 40 CFR 60.482-5
(8) 40 CFR 60.482-6
(9) 40 CFR 60.482-7
(10) 40 CFR 60.482-8
(11) 40 CFR 60.482-9
(12) 40 CFR 60.482-10
(13) 40 CFR 60.483-1
(14) 40 CFR 60.483-2
(15) 40 CFR 60.485
(16) 40 CFR 60.486
(17) 40 CFR 60.487
(18) 40 CFR 60.489

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

(d) The provisions of 40 CFR Part 60, Subpart IIII - Standards of Performance for Stationary Compression Ignition Internal Combustion Engines apply to manufacturers, owners, and operators of stationary compression ignition internal combustion engines for engines manufactured after the applicable dates cited in 40 CFR 60, Subpart IIII. This rule applies specifically to the diesel fire pump, identified as EU048.

Nonapplicable portions of the NSPS will not be included in the permit.

(1) 40 CFR 4200 (a) (2) and (3), (b), and (c)
(2) 40 CFR 4204
(3) 40 CFR 4205
(4) 40 CFR 4206
(5) 40 CFR 4207
(6) 40 CFR 4208
(7) 40 CFR 4209
(8) 40 CFR 4211
(9) 40 CFR 4212
(10) 40 CFR 4213
(11) 40 CFR 4214
(12) 40 CFR 4217(a)
(13) 40 CFR 4218
(14) 40 CFR 4219
(15) Tables to Subpart IIII of Part 60

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

(e) The corn handling process is not subject to the requirements of the New Source Performance Standards for Grain Elevators, 40 CFR 60, Subpart DD, because the permanent storage capacity of the corn elevator does not exceed 88,100 m^3 (ca. 2.5 million U.S. bushels).

(f) Ethanol is one of the chemicals listed in 40 CGR 60.667. However, according to the EPA memorandum from My. George T. Czerniak dated December 6, 2002, the manufacture of ethanol using a fermentation process (biological synthesis) was excluded from the scope of the NSPS, Subpart NNN. Therefore, the distillation unit at this 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).

National Emission Standards for Hazardous Air Pollutants (NESHAP)

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

State Rule Applicability Determination

State Rule Applicability - Entire Source

326 IAC 2-2 (Prevention of Significant Deterioration (PSD))
This source is one of the twenty-eight (28) source categories defined in 326 IAC 2-2-1(y)(1). Specifically, the source is a chemical plant and has the potential to emit PM, PM10, VOC, CO and NOx from the entire source greater than 100 tons/yr.

In order to render the requirements of 326 IAC 2-2 (PSD) not applicable, the source shall comply with the following limits:

(a) The PM emissions from the corn receiving and handling operations, the hammermills, and the DDGS handling operations shall not exceed the emission limits listed in the table below:

Unit ID	Unit Description	Baghouse ID	PM Emission Limit (lbs/hr)
EU001 through EU007	Corn Receiving & Handling	CE001	1.41
EU008	Hammermill #1	CE002	0.28
EU009	Hammermill #2	CE003	0.28
EU010	Hammermill #3	CE004	0.28
EU040 - EU041	DDGS Handling	CE011	0.17

The use of baghouses CE001 through CE004, and CE011 is necessary to demonstrate compliance with the PM limits above.

(b) The total corn received shall not exceed 1,010,164 tons per twelve (12) consecutive month period with compliance determined at the end of each month.

(c) The total DDGS produced shall not exceed 338,206 tons per twelve (12) consecutive month period with compliance determined at the end of each month.

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

(e) PM emissions from the thermal oxiders (CE008 and CE009) shall not exceed 9.18 lbs/hr for stack PS010.

(f) The PM emissions from the cooling towers shall not exceed 2.25 pounds per hour.

Combined with the PM emissions from other PM emission units, PM emissions from the entire source are limited to less than 100 tons/yr.

The source has also accepted limits on PM10, VOC, CO, and NOx emissions from the entire source, which will limit emissions of these pollutants to less than 100 tons/yr (see discussion of 326 IAC 2-8-4 below).

Compliance with these limits renders the requirements of 326 IAC 2-2 not applicable.

326 IAC 2-4.1 (Major Sources of Hazardous Air Pollutants (HAP))
The potential to emit of the operation of the fermantation, and the distillation and dehydration process is greater than ten (10) tons per year for a single HAP and greater than twenty-five (25) tons per year for any combination of total HAPs for each operation. Therefore, the requirements of 326 IAC 2-4.1 would apply. However, the source will accept FESOP limits, such that this process is 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 total HAPs. Compliance with these FESOP limits will render the requirements of 326 IAC 2-4.1 not applicable.

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

(a) The Permitte shall comply with the following requirements for the corn receiving and handling operations, the hammermills, and the DDGS handling and loadout operations:

(1) The PM10 emissions form the corn receiving and handling operations, the hammermills, and the DDGS handling operations shall not exceed the emission limits listed in the table below:

Unit ID	Unit Description	Baghouse ID	PM Emission Limit (lbs/hr)
EU001 through EU007	Corn Receiving & Handling	CE001	1.41
EU008	Hammermill #1	CE002	0.28
EU009	Hammermill #2	CE003	0.28
EU010	Hammermill #3	CE004	0.28
EU040 - EU041	DDGS Handling	CE011	0.17

The use of baghouses CE001 through CE004, and CE011 is necessary to demonstrate compliance with the PM10 limits above.

(2) The total corn received shall not exceed 1,010,164 tons per twelve (12) consecutive month period with compliance determined at the end of each month.

(3) The total DDGS produced shall not exceed 338,206 tons per twelve (12) consecutive month period with compliance determined at the end of each month.

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

(b) The emissions from scrubber CE005 controlling the fermentation process, and scrubber CE006 controlling the distillation and dehydration process shall comply with the following:

(1) The VOC emissions from wet scrubber CE005 shall not exceed 11.0 pounds per hour.

(2) The VOC emissions from wet scrubber CE006 shall not exceed 1.40 pounds per hour.

(c) The thermal oxidizers (CE008 and CE009) which are used to control emissions from the DDGS dryers (EU037 and EU038), respectively, the DDGS cooler (EU039), and emission units EU028, EU029, EU033, and EU034, and exhaust to stack PS010, shall comply with the following:

(1) PM/PM10 emissions shall not exceed 9.18 lbs/hr for stack PS010.

(2) VOC emissions shall not exceed 4.54 lbs/hr for stack PS010.

(3) CO emissions shall not exceed 2.29 lbs/hr for stack PS010.

(4) SO2 emissions shall not exceed 0.11 lbs/hr for stack PS010.

(5) NOx emissions shall not exceed 7.57 lbs/hr for stack PS010.

(6) Acetaldehyde emissions shall not exceed 0.60 lbs/hr for stack PS010.

(7) Total HAP emissions shall not exceed 0.67 lbs/hr for stack PS010.

(d) The Permittee shall comply with the following requirements for the denatured ethanol loadout system (EU035 and EU036):

(1) The denatured ethanol load-out rate associated with the loadout system (EU035 and EU036) shall not exceed 101,400,000 gallons per twelve (12) consecutive month period, with compliance determined at the end of each month.

(2) The Permittee shall use flare CE007 to control the emissions from the denatured ethanol loadout system (EU035 and EU036) when loading denatured ethanol.

(3) VOC emissions from flare CE007 exhaust shall not exceed 0.10 pounds per thousand gallons.

(4) NOx emissions from flare CE007 exhaust shall not exceed 0.077 pounds per thousand gallons.

(5) CO emissions from flare CE007 exhaust shall not exceed 0.129 pounds per thousand gallons.

(6) The railcar loading rack (EU035), shall utilize only submerged fill loading and railcars that use dedicated non-vapor balance (normal) service.

(7) The truck loading rack (EU036), shall use only submerged fill loading.

(e) The Permittee shall comply with the following requirements for the boilers (EU046 and EU047):

(1) The boilers shall only burn natural gas.

(2) The total input of the natural gas to the boilers shall not exceed 2514.1 MMCF per twelve (12) consecutive month period, with compliance determined at the end of each month.

(3) NOx emissions shall not exceed 30 pounds per MMCF.

(4) CO emissions from the boilers shall not exceed 30 pounds per MMCF.

(f) The Permittee shall comply with the following requirements for the methanator flare (CE012):

(1) The methanator flare (CE012) shall be designed as a smokeless flare.

(2) The emissions from the digester for process water (EU049) shall be vented to the methanator flare (CE012).

(g) The cooling towers (EU050) shall comply with the following:

(1) The PM10 emissions from the cooling towers shall not exceed 2.25 pounds per hour.

(h) The diesel fire pump shall comply with the following:

(1) The input of diesel fuel to the diesel fire pump (EU048) shall not exceed 7,025 gallons per twelve (12) consecutive month period with compliance determined at the end of each month.

Combined with the NOx, CO, PM/PM10, VOC, and HAP emissions from other units, the NOx, CO, PM/PM10, and 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) and 326 IAC 2-2 (PSD) are not applicable.

State Rule Applicability - Corn Receiving and Handling Operations and DDGS Handling and Loadout Operations

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

Unit ID	Unit Description	Max. Throughput Rate (tons/hr)	Particulate Emission Limit (lbs/hr)
EU001	Truck Unloading Pits	560	70.32
EU002	Rail Unloading Pit	840	75.35
EU003	Corn Conveying and Handling System	1400	82.02
EU004	Corn Elevator	1400	82.02
EU005	Corn Conveying and Handling System	1400	82.02
EU006 and EU007	Corn Storage Silos	1400	82.02
EU008	Hammermill #1	115.32	52.72
EU009	Hammermill #2	115.32	52.72
EU010	Hammermill #3	115.32	52.72
EU040	DDGS Conveyor	40	42.53
EU041	DDGS Storage Building	44	43.40
EU042	DDGS Loadout Spout	44	43.40

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

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

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

Pursuant to 326 IAC 6-3-2(e)(3), when the process weight exceeds 200 tons per hour, the maximum allowable emission may exceed the emission limits shown in the table above, provided the concentration of particulate matter in the gas discharged to the atmosphere is less than 0.10 pounds per 1,000 pounds of gases.

The baghouses (CE001 through CE004, and CE011) shall be in operation at all times the respective processes are in operation, in order to comply with this limit.

State Rule Applicability - Fermentation, and Distillation and Dehydration Operations

326 IAC 8-1-6 (General Reduction Requirements for VOC Emissions)
The fermentation, and distillation and dehydration process will be constructed after January 1, 1980 and has potential VOC emissions greater than twenty-five (25) tons per year. There are no other rules in 326 IAC 8 applicable to this process. Therefore, this process is subject to 326 IAC 8-1-6 and the Permittee is required to control VOC emissions from this process using the Best Available Control Technology (BACT). Based on the BACT determination included in Appendix B, BACT for this process has been determined to be the following:

(a) The VOC emissions from the fermentation process shall be controlled by wet scrubber CE005 with sodium bisulfite injection.

(b) The VOC emissions from the distillation and dehydration process shall be controlled by wet scrubber CE006 with sodium bisulfite injection.

(c) The overall control efficiency for the fermentation wet scrubber (CE005) (including the capture efficiency and adsorption efficiency) shall be at least 99%, or the VOC outlet concentration shall not exceed 10 ppmv.

(d) The overall control efficiency for the distillation and dehydration wet scrubber (CE006) (including the capture efficiency and adsorption efficiency) shall be at least 99%, or the VOC outlet concentration shall not exceed 10 ppmv.

(e) The VOC emissions from wet scrubber CE005 shall not exceed 11.00 pounds per hour.

(f) The VOC emissions from wet scrubber CE006 shall not exceed 1.40 pounds per hour.

State Rule Applicability - DDGS Dryer and Cooling Process

326 IAC 6-3-2 (Particulate Emission Limitations for Manufacturing Processes)
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)
EU037	DDGS Dryer	19.3	29.79
EU038	DDGS Dryer	19.3	29.79
EU039	DDGS Cooler	38.6	47.40

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

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

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

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

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

The use of the thermal oxidizers CE008 and CE009 is necessary to demonstrate compliance with the PM limits above.

326 IAC 8-1-6 (General Reduction Requirements for VOC Emissions)
The DDGS Dryers and Coolers operations will be constructed after January 1, 1980 and have potential VOC emissions greater than twenty-five (25) tons per year. There are no other rules in 326 IAC 8 applicable to this process. Therefore, this process is subject to 326 IAC 8-1-6 and the Permittee is required to control VOC emissions from this process using the Best Available Control Technology (BACT). Based on the BACT determination included in Appendix B, BACT for this process has been determined to be the following:

(a) The VOC emissions from the DDGS dryer EU037 shall be controlled by RTO CE008.

(b) The VOC emissions from the DDGS dryer EU038 shall be controlled by RTO CE009.

(c) The overall control efficiency, including the capture efficiency and destruction efficiency, for the RTOs (CE008 and CE009) shall each be at least 99%, or the VOC outlet concentration shall not exceed 10 ppmv.

(d) The VOC emissions from the RTOs stack PS010, shall not exceed 4.54 lbs/hr.

State Rule Applicability - Denatured Ethanol Loading Racks

326 IAC 8-1-6 (General Reduction Requirements for VOC Emissions)
The railcar loading rack (EU0350 and the truck loading rack (EU036) will be constructed after January 1, 1980 and has potential VOC emissions greater than twenty-five (25) tons per year. There are no other rules in 326 IAC 8 applicable to this process. Therefore, this process is subject to 326 IAC 8-1-6 and the Permittee is required to control VOC emissions from this process using the Best Available Control Technology (BACT). Based on the BACT determination included in Appendix B, BACT for this process has been determined to be the following:

(a) VOC emissions from the denatured ethanol loadout system (EU035 and EU036) shall be collected and controlled by enclosed flare CE007 when loading denatured ethanol to truck.

(b) The overall control efficiency for the vapor collection system and enclosed flare CE007 shall be at least 98%.

(c) VOC emissions from flare CE007 exhaust shall not exceed 0.10 pounds per thousand gallons of denatured ethanol loaded.

(d) The denatured ethanol loading rack system (EU035 and EU036) shall use only submerged fill loading.

State Rule Applicability - Natural Gas Fired Boilers

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))
Boilers EU046 and EU047, which are considered sources of indirect heat, will be constructed after September 21, 1983. Therefore, the boilers are subject to the requirements of 326 IAC 6-2-4 and shall comply with the following emission limit:

The PM emissions from the boilers (EU046 and EU047) shall not exceed 0.25 pounds per million Btu heat input (lb/MMBtu). This limitation was calculated using the following equation:

$$Pt = \frac{1.09}{Q^{0.26}}$$

where Q = total source heat input capacity (MMBtu/hr)
For this unit, Q = 287.0 MMBtu/hr.

State Rule Applicability - Insignificant Acitivities

326 IAC 6-3-2 (Particulate Emission Limitations for Manufacturing Processes) Cooling Towers
Pursuant to 326 IAC 6-3-1(b)(11), particulate emissions from the noncontact cooling tower systems (EU050) are exempt from the requirements of 326 IAC 6-3.

326 IAC 8-4-3 (Petroleum Liquid Storage Facilities) Tanks TK001 through TK006
The denaturant storage tank TK004 has a maximum capacity greater than 39,000 gallons and will be used to store gasoline which has a vapor pressure greater than 1.52 psi. Therefore, tank TK004 is subject to the requirements of 326 IAC 8-4-3. Tank TK004 will be equipped with an internal floating roof. The Permittee shall comply with the following requirements for tank TK004:

(a) Pursuant to 326 IAC 8-4-3(b)(1)(B), storage tank TK004 shall be maintained such that there are no visible holes, tears, or other openings in the seal or any seal fabric or materials.

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

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

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

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

(c) Pursuant to 326 IAC 8-4-3(d) (Petroleum Liquid Storage Facilities), the Permittee shall maintain the following records for a period of two (2) years for tank TK004:

(1) The types of volatile petroleum liquid stored;

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

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

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

Tanks TK001, TK002, TK003, TK005, and TK006 will not be used to store petroleum. Therefore, these tanks are not subject to the requirements of 326 IAC 8-4-3.

326 IAC 8-9 (Volatile Organic Liquid Storage Vessels) Tanks TK001 through TK005
The source is not located in Clark, Floyd, Lake, or Porter County. Therefore, the requirements of 326 IAC 8-9-1 are not applicable to the tanks at this source.

Testing Requirements

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

(a) PM, and PM10 testing for baghouses CE001 and CE011, and for one of the baghouses CE002, CE003, or CE004, which are used to control the corn receiving and handling (EU001 through EU007), the hammermills (EU008, EU009, EU010), and the DDGS handling and loadout operations (EU040, EU041).

(b) VOC and acetaldehyde testing (including capture efficiency, removal efficiency, and emission rate) for scrubbers CE005 and CE006, which are used to control the pre-fermentation, the fermentation, and the distillation and dehydration operations.

(c) PM, PM10, VOC (including emission rate, destruction efficiency, and capture efficiency), NOx, CO, and Acetaldehyde testing for the RTOs common stack (PS010), which are used to control the DDGS dryers (EU037 and EU038), the DDGS cooler (EU039), and emission units EU028, EU029, EU033, and EU034.

(d) VOC (including emission rate, destruction efficiency, and capture efficiency), CO, and NOx testing for enclosed flare CE007, which is used to control emissions from the railcar loading rack (EU035) and the truck loading rack (EU036).

(e) NOx and CO testing for the boilers EU046 and EU047.

Compliance Determination and Monitoring Requirements

Permits issued under 326 IAC 2-7 are required to ensure that sources can demonstrate compliance with all applicable state and federal rules on a continuous basis. All state and federal rules contain compliance provisions, however, these provisions do not always fulfill the requirement for a continuous demonstration. When this occurs IDEM, OAQ, in conjunction with the source, must develop specific conditions to satisfy 326 IAC 2-7-5. As a result, Compliance Determination Requirements are included in the permit. The Compliance Determination Requirements in Section D of the permit are those conditions that are found directly within state and federal rules and the violation of which serves as grounds for enforcement action.

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

(a) The corn receiving and handling (EU001 through EU007), the hammermills (EU008, EU009, EU010), and the DDGS handling and loadout operations (EU040, EU041) have applicable compliance monitoring conditions as specified below:

(1) Visible emission notations of the baghouse stack exhausts (stacks PS001 through PS004, and PS011) 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. 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. 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.

(2) The Permittee shall record the pressure drop across the baghouses (CE001 through CE004, and CE011) used in conjunction with the corn receiving and handling operations (EU001 through EU007), the hammermills (EU008, EU009, EU010), and the DDGS handling and loadout operations (EU040, EU041), 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.

(3) In the event that bag failure has been observed:

(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 baghouse controlling emissions from a batch process, the feed to the process shall be shut down immediately until the failed unit has been repaired or replaced. The emissions unit shall be shut down no later than the completion of the processing of the material in 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.

These monitoring conditions are necessary because the baghouses controlling the corn receiving and handling operations (EU001 through EU007), the hammermills (EU008, EU009, EU010), and the DDGS handling and loadout operations (EU040 and EU041), must operate properly to ensure compliance with 326 IAC 2-8 (FESOP) and 326 IAC 6-3-2 (Particulate Emission Limitations for Manufacturing Processes), and to render 326 IAC 2-7 (Part 70 Program) and 326 IAC 2-2 (PSD) not applicable.

(b) The wet scrubber controlling the fermentation process (CE005), and the wet scrubber controlling the distillation and dehydration process (CE006) have applicable compliance monitoring conditions as specified below:

(1) The Permittee shall monitor and record the flow rate of scrubbers CE005 and CE006 at least once per day when the associated processes are in operation. When for any one reading, the flow rate of the any scrubber is less than the normal minimum stated in the table below, 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.

Scrubber ID	Associated Process	Minimum Flow Rate
CE005	Fermentation	120 gallons per minute
CE006	Distillation & Dehydration	12 gallons per minute

(2) The Permittee shall monitor and record the pressure drop across the scrubbers CE005 and CE006 at least once per day when the associated processes are in operation. When for any one reading, the pressure drop across a scrubber is outside the normal range of 1.0 and 6.0 inches of water, or a minimum established during the latest stack test, the Permittee shall take reasonable response steps in accordance with Section C - Response to Excursions or Exceedances. A pressure reading that is outside the above mentioned range 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.

(3) Continuous monitoring systems shall be calibrated, maintained, and operated on the fermentation scrubber (CE005), and the distillation and dehydration scrubber (CE006) for measuring the sodium bisulfite injection rates. For the purpose of this condition, continuous means no less than once per minute. The output of

each of these systems shall be recorded as a one-hour averages. From the date of issuance of this permit until the approved stack tests results are available, the Permittee shall inject sodium bisulfite at a minimum rate of 12 milliliters per minute per scrubber. The Permittee shall determine the one-hour average injection rates from the most recent valid stack tests that demonstrates compliance with applicable limits set forth in the permit as approved by IDEM. 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 rates as observed during the compliant stack tests.

(4) In the event that a scrubber malfunction has been observed:

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

These monitoring conditions are necessary because the wet scrubber controlling the fermentation process (CE005), and the wet scrubber controlling the distillation and dehydration process (CE006), must operate properly to ensure compliance with 326 IAC 2-8 (FESOP) and 326 IAC 8-1-6 (BACT), and to render 326 IAC 2-7 (Part 70 Program), 326 IAC 2-4.1 (MACT), and 326 IAC 2-2 (PSD) not applicable.

(c) The RTO CE008, which controls the DDGS dryer (EU037), the DDGS cooler (EU039), and emission units EU028, EU029, EU033, and EU034, and the RTO CE009, which controls the DDGS dryer (EU038), the DDGS cooler (EU039), and emission units EU028, EU029, EU033, and EU034 have the applicable compliance monitoring conditions as specified below:

(1) Visible emission notations of the stack exhaust from the RTOs CE008 and CE009 (stack PS010) shall be performed once per day during normal daylight operations. A trained employee or a trained contractor shall record whether emissions are normal or abnormal. 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 or contractor is a person who has worked or trained at the plant at least one (1) month and has been trained in the appearance and characteristics of normal visible emissions for that specific process. If abnormal emissions are observed, the Permittee shall take reasonable response steps in accordance with Section C- Response to Excursions or Exceedances. Failure to take response steps in accordance with Section C - Response to Excursions or Exceedances shall be considered a deviation from this permit.

(2) A continuous monitoring system shall be calibrated, maintained, and operated on the RTOs (CE008 and CE009) for measuring operating temperature. For the purpose of this condition, continuous means no less than once per minute. The output of this system shall be recorded as 3-hour average. From the date of issuance of this permit until the approved stack test results are available, the Permittee shall operate the RTOs (CE008 and CE009) at or above the 3-hour average temperature of 1,400°F. The Permittee shall determine the 3-hour average temperature from the most recent valid stack test that demonstrates compliance with limits in Conditions D.3.5 and D.3.6, as approved by IDEM. On and after the date the approved stack test results are available, the Permittee

shall operate the RTOs (CE008 and CE009) at or above the hourly average temperature as observed during the compliant stack test.

(3) The Permittee shall determine the appropriate duct pressure or fan amperage from the most recent valid stack test that demonstrates compliance with limits in Conditions D.3.5 and D.3.6, as approved by IDEM. The duct pressure or fan amperage shall be observed at least once per day when the RTOs (CE008 and CE009) are in operation. On and after the date the approved stack test results are available, the duct pressure or fan amperage shall be maintained within the normal range as established in most recent compliant stack test.

These monitoring conditions are necessary because the RTO CE008, which controls the DDGS dryer (EU037), the DDGS cooler (EU039), and emission units EU028, EU029, EU033, and EU034, and the RTO CE009, which controls the DDGS dryer (EU038), the DDGS cooler (EU039), and emission units EU028, EU029, EU033, and EU034, must operate properly to ensure compliance with 326 IAC 2-8 (FESOP), 326 IAC 8-1-6 (BACT), and 326 IAC 6-3-2 (Particulate Emission Limitations for Manufacturing Processes), and to render 326 IAC 2-7 (Part 70 Program) and 326 IAC 2-2 (PSD) not applicable.

(d) The enclosed flare CE007, which controls the railcar loading rack (EU035) and the truck loading rack (EU036), has applicable compliance monitoring conditions as specified below:

(1) Visible emission notations of the flare (CE007) stack exhaust (PS009) 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. 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. 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.

(2) 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 railcar loading rack (EU035) or the truck loading rack (EU036) are in operation.

These monitoring conditions are necessary because the enclosed flare (CE007), must operate properly to ensure compliance with 326 IAC 2-8 (FESOP) and 326 IAC 8-1-6 (BACT)), and to render 326 IAC 2-7 (Part 70 Program), 326 IAC 2-4.1 (MACT), and 326 IAC 2-2 (PSD) not applicable.

Conclusion and Recommendation

The construction and operation of this proposed ethanol production plant shall be subject to the conditions of FESOP 007-24059-00019. The staff recommend to the Commissioner that this Federally Enforceable State Operating Permit (FESOP) be approved.

Appendix A: Emission Calculations
Emissions Summary

Company Name: Maize AgriProducts, Inc.
Address: 6301 South U.S. Highway 41, Boswell, IN 47921
FESOP: F 007-24059-00019
Reviewer: Jenny Acker
Date: December 22, 2006

Process	Potential to Emit Before Control					
	PM	PM10	VOC	NOx	SO2	CO
Baghouse - Grain Receiving and Handling (EU001 - EU007)	619.46	619.46	--	--	--	--
Hammermill #1 (EU008)	122.01	122.01	--	--	--	--
Hammermill #2 (EU009)	122.01	122.01	--	--	--	--
Hammermill #3 (EU010)	122.01	122.01	--	--	--	--
DDGS Handling/Loadout (EU040, EU041, EU042)	75.64	75.22	--	--	--	--
Scrubber - Fermentation (EU016 - EU023)	--	--	4818.00			
Scrubber - Distillation Scrubber (EU024 - EU027, EU030 - EU032)	--	--	613.20	--	--	--
RTOs - (EU028, EU029, EU033, EU034, EU037 - EU039)	197.90	197.90	1932.16	33.15	0.50	69.61
Ethanol Loadout Flare (EU035 and EU036)	--	--	1035.58	20.24	--	33.90
Fire Pump (EU048)	1.06	1.06	3.03	20.72	0.62	6.91
Methanator Flare (EU049)	--	--	0.79	1.04	-	5.64
Boilers #1 and #2 (EU046, EU047)	9.55	9.55	6.91	37.71	0.75	37.71
Truck Traffic (EU045)	35.86	6.93	--	--	--	--
Equipment Leaks	--	--	44.50	--	--	--
Cooling Towers (EU050)	9.87	9.87	--	--	--	--
Wet Cake Production	--	--		--	--	--
Storage Tanks (TK001 - TK006)	--	--	2.89	--	--	--
Totals:	**1315.38**	**1286.04**	**8457.06**	**112.85**	**1.87**	**153.77**

Appendix A: Emission Calculations
Emissions Summary (continued)

Process	Control Device	Potential to Emit After Control (ton/yr)					
		PM	PM10	VOC	NOx	SO2	CO
Baghouse - Grain Receiving and Handling (EU001 - EU007)	CE001	6.19	6.19	--	--	--	--
Hammermill #1 (EU008)	CE002	1.22	1.22	--	--	--	--
Hammermill #2 (EU009)	CE003	1.22	1.22	--	--	--	--
Hammermill #3 (EU010)	CE004	1.22	1.22	--	--	--	--
DDGS Handling/Loadout (EU040, EU041, EU042)	CE011	1.31	0.89	--	--	--	--
Scrubber - Fermentation (EU016 - EU023)	CE005	--	--	48.18	--	--	--
Scrubber - Distillation Scrubber (EU024 - EU027, EU030 - EU032)	CE006	--	--	6.13	-	--	--
RTOs - (EU028, EU029, EU033, EU034, EU037 - EU039)	CE008 CE009	40.22	40.22	19.89	33.15	0.50	10.05
Ethanol Loadout Flare (EU035 and EU036)	CE007	--	--	5.00	3.90	--	6.54
Fire Pump (EU048)	--	0.06	0.06	0.17	1.18	0.04	0.39
Methanator Flare (EU049)		--	--	0.79	1.04	-	5.64
Boilers #1 and #2 (EU046, EU047)	--	9.55	9.55	6.91	37.71	0.75	37.71
Truck Traffic (EU045)	--	17.93	3.47	--	--	--	--
Equipment Leaks	--	--	--	9.33	--	--	--
Cooling Towers (EU050)	--	9.87	9.87	--	--	--	--
Wet Cake Production		--	--	--	--	--	--
Storage Tanks (TK001 - TK006)	--	--	--	2.89	--	--	--
Totals:		**88.79**	**73.91**	**99.30**	**76.98**	**1.29**	**60.33**

Notes:
This facility can produce both DDGS and WDGS. The site PTE has conservatively assumed that 100% of the DGS will be dried to produced DDGS.

Appendix A: Emission Calculations
HAPs Emissions Summary

Company Name: Maize AgriProducts, Inc.
Address: 6301 South U.S. Highway 41, Boswell, IN 47921
FESOP: F 007-24059-00019
Reviewer: Jenny Acker
Date: December 22, 2006

Pollutant	Emission Source								
	RTOs Stack (ton/yr)	Boilers (ton/yr)	Fermentation (ton/yr)	Distillation (ton/yr)	Equipment Leaks (ton/yr)	Tanks (ton/yr)	Ethanol Loadout (ton/yr)	Water Pump (ton/yr)	Total Facility (ton/yr)
2-Methylnaphthalene	1.99E-05	3.05E-05	---	---	---	---	---	---	5.0E-05
3-Methylchloranthrene	1.49E-06	2.29E-06	---	---	---	---	---	---	3.8E-06
7,12-Dimethylbenz(a)anthracene	1.33E-05	2.04E-05	---	---	---	---	---	---	3.4E-05
1,3-Butadiene	--	---	--	---	---	---	---	2.69E-03	2.7E-03
2,2,4-trimethylpentane	--	--	--	--	3.65E-03	1.02E-02	4.00E-02	---	
Acenaphthene	1.49E-06	2.29E-06	---	---	---	---	---	---	3.8E-06
Acenaphthlyene	1.49E-06	2.29E-06	---	---	---	---	---	---	3.8E-06
Acetaldehyde*	2.65E+00	---	3.50E+00	1.75E+00	9.02E-02	---	---	5.27E-02	8.05
Acrolein	1.93E-02	---	2.19E-01	1.31E-01	---	---	---	6.36E-03	3.8E-01
Anthracene	1.99E-06	3.05E-06	---	---	---	---	---	---	5.0E-06
Benz(a)anthracene	1.49E-06	2.29E-06	---	---	---	---	---	---	3.8E-06
Benzene	1.74E-03	2.67E-03	---	---	1.01E-03	1.15E-02	4.50E-02	6.41E-02	1.3E-01
Benzo(a)pyrene	9.94E-07	1.53E-06	---	---	---	---	---	---	2.5E-06
Benzo(b)fluoranthene	1.49E-06	2.29E-06	---	---	---	---	---	---	3.8E-06
Benzo(g,h,i)perylene	9.94E-07	1.53E-06	---	---	---	---	---	---	2.5E-06
Benzo(k)fluoranthene	1.49E-06	2.29E-06	---	---	---	---	---	---	3.8E-06
Carbon Disulfide	--	---	---	---	---	---	---	---	0.0E+00
Chrysene	1.49E-06	2.29E-06	---	---	---	---	---	---	3.8E-06
Cumene	--	---	---	---	---	---	---	---	0.0E+00
Dibenzo(a,h)anthracene	9.94E-07	1.53E-06	---	---	---	---	---	---	2.5E-06
Dichlorobenzene	9.94E-04	1.53E-03	---	---	---	---	---	---	2.5E-03
Ethyl Benzene	--	---	---	---	5.50E-03	1.28E-03	5.00E-03	---	1.2E-02
Fluoranthene	2.49E-06	3.82E-06	---	---	---	---	---	---	6.3E-06
Fluorene	2.32E-06	3.56E-06	---	---	---	---	---	---	5.9E-06
Formaldehyde	1.93E-02	9.55E-02	2.19E-01	1.31E-01	---	---	---	---	5.5E-01
Hexane	1.49E+00	2.29E+00	---	---	1.37E-03	2.05E-02	7.99E-02	8.11E-02	3.88
Indeno(1,2,3-cd)pyrene	1.49E-06	2.29E-06	---	---	---	---	---	---	3.8E-06
Methanol	5.79E-02	---	8.76E-03	4.38E-03	1.20E-02	---	---	---	0.08
Napthalene	5.06E-04	7.76E-04	---	---	---	---	---	---	1.3E-03
Phenanathrene	1.41E-05	2.16E-05	---	---	---	---	---	---	3.6E-05
Propylene	--	---	---	---	---	---	---	1.77E-01	1.8E-01
Pyrene	4.14E-06	6.36E-06	---	---	---	---	---	---	1.1E-05
Toluene	2.82E-03	4.33E-03	---	---	2.67E-03	1.66E-02	6.49E-02	2.81E-02	1.2E-01
Xylenes	--	---	---	---	1.82E-02	6.40E-03	2.50E-02	1.96E-02	6.9E-02
Arsenic	1.99E-04	3.05E-04	---	---	---	---	---	---	5.0E-04
Beryllium	--	---	---	---	---	---	---	---	0.00
Cadmium	9.12E-04	1.40E-03	---	---	---	---	---	---	2.3E-03
Chromium	1.16E-03	1.78E-03	---	---	---	---	---	---	2.9E-03
Cobalt	6.96E-05	1.07E-04	---	---	---	---	---	---	1.8E-04
Manganese	3.15E-04	4.84E-04	---	---	---	---	---	---	8.0E-04
Mercury	2.15E-04	3.31E-04	---	---	---	---	---	---	5.5E-04
Nickel	1.74E-02	2.67E-02	---	---	---	---	---	---	4.4E-02
PAH/POM	--	--	---	---	---	---	---	---	0.02
Totals (ton/yr)	4.26	2.43	3.95	2.02	4.44E-03	6.40E-04	2.50E-03	1.16E-02	13.52
*Largest Individual HAP.					0.14	0.07	0.26	0.44	
other HAPs	8.44E-02	4.06E-02	8.76E-03	4.38E-03	4.74E-02	4.67E-02	1.82E-01	3.03E-01	6.64E-01

Appendix A: Emission Calculations
HAPs Combustion Emissions Summary

Company Name: Maize AgriProducts, Inc.
Address: 6301 South U.S. Highway 41, Boswell, IN 47921
FESOP: F 007-24059-00019
Reviewer: Jenny Acker
Date: December 22, 2006

Combustion HAP Calculations

		RTOs		*Dryers*		*Boilers*	
		24 MMBtu/hr		165.2 MMBtu/hr		290.6 MMBtu/hr	
Pollutant	Emission Factor* (lb/MMBtu)	Potential to Emit Emissions (lb/hr)	Potential to Emit Emissions (ton/yr)	Potential to Emit Emissions (lb/hr)	Potential to Emit Emissions (ton/yr)	Potential to Emit Emissions (lb/hr)	Potential to Emit Emissions (ton/yr)
2-Methylnaphthalene	2.40E-08	5.8E-07	2.5E-06	4.0E-06	1.7E-05	6.97E-06	3.05E-05
3-Methylchloranthrene	1.80E-09	4.3E-08	1.9E-07	3.0E-07	1.3E-06	5.23E-07	2.29E-06
7,12-Dimethylbenz(a)anthracene	1.60E-08	3.8E-07	1.7E-06	2.6E-06	1.2E-05	4.65E-06	2.04E-05
Acenaphthene	1.80E-09	4.3E-08	1.9E-07	3.0E-07	1.3E-06	5.23E-07	2.29E-06
Acenaphthlyene	1.80E-09	4.3E-08	1.9E-07	3.0E-07	1.3E-06	5.23E-07	2.29E-06
Anthracene	2.40E-09	5.8E-08	2.5E-07	4.0E-07	1.7E-06	6.97E-07	3.05E-06
Benz(a)anthracene	1.80E-09	4.3E-08	1.9E-07	3.0E-07	1.3E-06	5.23E-07	2.29E-06
Benzene	2.10E-06	5.0E-05	2.2E-04	3.5E-04	1.5E-03	6.10E-04	2.67E-03
Benzo(a)pyrene	1.20E-09	2.9E-08	1.3E-07	2.0E-07	8.7E-07	3.49E-07	1.53E-06
Benzo(b)fluoranthene	1.80E-09	4.3E-08	1.9E-07	3.0E-07	1.3E-06	5.23E-07	2.29E-06
Benzo(g,h,i)perylene	1.20E-09	2.9E-08	1.3E-07	2.0E-07	8.7E-07	3.49E-07	1.53E-06
Benzo(k)fluoranthene	1.80E-09	4.3E-08	1.9E-07	3.0E-07	1.3E-06	5.23E-07	2.29E-06
Chrysene	1.80E-09	4.3E-08	1.9E-07	3.0E-07	1.3E-06	5.23E-07	2.29E-06
Dibenzo(a,h)anthracene	1.20E-09	2.9E-08	1.3E-07	2.0E-07	8.7E-07	3.49E-07	1.53E-06
Dichlorobenzene	1.20E-06	2.9E-05	1.3E-04	2.0E-04	8.7E-04	3.49E-04	1.53E-03
Fluoranthene	3.00E-09	7.2E-08	3.2E-07	5.0E-07	2.2E-06	8.72E-07	3.82E-06
Fluorene	2.80E-09	6.7E-08	2.9E-07	4.6E-07	2.0E-06	8.14E-07	3.56E-06
Formaldehyde	7.50E-05	1.8E-03	7.9E-03	1.2E-02	5.4E-02	2.18E-02	9.55E-02
Hexane	1.80E-03	4.3E-02	1.9E-01	3.0E-01	1.3E+00	5.23E-01	2.29E+00
Indeno(1,2,3-cd)pyrene	1.80E-09	4.3E-08	1.9E-07	3.0E-07	1.3E-06	5.23E-07	2.29E-06
Napthalene	6.10E-07	1.5E-05	6.4E-05	1.0E-04	4.4E-04	1.77E-04	7.76E-04
Phenanathrene	1.70E-08	4.1E-07	1.8E-06	2.8E-06	1.2E-05	4.94E-06	2.16E-05
Pyrene	5.00E-09	1.2E-07	5.3E-07	8.3E-07	3.6E-06	1.45E-06	6.36E-06
Toluene	3.40E-06	8.2E-05	3.6E-04	5.6E-04	2.5E-03	9.88E-04	4.33E-03
Arsenic	2.40E-07	5.8E-06	2.5E-05	4.0E-05	1.7E-04	6.97E-05	3.05E-04
Cadmium	1.10E-06	2.6E-05	1.2E-04	1.8E-04	8.0E-04	3.20E-04	1.40E-03
Chromium	1.40E-06	3.4E-05	1.5E-04	2.3E-04	1.0E-03	4.07E-04	1.78E-03
Cobalt	8.40E-08	2.0E-06	8.8E-06	1.4E-05	6.1E-05	2.44E-05	1.07E-04
Manganese	3.80E-07	9.1E-06	4.0E-05	6.3E-05	2.7E-04	1.10E-04	4.84E-04
Mercury	2.60E-07	6.2E-06	2.7E-05	4.3E-05	1.9E-04	7.56E-05	3.31E-04
Nickel	2.10E-05	5.0E-04	2.2E-03	3.5E-03	1.5E-02	6.10E-03	2.67E-02
Totals		**0.05**	**0.20**	**0.32**	**1.38**	**0.55**	**2.43**

*Emission Factors are from AP-42, 5th Edition, Section 1.4, "Natural Gas Combustion ," 7/98

Appendix A: Emission Calculations
PM and PM10 Emissions
From the Corn Receiving, Handling, and Hammermilling Operations
and the DDGS Handling Operations

Company Name: Maize AgriProducts, Inc.
Address: 6301 South U.S. Highway 41, Boswell, IN 47921
FESOP: F 007-24059-00019
Reviewer: Jenny Acker
Date: December 22, 2006

1. Potential to Emit PM/PM10 - Captured Emissions:

Baghouse ID	Process Description	Outlet Grain Loading (gr/dscf)	Maximum Air Flow Rate (scfm)	PTE of PM/PM10 after Control (lbs/hr)	PTE of PM/PM10 after Control (tons/yr)	Control Efficiency (%)	PTE of PM/PM10 before Control (tons/yr)
CE001	Corn Receiving and Handling (EU001 - EU07)	0.005	33,000	1.41	6.19	99%	619
CE002	Hammermill #1 EU008	0.005	6,500	0.28	1.22	99%	122
CE003	Hammermill #2 EU009	0.005	6,500	0.28	1.22	99%	122
CE004	Hammermill #3 EU010	0.005	6,500	0.28	1.22	99%	122
CE011	DDGS Handling (EU040, EU41)	0.005	4,000	0.17	0.75	99%	75
Total				**2.42**	**10.6**		**1,061**

Assume all PM emissions equal PM10 emissions.

Methodology

PTE of PM/PM10 after Control (lbs/hr) = Grain Loading (gr/dscf) x Max. Air Flow Rate (scfm) x 60 mins/hr x 1/7000 lb/gr
PTE of PM/PM10 after Control (tons/yr) = Grain Loading (gr/dscf) x Max. Air Flow Rate (scfm) x 60 mins/hr x 1/7000 lb/gr x 8760 hr/yr x 1 ton/2000 lbs
PTE of PM/PM10 before Control (tons/yr) = PTE of PM/PM10 after Control (tons/yr) / (1-Control Efficiency)

2. Potential to Emit PM/PM10 - Fugitive Emissions:

Unit ID	Unit Description	Annual Throughput Limit (tons/yr)	Uncontrolled PM Emission Factor (lbs/ton)	Uncontrolled PM10 Emission Factor (lbs/ton)	Fugitive PM Emissions (tons/yr)	Fugitive PM10 Emissions (tons/yr)
EU042	Uncaptured Emissions From DDGS Handling (Loadout)	338,206	0.003	0.0008	0.56	0.14

Note: Emission factors are from AP-42, Chapter 9.9.1-1 and AP-42, Chapter 9.9.1-2. Assume all the corn receiving and loadout is by truck, which is the worst case scenario.
The Permittee stated that there are no fugitive emissions from the corn handling operations because the emissions from these units are 100% captured.

Methodology

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

Appendix A: Emission Calculations
Fermentation Scrubber (CE005)

Company Name: Maize AgriProducts, Inc.
Address: 6301 South U.S. Highway 41, Boswell, IN 47921
FESOP: F 007-24059-00019
Reviewer: Jenny Acker
Date: December 22, 2006

Emission Unit: **Fermentation Process Area Sources - EU016 through EU023**

Source description: Potential VOC and HAP emissions from Pre-Fermenter Tank, Fermentation Tanks 1-6, and Beer Well. Uncontrolled emissions vented to the Fermentation (VOC) Scrubber (CE005).

OPERATION/PRODUCTION RELATED INFORMATION

Parameter	*value*	*units*	*Reference*
Maximum saccharified mash input	363	tons/hr	plant design - specification basis
Maximum beer output	360	tons/hr	plant design - specification basis

EMISSION RELATED INFORMATION AND CALCULATION METHODOLOGY

VOC/HAP emission factors provided by process and control equipment supplier and calculated using process simulation program CHEMCAD VS 5.5.

Pollutant	*value*	*units*	*Reference*
VOC capture efficiency	100	percent	enclosed process design
Scrubber VOC control efficiency (minimum)	99	percent	equipment design specification
VOC - controlled	11.0	lbs/hr	equipment supplier specification
acetaldehyde - controlled	0.80	lb/hr	equipment supplier specification
acrolein -controlled	0.05	lb/hr	equipment supplier specification
formaldehyde - controlled	0.05	lb/hr	equipment supplier specification
methanol - controlled	0.002	lb/hr	equipment supplier specification

Note: Equipment supplier reports 0.90 lb/hr acetaldehyde including trace amounts of acrolein and formaldehyde - 0.05 lb/hr for each was assumed.

POTENTIAL EMISSION CALCULATIONS - based on 8,760 hrs/yr operation

Pollutant	Potential Emissions	
	lbs/hr	tpy
NMHC (VOC)	11.00	48.18
Total HAPs	0.90	3.95
acetaldehyde	0.80	3.50
acrolein	0.05	0.22
formaldehyde	0.05	0.22
methanol	0.00	0.01

Appendix A: Emission Calculations
Distillation and Dehydration Scrubber (CE006)

Company Name: Maize AgriProducts, Inc.
Address: 6301 South U.S. Highway 41, Boswell, IN 47921
FESOP: F 007-24059-00019
Reviewer: Jenny Acker
Date: December 22, 2006

Emission Units: **Distillation/Dehydration Process Area Sources - EU024 through EU027**

Source description: Potential VOC and HAP emissions from Beer Stripper, Stripping Column, Rectifying Column, and Molecular Sieves. Uncontrolled emissions are vented to the Distillation Scrubber (CE006). Vents from insignificant sources: thin stillage tank (EU030), light evaporator (EU031), and intermediate stillage tank (EU032) are tied into the scrubber system.

OPERATION/PRODUCTION RELATED INFORMATION

Parameter	*value*	*units*	*Reference*
Nominal beer input	360	tons/hr	plant design - specification basis
Nominal anhydrous ethanol output	11,000	gal/hr	plant design - specification basis
Nominal whole stillage output	288	tons/hr	plant design - specification basis

EMISSION RELATED INFORMATION AND CALCULATION METHODOLOGY

VOC/HAP emission factors provided by process and control equipment supplier and calculated using process simulation program CHEMCAD VS 5.5.

Pollutant	*value*	*units*	*Reference*
VOC capture efficiency	100	percent	enclosed process design
Scrubber VOC control efficiency (overall)	99	percent	equipment design specification
VOC - controlled	1.4	lbs/hr	equipment supplier specification
acetaldehyde - controlled	0.40	lb/hr	equipment supplier specification
acrolein -controlled	0.03	lb/hr	equipment supplier specification
formaldehyde - controlled	0.03	lb/hr	equipment supplier specification
methanol - controlled	0.001	lb/hr	equipment supplier specification

Note: Equipment supplier reports 0.46 lb/hr acetaldehyde including trace amounts of acrolein and formaldehyde - 0.03 lb/hr for each was assumed.

POTENTIAL EMISSION CALCULATIONS - based on 8,760 hrs/yr operation

Pollutant	Potential Emissions	
	lbs/hr	tpy
VOC	1.40	6.13
Total HAPs	0.46	2.02
acetaldehyde	0.40	1.75
acrolein	0.03	0.13
formaldehyde	0.03	0.13
methanol	0.00	0.00

Appendix A: Emission Calculations
RTOs CE008 and CE009

Company Name: Maize AgriProducts, Inc.
Address: 6301 South U.S. Highway 41, Boswell, IN 47921
FESOP: F 007-24059-00019
Reviewer: Jenny Acker
Date: December 22, 2006

Emission Units controlled by RTOs CE008 and CE009: DDGS dryers (EU037 and EU038), and DDGS cooler (EU039), and vents from the following: whole stillage tank (EU028), centrifuge/decanters and centrate receiver (EU029), final evaporation concentrators (EU033), and syrup tank (EU034).

1. Emissions from natural gas combustion:
NG combustion emissions based on AP-42 emission factors

Heat input capacity:

DDGS dryers (EU037 and EU038)	=	165.2 MMBtu/hr	=	0.1652 MMcf/hr
RTOs (CE008 and CE009)	=	24 MMBtu/hr		0.024 MMcf/hr

	PM*	PM10*	SO_2	NOx**	VOC	CO**
Emission Factor in lbs/MMCF	7.6	7.6	0.6	40	5.5	84.0
Emission Factor, lb/MMBtu	0.0076	0.0076	0.0006	0.04	0.0055	0.084
Hourly Emissions Dryers (lbs/hour)	1.26	1.26	0.10	6.61	0.91	13.88
Hourly Emissions RTO (lbs/hour)	0.18	0.18	0.01	0.96	0.13	2.02
Potential to Emit in tons/yr	**6.30**	**6.30**	**0.50**	**33.15**	**4.56**	**69.61**

Hazardous Air Pollutant (HAPs)	Emission Factor lb/MMcf	PTE - Dryers (lb/hr)	PTE - RTOs (lb/hr)
2-Methylnaphthalene	2.45E-05	4.05E-06	5.88E-07
Benzene	2.10E-03	3.47E-04	5.04E-05
Dichlorobenzene	1.20E-03	1.98E-04	2.88E-05
Formaldehyde	7.50E-02	1.24E-02	1.80E-03
Hexane	1.80E+00	2.97E-01	4.32E-02
Naphthalene	6.10E-04	1.01E-04	1.46E-05
Phenanathrene	1.70E-05	2.81E-06	4.08E-07
Pyrene	5.00E-06	8.26E-07	1.20E-07
Acetaldehyde ***	1.47E-02	2.43E-03	3.53E-04
Toluene	3.40E-03	5.62E-04	8.16E-05
Totals:		3.13E-01	4.55E-02

2. Pre-RTO Emissions (Dryer natural gas combustion and process related emissions):
VOC emisson factors provided by process supplier and calculated using process program CHEMCAD VS 5.5. Factors for acetaldehyde and methanol are based on percent of uncontrolled VOC emissions at distillation stage. Equipment supplier reports acetaldehyde include trace amounts of acrolein and formaldehyde - 0.05 percent was assumed for each compound. Includes emissions from natural gas combustion by dryers.

Pollutant	lb/hr	tpy	Reference
PM*	45.00	197.10	plant design - vendor spec
PM10*	45.00	197.10	plant design - vendor spec
SO_2	0.10	0.43	Natural Gas Combustion
NOx**	6.61	28.94	Natural Gas Combustion
CO**	13.88	60.78	Natural Gas Combustion
VOC	441.00	1931.58	plant design - vendor spec
acetaldehyde	60.42	264.63	13.70 % VOC engineering assumption
acrolein	0.44	1.93	0.10 % VOC engineering assumption
formaldehyde	0.44	1.93	0.10 % VOC engineering assumption
methanol	1.32	5.79	0.30 % VOC engineering assumption
Other HAPs	0.30	1.31	Natural Gas Combustion

3. Post-RTO Emissions (pre-RTO emissions and RTO natural gas combustion emissions):

RTO VOC control efficiency based on prelinimary equipment design	99.00%
RTO PM control efficiency based on prelinimary equipment design	80.00%
RTO CO control efficiency based on prelinimary equipment design	98.00%

Pollutant	lb/hr	tpy
PM - Pre-RTO Controlled	9.00	39.42
PM - RTO NG comb.	0.18	0.80
PM - Post RTO	**9.18**	**40.22**
PM10 - Pre-RTO Controlled	9.00	39.42
PM10 - RTO NG comb.	0.18	0.80
PM10 - Post RTO	**9.18**	**40.22**
SO_2 - Pre-RTO Controlled	0.10	0.43
SO_2 - RTO NG comb.	0.01	0.06
SO_2 - POST RTO	**0.11**	**0.50**
NOx - Pre-RTO Controlled	6.61	28.94
NOx - RTO NG comb.	0.96	4.20
NOx - POST RTO	**7.57**	**33.15**
CO - Pre-RTO Controlled	0.28	1.22
CO - RTO NG comb.	2.02	8.83
CO - Post RTO	**2.29**	**10.05**
VOC - Pre-RTO Controlled	4.41	19.32
VOC - RTO NG comb.	0.13	0.58
VOC - Post RTO	**4.54**	**19.89**
Total HAPs - Post RTO	**0.67**	**2.96**
acetaldehyde - Post RTO	0.60	2.65
acrolein - Post RTO	0.00	0.02
formaldehyde - Post RTO	0.00	0.02
methanol - Post RTO	0.01	0.06
Other HAPs - Post RTO	0.05	0.21

Methodology:
Total emissions = Pre-RTO emissions * control efficiency + RTOs natural gas combustion emissions

Appendix A: Emission Calculations
Emissions from Railcar Loading Rack (EU035) and
from Truck Loading Rack (EU036)
and Flare (CE007) Combustion

Company Name: Maize AgriProducts, Inc.
Address: 6301 South U.S. Highway 41, Boswell, IN 47921
FESOP: F 007-24059-00019
Reviewer: Jenny Acker
Date: December 22, 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 controlled by flare CE007, 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:

where: $L = 12.46 \times (SPM)/T$

L = loading loss (lbs/kgal)
S = a saturation factor (see AP-42, Table 5.2-1)
P = true vapor pressure of the liquid loaded (psia)
M = molecular weight of vapors
T = temperature of the bulk liquid loaded (degree R)

Previously Stored Liquid	*S	P (psia)	M (lbs/mole lbs)	T (degree R)	L (lbs/kgal)
[1] Gasoline (submerged, dedicated vapor balanced)	1.0	5.7	66	510	9.19
Gasoline (submerged, clean cargo)	0.5	5.7	66	510	4.60
Denatured Ethanol (submerged, dedicated normal)	0.6	0.58	46.6	510	0.40
Denatured Ethanol (submerged, clean cargo)	0.5	0.58	46.6	510	0.33

[1] Therefore, the emission factor for loading denatured ethanol to the trucks which stored gasoline previously
= L (gasoline, normal) - L (gasoline, clean cargo) + L (denatured ethanol, clean cargo) = 4.93 (lbs/kgal)

[1] Therefore, the emission factor for loading denatured ethanol to the dedicated railcars utilizing submerged fill only 0.40 (lbs/kgal)

2. Unlimited Potential to Emit VOC Before Control:

The worst case scenario is assuming that all the trucks are used to ship gasoline before filling with denatured ethanol and all the denatured ethanol is shipped by trucks.

Max. Loading Rate for EU036 = 48.0 Kgal/hr

PTE of VOC before Control (tons/yr) = 48 kgal/hr x 4.93 lbs/kgal x 8760 hr/yr x 1 ton/2000 lbs = **1,036 tons/yr**

[1] The emission factor (lbs/kgal) for loading denatured ethanol to trucks assumed that all the trucks use vapor balance systems.
Therefore, a requirement to use only trucks in non-vapor balance service is not necessary in the permit.
The emission factor (lb/kgal) for loading denatured ethanol to railcars assumed all railcars are in dedicated normal (non-vapor balanced) service.
Therefore, a requirement to use only railcars in dedicated normal (non-vapor balanced) service is required in the permit.

Appendix A: Emission Calculations (Continued)
Emissions from Railcar Loading Rack (EU035) and
from Truck Loading Rack (EU036)
and Flare (CE007) Combustion

3. Limited Potential to Emit VOC after Throughput Limits and Control:

Annual Production Limit:	101.42 Mgal/yr
Railcar Loading Rack Limited Throughput:	101.42 Mgal/yr
Truck Loading Rack Limited Throughput:	101.42 Mgal/yr
Flare Control Efficiency:	98.0%

Railcar Loading Rack Limited Throughput PTE [101,400 kgal/yr x 0.40 lb/kgal / 2000 lb/ton] =	20.09 ton/yr
Truck Loading Rack Limited Throughput PTE [101.42 kgal/yr x 4.93 lb/kgal / 2000 lb/ton] =	249.78 ton/yr
PTE of Railcar loadout [(101.42 kgal/yr * 0.40 lb/kgal / 2000) * (1-.98)] =	0.40 ton/yr
Controlled PTE of VOC by Truck (lb/kgal) [(101.42 kgal/yr x 4.93 lb/kgal/2000) * (1-98%)] =	5.00 ton/yr
Worst Case PTE - All denatured ethanol is loaded out by truck =	**5.00 ton/yr**
Worst Case VOC (lb/kgal) emitted from flare [4.93 (lb/kgal) x (1-.98)] =	**0.10 lb/kgal**

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	Relative %	Trucks Limited PTE of HAP before Control (tons/yr)	Trucks Limited PTE of HAP after Control (tons/yr)
2,2,4-trimethylpentane	0.80	2.00	0.040
Benzene	0.90	2.25	0.045
Ethyl benzene	0.10	0.25	0.005
n-Hexane	1.60	4.00	0.080
PAH	0.05	0.12	0.002
Toluene	1.30	3.25	0.065
Xylene	0.50	1.25	0.025
Total	**4.450**	**11.1**	**0.222**

* 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 %

5. Potential to Emit (NOx and CO) from Flare Combustion

Maximum Heat Input Capacity	6.8 MMBtu/hr
Maximum Loadout Rate	60 kgal/hr
Annual Limited Loadout Rate	101,420 kgal/yr

Emission Factor (lbs/kgal)	**NO_x 0.077	**CO 0.129
Unlimited Potential to Emit in tons/yr	**20.2**	**33.9**
Limited Potential to Emit in tons/yr	**3.90**	**6.54**

*PM, PM10, and SO_2 emission factors are negligible due to the smokeless design and minimal H_2S levels.
**Emission factors for NO_x and CO are provided by the source based on the test results for a similar source.

Methodology

PTE of PM/PM10 and SO_2 (tons/yr) = Max. Heat Input (MMBtu/hr) x 1 MMCF/1,000 MMBtu x Emission Factor (lbs/MMCF) x 8760 hr/yr x 1 ton/2000 lbs
Unlimited PTE of NOx and CO (tons/yr) = Max. Load-out Rate (kgal/hr) x Emission Factor (lbs/kgal) x 8760 hr/yr x 1 ton/2000 lbs
Limited PTE of NOx and CO (tons/yr) = Annual Production Limit (kgal/yr) x Emission Factor (lbs/kgal) x 1 ton/2000 lbs
Limited PTE of PM/PM10 and SO_2 (tons/yr) = Unlimited PTE (tons/yr) x Annual Production Limit (Mgal/yr) / (Max. Load-out Rate Mgal/hr x 8760 hr/yr)

Appendix A: Emission Calculations
Internal Combustion Engines
From the Diesel Fire Pump EU048 (Insignificant)

Company Name: Maize AgriProducts, Inc.
Address: 6301 South U.S. Highway 41, Boswell, IN 47921
FESOP: F 007-24059-00019
Reviewer: Jenny Acker
Date: December 22, 2006

Emission Factors NSPS for Model Year (MY) 2008 and Earlier - Emergency Fire Pumps Between 130 and 225 kw (175 to 300 hp)

Nox + NMHC	10.5 g/kwh	7.8 g/hp-hr
CO	3.5 g/kwh	2.6 g/hp-hr
PM-10/PM-2.5/TSP	0.54 g/kwh	0.4 g/hp-hr

Emission Factors from AP-42 Gasoline and Diesel Industrial Engines, Table 3.3-1 (10-96)

SOx Emission Factors	0.00205 lb/hp-hr	0.0005125 lb/hp-hr	LSD fuel assume 75% reduction in emissions
TOC Emission Factor	0.0025141 lb/hp-hr		

A. Potential emissions from emergency fire pumps (EFP).

Rated Capacity:	275	Horsepower	=	1.93	MMBtu/hr
Limited hours of Operation:	500		=	7,026	Gal/yr

Emission Calculations	NOx (TPY)	CO (TPY)	SOx (TPY)	PM/PM10 (TPY)	TOC (TPY)
Fire Pump (Unlimited)	20.715	6.905	0.617	1.062	3.028
Fire Pump (Limited)	1.182	0.394	0.035	0.061	0.173

B. HAP Emissions

Pollutant	Emission Factor (lb/hp-hr)	Unlimited Emissions (ton/yr)	Limited Emissions (TPY)
Hazardous Air Pollutants:			
Benzene	9.33E-04	1.12E+00	6.41E-02
Toluene	4.09E-04	4.93E-01	2.81E-02
Xylenes	2.85E-04	3.43E-01	1.96E-02
Propylene	2.58E-03	3.11E+00	1.77E-01
1,3-Butadiene	3.91E-05	4.71E-02	2.69E-03
Formaldehyde	1.18E-03	1.42E+00	8.11E-02
Acetaldehyde	7.67E-04	9.24E-01	5.27E-02
Acrolein	9.25E-05	1.11E-01	6.36E-03
POM	Various Factors	2.02E-01	1.16E-02
TOTAL HAZARDOUS AIR POLLUTANTS		7.773	0.44

Methodology:
- A factor of 453.54 g/lb was used to convert g/hp-hr to lb/hp-hr
- HAPs Emission Factors (lb/MMBtu) [AP-42 Gasoline and Diesel Industrial Engines, Table 3.3-2 (10-96)]
- To convert from Horsepower to Btu a factor of 2544.434 Btu/hp-hr was used
- A factor of 137,000 Btu per gallon of diesel fuel was used to determine annual fuel usage

- Emission (tons/yr) = [Maximum Operationg (hp-hr/yr) x Emission Factor (g/hp-hr) / 453.54] / (2,000 lb/ton)

Appendix A: Emission Calculations
Fugitive Emissions From Paved Roads (EU045)

Company Name: Maize AgriProducts, Inc.
Address: 6301 South U.S. Highway 41, Boswell, IN 47921
FESOP: F 007-24059-00019
Reviewer: Jenny Acker
Date: December 22, 2006

1. Emission Factors: AP-42

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

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

where:

E =	emission factor (lb/vehicle mile traveled)	
sL =	road surface silt loading (g/m^2) =	0.6 (g/m^2) (AP-42, Table 13.2.1-3)
w =	mean vehicle weight (tons) =	27.5 tons
k =	empirical constant =	0.082 for PM and 0.016 for PM10
a =	empirical constant =	0.65
b =	empirical constant =	1.5
C =	emission factor for exhaust, brake and tire wear	0.00047 for PM and PM10
p =	number of days per year with 0.01 inches precipitation	110

PM Emission Factor = **0.96** lbs/mile

PM10 Emission Factor = **0.19** lbs/mile

2. Potential to Emit (PTE) of PM/PM10 Before Control from Paved Roads:

Vehicle Type	*Ave Weight of Vehicles (tons)	Traffic Component (%)	Component Vehicle Weight (tons)	Number of Trucks (trucks/yr)	Round Trip Distance (mile/trip)	Vehicle Mile Traveled (VMT) (miles/yr)	PTE of PM before Control (tons/yr)	PTE of PM10 before Control (tons/yr)
Corn Receiving	27.5	59.6%	16.4	40,407	1.10	44,448	21.4	4.13
DDGS Load Out	27.5	20.0%	5.49	13,528	1.10	14,881	7.16	1.38
Ethanol Load Out	27.5	19.6%	5.39	13,288	1.10	14,617	7.03	1.36
Denaturant Delivery	27.5	0.84%	0.23	568	1.10	625	0.30	0.06
Total		**100%**	**27.5**			**74,570**	**35.9**	**6.93**

* This information is provided by the source.

Number of Trucks required for corn receiving based on permit limit of 1,010,164 tons per year and truck capacity of 25 tons.
1,010,164 tons per year of corn received / 25 tons per truck = **40407**

Methodology
Vehicle Mile Traveled (miles/yr) = Trip Number (trips/hr) x Round-Trip Distance (mile/trip) x 8760 hrs/yr
Traffic Component (%) = VMT / Total VMT
Component Vehicle Weight = Ave. Weight of Vehicles (ton) x Traffic Component (%)
PTE of PM/PM10 before Control (tons/yr) = VMT (miles/yr) x PM/PM10 Emission Factors x 1 ton/2000 lbs

3. Potential to Emit (PTE) of PM/PM10 after Control from Paved Roads:

The source proposed to use periodic sweeping to control the fugitive dust emissions.
The control efficiency from sweeping is assumed to be 50%.

PTE of PM after Control = 35.9 tons/yr x (1-50%) = **17.93 tons/yr**

PTE of PM10 after Control = 6.93 tons/yr x (1-50%) = **3.47 tons/yr**

Appendix A: Emission Calculations
Two (2) Natural Gas Fired Boilers (EU046 and EU047)

Company Name: Maize AgriProducts, Inc.
Address: 6301 South U.S. Highway 41, Boswell, IN 47921
FESOP: F 007-24059-00019
Reviewer: Jenny Acker
Date: December 22, 2006

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

Heat Input Capacity MMBtu/hr	Limited Throughput MMCF/yr
[illegible]	2,514.1

	Pollutant					
	PM*	PM10*	SO_2	NOx**	VOC	CO**
Emission Factor in lbs/MMCF	7.6	7.6	0.6	30	5.5	30.0
Emission Factor, lb/MMBtu	0.0076	0.0076	0.0006	0.03	0.0055	0.03
Hourly Emissions Limit (lbs/hour)	2.1812	2.1812	0.1722	8.61	1.5785	8.61
Potential to Emit in tons/yr	**9.55**	**9.55**	**0.75**	**37.71**	**6.91**	**37.7**

	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)	3.08E-05	2.64E-03	1.51E-03	9.43E-02	2.26E+00	7.67E-04	2.14E-05	6.29E-06	1.85E-02	4.27E-03	2.38E+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).
*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 CF/year) = Limit (ton CO/yr) * 2000 (lb/ton) * (MM CF/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/catef_detail.php?id=878&scc=10100601).

Appendix A: Emission Calculations
Methanator Flare EU049

Company Name: Maize AgriProducts, Inc.
Address: 6301 South U.S. Highway 41, Boswell, IN 47921
FESOP: F 007-24059-00019
Reviewer: Jenny Acker
Date: December 22, 2006

1. PTE Flaring Emissions

Heat Input Capacity
MMBtu/hr

[redacted]

	Pollutant		
Emission Factor in lbs/MMBtu	VOC 0.052	CO 0.370	NOx 0.068
Potential to Emit (tons/yr)	**0.79**	**5.64**	**1.04**

Methodology
Emission factors are from AP-42, Chapter 13.5, Tables 13.5-1 and 13.5-2 (AP-42, 1/95).
PM, PM10, and SO_2 emission factors are negligible due to the smokeless design and minimal H_2S levels.
Emission factors for NO_x and CO are provided by the source based on the test results for a similar source.

Appendix A: Emission Calculations
Equipment Leaks

Company Name: Maize AgriProducts, Inc.
Address: 6301 South U.S. Highway 41, Boswell, IN 47921
FESOP: F 007-24059-00019
Reviewer: Jenny Acker
Date: December 22, 2006

Process area/equipment	No. of pieces of equipment	TOC concentration, wt. pct.	Liquid definition	Operating hours	average SOCMI default factor, kg/hr/source	average SOCMI default factor, lb/hr/source	Unmitigated loss rate, tpy	Control effectiveness, pct.	Fugitive loss rate, tpy
Fermentation area (PF-F4)									
valves - gas/vapor service	15	10	gas/vapor	8,760	0.00597	1.31E-02	0.09	87.0	0.011
valves - liquid service	146	10	heavy	8,760	0.00023	5.06E-04	0.03	84.0	0.005
pumps	13	10	heavy	8,760	0.00862	1.90E-02	0.11	69.0	0.03
pressure-relief valves	20	10	gas/vapor	8,760	0.104	2.29E-01	2.00	87.0	0.26
sampling valves	8	10	heavy	8,760	0.0150	3.30E-02	0.12	84.0	0.02
flanges/connectors	293	10	heavy	8,760	0.00183	4.03E-03	0.52	55.4	0.23
Fermentation area (F4-BWell)									
valves - gas/vapor service	15	15	gas/vapor	8,760	0.00597	1.31E-02	0.13	87.0	0.02
valves - liquid service	89	15	heavy	8,760	0.00023	5.06E-04	0.03	84.0	0.005
pumps	9	15	heavy	8,760	0.00862	1.90E-02	0.11	69.0	0.03
pressure-relief valves	12	15	gas/vapor	8,760	0.104	2.29E-01	1.80	87.0	0.23
sampling valves	6	15	heavy	8,760	0.0150	3.30E-02	0.13	84.0	0.02
flanges/connectors	197	15	heavy	8,760	0.00183	4.03E-03	0.52	55.4	0.23
Beer Preheat									
valves - gas/vapor service	0	15	gas/vapor	8,760	0.00597	1.31E-02	0	87.0	0
valves - liquid service	33	15	heavy	8,760	0.00023	5.06E-04	0.01	84.0	0.002
pumps	0	15	heavy	8,760	0.00862	1.90E-02	0	69.0	0
pressure-relief valves	5	15	gas/vapor	8,760	0.104	2.29E-01	0.75	87.0	0.10
sampling valves	0	15	heavy	8,760	0.0150	3.30E-02	0	84.0	0
flanges/connectors	51	15	heavy	8,760	0.00183	4.03E-03	0.13	55.4	0.06
Degas/Beer Column									
valves - gas/vapor service	15	50	gas/vapor	8,760	0.00597	1.31E-02	0.43	87.0	0.06
valves - liquid service	53	50	light	8,760	0.00403	8.87E-03	1.03	84.0	0.16
pumps	5	50	light	8,760	0.0199	4.38E-02	0.48	69.0	0.15
pressure-relief valves	5	50	gas/vapor	8,760	0.104	2.29E-01	2.51	87.0	0.33
sampling valves	7	50	light	8,760	0.0150	3.30E-02	0.51	84.0	0.08
flanges/connectors	125	50	light	8,760	0.00183	4.03E-03	1.10	55.4	0.49

Appendix A: Emission Calculations (continued)
Equipment Leaks

Process area/equipment	No. of pieces of equipment	TOC concentration, wt. pct.	Liquid definition	Operating hours	average SOCMI default factor, kg/hr/source	average SOCMI default factor, lb/hr/source	Unmitigated loss rate, tpy	Control effectiveness, pct.	Fugitive loss rate, tpy
Rectifying Column									
valves - gas/vapor service	28	93	gas/vapor	8,760	0.00597	1.31E-02	1.50	87.0	0.19
valves - liquid service	59	93	light	8,760	0.00403	8.87E-03	2.13	84.0	0.34
pumps	4	93	light	8,760	0.0199	4.38E-02	0.71	69.0	0.22
pressure-relief valves	3	93	gas/vapor	8,760	0.104	2.29E-01	2.80	87.0	0.36
sampling valves	5	93	light	8,760	0.0150	3.30E-02	0.67	84.0	0.11
flanges/connectors	129	93	light	8,760	0.00183	4.03E-03	2.12	55.4	0.94
Molecular Sieve Purge									
valves - gas/vapor service	23	75	gas/vapor	8,760	0.00597	1.31E-02	0.99	87.0	0.13
valves - liquid service	27	75	light	8,760	0.00403	8.87E-03	0.79	84.0	0.13
pumps	2	75	light	8,760	0.0199	4.38E-02	0.29	69.0	0.09
pressure-relief valves	5	75	gas/vapor	8,760	0.104	2.29E-01	3.76	87.0	0.49
sampling valves	2	75	light	8,760	0.0150	3.30E-02	0.22	84.0	0.03
flanges/connectors	86	75	light	8,760	0.00183	4.03E-03	1.14	55.4	0.51
Molecular Sieve Product									
valves - gas/vapor service	30	100	gas/vapor	8,760	0.00597	1.31E-02	1.73	87.0	0.22
valves - liquid service	44	100	light	8,760	0.00403	8.87E-03	1.71	84.0	0.27
pumps	2	100	light	8,760	0.0199	4.38E-02	0.38	69.0	0.12
pressure-relief valves	2	100	gas/vapor	8,760	0.104	2.29E-01	2.00	87.0	0.26
sampling valves	3	100	light	8,760	0.0150	3.30E-02	0.43	84.0	0.07
flanges/connectors	103	100	light	8,760	0.00183	4.03E-03	1.82	55.4	0.81
Storage Tank Farm									
valves - gas/vapor service	2	100	gas/vapor	8,760	0.00597	1.31E-02	0.12	87.0	0.01
valves - liquid service	79	100	light	8,760	0.00403	8.87E-03	3.07	84.0	0.49
pumps	5	100	light	8,760	0.0199	4.38E-02	0.96	69.0	0.30
pressure-relief valves	1	100	gas/vapor	8,760	0.104	2.29E-01	1.00	87.0	0.13
sampling valves	4	100	light	8,760	0.0150	3.30E-02	0.58	84.0	0.09
flanges/connectors	60	100	light	8,760	0.00183	4.03E-03	1.06	55.4	0.47
Total estimated fugitive VOC emission rate, tpy							**44.50**		**9.33**

Notes:

1. Component counts provided by design engineer and process equipment supplier based on preliminary P&IDs.
2. Average SOCMI default emission factors used; see Table 2-1 from Protocol for Equipment Leak Emission Estimates (EPA-453/R-95-017, November 1995).
3. Control effectiveness based on implementation of an LDAR program per NSPS Subpart VV for all components.
4. Value for LDAR program effectiveness, excluding flanges/connectors, taken from Table 5-2 from Protocol for Equipment Leak Emission Estimates (EPA-453/R-95-017, November 1995).
5. Control effectiveness for flanges/connectors estimated by process equipment supplier - see attached derivation.
6. Streams containing trace amounts of VOC (less than 1 wt. pct.) were assumed to be negligible for calculation purposes.
7. Adjustment of annual loss to air was made for equipment based on the relative predicted VOC concentrations.

POTENTIAL HAP EMISSION CALCULATIONS - *Fermentation areas*

	Relative pct	Unmitigated	Fugitive
TOTAL VOC (tpy)	100	5.59	1.10
acetaldehyde	0.26	1.5E-02	2.9E-03
methanol	0.07	3.9E-03	7.7E-04
TOTAL HAP (tpy)	0.33	0.018	0.004

Note: HAP percentages based on percentage of uncontrolled VOC emissions at Fermentation Scrubber provided by process equipment supplier simulation model.

POTENTIAL HAP EMISSION CALCULATIONS - *Distillation/Dehydration areas*

	Relative pct	Unmitigated	Fugitive
TOTAL VOC (tpy)	100	32.13	6.73
acetaldehyde	0.5	2.8E-02	5.5E-03
methanol	0.05	2.8E-03	5.5E-04
TOTAL HAP (tpy)	0.55	0.031	0.006

Note: HAP percentages based on percentage of uncontrolled VOC emissions at Distillation Scrubber provided by process equipment supplier simulation model.

POTENTIAL HAP EMISSION CALCULATIONS - *Storage Tank Farm*

	Relative pct	Relative pct	Unmitigated	Fugitive
TOTAL VOC (tpy)	95	5	6.78	1.50
acetaldehyde	0.50		3.2E-02	7.1E-03
methanol	0.05		3.2E-03	7.1E-04
2,2,4-trimethylpentane		0.8	3.1E-03	6.0E-04
benzene		0.9	3.4E-04	6.7E-04
ethyl benzene		0.1	5.4E-03	7.5E-05
n-hexane		1.6	1.7E-04	1.2E-03
PAH		0.05	4.4E-03	3.7E-05
toluene		1.3	1.7E-03	9.7E-04
xylene		0.5	1.8E-02	3.7E-04
TOTAL HAP (tpy)	0.55	5.25	0.07	0.012

Note: Worse case HAP emission calculations assume that all material in area is represented as denatured alcohol.

Note: HAP percentages (ethanol) based on percentage of uncontrolled VOC emissions at Distillation Scrubber provided by process equipment supplier simulation model.

Note: HAP percentages (gasoline) of VOC emissions taken from Table 11.3-2 of Gasoline Marketing (Stage I and II), January 2001
(Emission Inventory Improvement Program, Volume III: Chapter 11, STAPPA-ALAPCO-EPA)

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

Company Name: Maize AgriProducts, Inc.
Address: 6301 South U.S. Highway 41, Boswell, IN 47921
FESOP: F 007-24059-00019
Reviewer: Jenny Acker
Date: December 22, 2006

1. Process Description:

Type of Cooling Tower:	Induced Draft
Circulation Flow Rate:	36,000 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.

PTE of PM/PM10 (lbs/hr) = 36,000 gal/min x 60 min/hr x 0.005% x 8.345 lbs/gal x 2,500 ppm x 1/1,000,000 ppm = **2.25 lbs/hr**

PTE of PM/PM10 (tons/yr) = 2.25 lbs/hr x 8760 hr/yr x 1 ton/2000 lbs = **9.87 tons/yr**

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

Company Name: Maize AgriProducts, Inc.
Address: 6301 South U.S. Highway 41, Boswell, IN 47921
FESOP: F 007-24059-00019
Reviewer: Jenny Acker
Date: December 22, 2006

1. Process Description:

Production Rates: 64.4 tons/hr wetcake (wet basis) production - plant design
564,144 tons/yr wetcake (wet basis) production - plant design

2. Potential to Emit (PTE) of VOC:

Pollutant	Emission Factor (lbs/ton wetcake)	PTE VOC (tons/yr)	PTE HAP (tons/yr)
NMHC (VOC)	6.00E-03	1.69E+00	
Acetaldehyde	5.56E-05		1.57E-02
Acrolein	8.33E-06		2.35E-03
Formaldehyde	3.33E-04		9.39E-02
Methanol	6.94E-05		1.96E-02
Total VOC		**1.69E+00**	**1.32E-01**

Emission factors based on review of other ethanol plants.

Methodology

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

Appendix A: Emission Calculations
Storage Tanks TK001 through TK006
From the Wetcake Storage

Company Name: Maize AgriProducts, Inc.
Address: 6301 South U.S. Highway 41, Boswell, IN 47921
FESOP: F 007-24059-00019
Reviewer: Jenny Acker
Date: December 22, 2006

Source description: Potential VOC and HAP emissions from five internal floating roof tanks. Summary of TANKS 4.0.9d emission models.

OPERATION/PRODUCTION RELATED INFORMATION

Parameter	*value*	*units*	*Reference*
Maximum dehydrated ethanol throughput	96,360,000	gal/yr	plant design - specification basis
Maximum denaturant (gasoline) throughput	5,072,000	gal/yr	plant design - specification basis
Maximum denatured ethanol - plant output	101,432,000	gal/yr	plant design - specification basis

POTENTIAL VOC EMISSION CALCULATIONS

Potential VOC emissions calculated using EPA TANKS 4.0.9d software and preliminary storage tank design.

Storage Tank ID	Total VOC emissions lbs/yr	Ethanol emissions lbs/yr	Gasoline emissions lbs/yr
Tank TK001	615	615	-
Tank TK002	615	615	-
Tank TK003	*905*	*905*	-
Tank TK004	2,235	-	2,235
Tank TK005	705	543	162
Tank TK006	705	543	162
TOTAL EMISSIONS, lbs/yr	**5,780**	**3,221**	**2,559**
TOTAL EMISSIONS, tpy	**2.89**	**1.61**	**1.28**

Note: Total VOC emissions exclude Tank TK003 (Off-Spec) as total VOC emissions from Tanks TK001 and TK002 are worse-case.

POTENTIAL HAP EMISSION CALCULATIONS - ***calculated assuming HAP percentage of VOC/gasoline vapor emissions.***

TOTAL VOC (tpy)	Relative percent 100	HAP tpy
2,2,4-trimethylpentane	0.8	0.010
benzene	0.9	0.012
ethyl benzene	0.1	0.001
n-hexane	1.6	0.020
PAH	0.05	6.4E-04
toluene	1.3	0.017
xylene	0.5	0.006
TOTAL HAP (tpy)	-	**0.067**

Note: HAP percentages of VOC emissions taken from Table 11.3-2 of Gasoline Marketing (Stage I and II), January 2001 (Emission Inventory Improvement Program, Volume III: Chapter 11, STAPPA-ALAPCO-EPA)

Appendix B
Best Available Control Technology (BACT) Determinations

Source Background and Description

Source Name:	Maize AgriProducts, Inc.
Source Address:	6301 South U.S. Highway 41, Boswell, IN 47921
FESOP Permit No.:	007-24059-00019
County:	Benton
SIC Code:	2869
NAICS Code:	325193
Permit Reviewer:	Jenny Acker

The Indiana Department of Environmental Management (IDEM), Office of Air Quality (OAQ) has performed the following Best Available Control Technology (BACT) reviews for a new ethanol production plant. Pursuant to 326 IAC 8-1-6 (New Facilities; General Reduction Requirements), BACT is required for all facilities constructed after January 1, 1980 that have potential VOC emissions of equal to or greater than twenty-five (25) tons per year and are not regulated by other rules in 326 IAC 8. Based on the calculations (see Appendix A) and the analysis of applicable state regulations (see State Rule Applicability section of TSD), the following facilities are subject to the requirements of 326 IAC 8-1-6:

- Fermentation Process;
- Distillation and Dehydration Process;
- DDGS Dryers; and
- Ethanol Loadout.

IDEM, OAQ conducts BACT analyses in accordance with the *"Top-Down" Best Available Control Technology Guidance Document* outlined in the 1990 draft US EPA *New Source Review Workshop Manual*, which outlines the steps for conducting a top-down BACT analysis. Those steps are listed below:

(a) Identify all potentially available control options;
(b) Eliminate technically infeasible control options;
(c) Rank remaining control technologies by control effectiveness;
(d) Evaluate the most effective controls and document the results as necessary; and
(e) Select BACT.

In accordance with EPA guidance, the BACT analysis should take into account the energy, environmental, and economic impacts. Emission reductions may be achieved through the application of available control techniques, changes in process design, and/or operational limitations.

A summary of the BACT review for the fermentation process is provided in Section B.1, the BACT review for the distillation and dehydration process is provided in Section B.2, the BACT review for the DDGS dryers is provided in Section B.3, and the BACT review for the ethanol loadout is provided in Section B.4. These BACT determinations are based on the following information:

(a) The EPA RACT/BACT/LAER (RBLC) Clearinghouse; and
(b) State and local air quality permits.

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

Introduction:

Maize AgriProducts, Inc will use a fermentation process to produce ethanol from grain. The fermentation process will consist of a prefermentation tank, six (6) main fermenters, and one (1) beer tank. The potential VOC emissions from these activities are estimated to be greater than 25 tons per year. Since this facility will be constructed after the January 1, 1980 applicability date and there are no other 326 IAC 8 rules applicable to this process, Maize AgriProducts, Inc. is required to control the VOC emissions from the fermentation process with BACT, pursuant to 326 IAC 8-1-6.

Step 1 – Identify Control Options

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

(a) IDEM, OAQ reviewed the following six control technologies:

1. Carbon Adsorption:

   Carbon adsorption is a process by which VOC is retained on a granular carbon surface, which is highly porous and has a very large surface-to-volume ratio. Organic vapors retained on the adsorbent are thereafter desorbed and both the adsorbate and absorbent are recovered.

   Carbon adsorption systems operate in two phases: adsorption and desorption. Adsorption is rapid and removes most of the VOCs in the stream. Eventually, the adsorbent becomes saturated with the vapors and the system's efficiency drops. The adsorbent must be regenerated or replaced soon after efficiency begins to decline. In regenerative systems, the adsorbent is reactivated with steam or hot air and the absorbate (solvent) is recovered for reuse or disposal. Non-regenerative systems require the removal of the adsorbent and replacement with fresh or previously regenerated carbon.

2. Wet Scrubbers:

   A wet scrubber is an absorption system in which the waste stream is dissolved in a solvent by passing it through a medium containing the solvent. Water is the most commonly used solvent. Other solvents may be used depending on the components of the waste stream.

3. Thermal Oxidation:

   An efficient thermal oxidizer design must provide adequate residence time for complete combustion, sufficiently high temperatures for VOC destruction, and adequate velocities to ensure proper mixing without quenching combustion. The type of burners and their arrangement affect combustion rates and residence time. The more thorough the contact between the flame and VOC, the shorter the time required for complete combustion. Natural gas is required to ignite the flue gas mixtures and maintain combustion temperatures. Typically, a heat exchanger upstream of the oxidizer uses the heat content of the oxidizer flue gas to preheat the incoming VOC-laden stream to improve the efficiency of the oxidizer.

Of all the VOC control technologies evaluated, thermal oxidization is least affected by waste stream characteristics. A properly designed thermal oxidizer can handle almost all solvent mixtures (except for fluorinated or chlorinated solvents) and concentrations, and therefore meet all regulatory standards. In addition to the energy penalty associated with thermal oxidization, NOx emissions will be generated from the combustion of natural gas used to fuel the oxidizer. A thermal oxidizer normally provides a VOC destruction efficiency of at least 98%.

4. Catalytic Oxidation:

In a catalytic oxidizer, a catalyst is used to lower the activation energy for oxidation. When a preheated gas stream is passed through a catalytic oxidizer, the catalyst bed initiates and promotes the oxidation of VOCs without being permanently altered itself. In catalytic oxidization, combustion occurs at significantly lower temperatures than that of direct flame units and can also achieve a destruction efficiency of 95%. However, steps must be taken to ensure complete combustion. The types of catalysts used include platinum, platinum alloys, copper chromate, copper oxide, chromium, manganese, and nickel. These catalysts are deposited in thin layers on an inert substrate, usually a honeycomb shaped ceramic.

5. Flare:

Flares can be used to control almost any VOC stream and can handle fluctuations in VOC concentration, flow rate, heat content, and inert content. Flaring is appropriate for continuous, batch, and variable flow vent stream application. Some streams, such as those containing halogenated or sulfur-containing compounds, are usually not flared because they corrode the flare tip or cause formation of secondary pollutants (such as acid gases or sulfur dioxide). A flare normally provides a VOC destruction efficiency greater than 98%.

6. Refrigeration Condenser:

Condensation is the process by which the temperature of the waste stream is lowered to below the boiling points of the waste constituents. A refrigeration condenser normally provides VOC control efficiency greater than 90%.

(b) The search for the fermentation process in EPA's RACT/BACT/LAER Clearinghouse (RBLC) and Indiana Air Permits identified the following:

Plant	PBLD ID or Permit #	Date Issued and State	Facility	Control Technology and Permit Date	Stack Test Results and Dates
DRS Ventures, LLC	F139-22981-00020	11/13/06 (IN)	Fermentation	Wet scrubber combined with a thermal oxidizer with an overall control efficiency of 98% or VOC < 10 ppmv. VOC emissions < 6.12 lbs/hr.	Under Construction.
Central Indiana Ethanol, LLC	SPR 053-22564-00062	07/20/06 (IN)	Fermentation	Wet scrubber with a control efficiency of 98% or VOC < 20 ppmv. VOC emissions < 7.62 lbs/hr.	Under Construction.
Premier Ethanol, LLC	F075-22858-00032	9/18/06(IN)	Fermentation	Wet scrubber combined with a thermal oxidizer with an overall control efficiency of 99% or VOC < 10 ppmv. VOC emissions < 10.5 lbs/hr.	Under Construction.
Putnam Ethanol, LLC	SPM 133-22480-00003	3/23/06 (IN)	Fermentation	Wet scrubber with a control efficiency of 98% or VOC < 20 ppmv. VOC emissions < 5.85 lbs/hr.	Under Construction.
The Andersons Clymers Ethanol, LLC	F017-21536-00023	2/15/06 (IN)	Fermentation	Wet scrubber with a control efficiency of 98% or VOC < 20 ppmv. VOC emissions < 7.5 lbs/hr.	Under Construction.
ASA Linden, LLC	F017-21453-	2/8/06 (IN)	Fermentation	Wet scrubber with a control efficiency of	Under

Plant	PBLD ID or Permit #	Date Issued and State	Facility	Control Technology and Permit Date	Stack Test Results and Dates
	00061			98% or VOC < 20 ppmv. VOC emissions < 10.2 lbs/hr.	Construction.
Hartford Energy, LLC	F009-21592-00024	1/31/06 (IN)	Fermentation	Wet scrubber with a control efficiency of 98%. VOC emissions < 2.22 lbs/hr.	Under Construction.
Central Indiana Ethanol, LLC	F053-21057-00062	08/04/05 (IN)	Fermentation	Wet scrubber with a control efficiency of 98% or VOC < 20 ppmv. VOC emissions < 6.0 lbs/hr.	Under Construction
United Wisconsin Grain Producers	WI-0204	8/14/03 (WI)	Fermentation	Wet scrubber (packed tower). VOC Emissions < 7.4 lbs/hr	Not Available
Michigan Ethanol	MI-0359	11/04/02 (MI)	Fermentation	BACT determined to be a scrubber with 97% control efficiency and VOC emissions < 6.0 lbs/hr	97.4% (03/19/03)
Grain Processing Corporation	IN-0075	06/10/97 (IN)	Fermentation	Scrubber with 95% control efficiency	Not Available
Cargill, Inc.	NE-0016	04/25/96 (NE)	Fermentation	BACT determined to be a wet scrubber with a VOC emission limit of 11.8 lbs/hr	Not Available

In addition to the RBLC data, IDEM obtained the following information for the fermentation processes at other ethanol production plants from ICM (an ethanol plant manufacturer):

Source, State	Max. Ethanol Production Rate (MMgal/yr)	Control Technology	Emission Limits	Stack Test Results and Dates
Agri-Energy*, MN	22	Wet scrubber and thermal oxidizer	95% removal or 10 ppm	0.58 lbs/hr (01/30/03)
Al-Corn*, MN	34.5	Wet scrubber	95% removal or 20 ppm for less than 200 ppm inlet	99.2%; 6.65 lbs/hr (01/21/03)
Central MN Ethanol*, MN	22	Wet scrubber	95% removal or 20 ppm for less than 200 ppm inlet	99.0%; 2.04 lbs/hr (11/27/02)
Corn Plus, MN	44	Wet scrubber	95% removal or 20 ppm for less than 200 ppm inlet	Not Available
CVEC, MN	49.5	Wet scrubber	95% removal or 20 ppm for less than 200 ppm inlet	Not Available
Diversified Energy Co.**, MN	20	Wet scrubber	95% removal or 20 ppm for less than 200 ppm inlet	2.74 lbs/hr (01/04)
Ethanol 2000**, MN	35	Wet scrubber	95% removal or 20 ppm for less than 200 ppm inlet	98.28%; 5.40 lbs/hr (12/04/02)
Agra Resources Coop. (dba EXOL), MN	50	Wet scrubber	95% removal or 20 ppm for less than 200 ppm inlet	Not Available
Pro-Corn, MN	50	Wet scrubber	95% removal or 20 ppm for less than 200 ppm inlet	5.11 lbs/hr (04/01/03)
ACE Ethanol*, WI	20	Wet scrubber	95% removal or 20 ppm for less than 200 ppm inlet	1.07 lbs/hr (11/20/02)
CMEC, MN	22	Wet scrubber	4.3 lbs/hr	98.98%; 2.88 lbs/hr (11/26/02)
MN Energy, MN	19	Wet scrubber	NA	23 lbs/hr (04/07/03)
Gopher State, MN	NA	2 wet scrubbers in series	98% collection efficiency	99.5%; 0.81 lbs/hr (07/09/03)

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

Step 2 – Eliminate Technically Infeasible Control Options

After reviewing the above technologies, IDEM, OAQ eliminated carbon adsorption as not technically feasible for fermentation processes. The reasons for eliminating carbon adsorption are as follows:

Carbon Adsorption: Carbon adsorption uses intermolecular forces to accumulate organic material at the surface of an adsorbent (typically activated carbon). These intermolecular forces include the small momentary dipoles that result from the movement of electrons within molecular bonds (van der Waals

interactions). The incidence of van der Waals interactions increases with larger molecules because there are more bonds within each molecule. For this reason, carbon adsorption is most effective for larger molecules. The VOC compounds emitted from the fermentation system include several small molecules, such as ethanol (MW = 46), acetaldehyde (MW = 44), and formaldehyde (MW = 30). Due to the small size of these molecules, the van der Waals interactions are weak. Since carbon adsorption typically requires a VOC concentration of at least 200 to 1,000 ppmv and average VOC molecular weights of at least 50 to 60 atomic units, this technology is considered infeasible for controlling the VOC emissions from the fermentation system.

Step 3 – Rank Remaining Control Technologies by Control Effectiveness

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

Control Technology	Control Efficiency
Wet Scrubber and Thermal Oxidizer	99% or <10 ppmv
Wet Scrubber	99% or <10 ppmv
Thermal Oxidizer	99% or <10 ppmv
Catalytic Oxidizer	98%
Flare	98%
Refrigeration Condenser	90%

Step 4 – Evaluate the Most Effective Controls and Document Results

A wet scrubber, a thermal oxidizer, and the combination of a wet scrubber and thermal oxidizer are each capable of achieving the same level of control.

Step 5 – Select BACT

The Permittee believes it can achieve 99% control efficiency or a concentration of less than 10 ppmv using sodium bisulfite in their wet scrubbers. Therefore, the Permittee proposes to use wet scrubbers as the BACT for the fermentation process. Pursuant to 326 IAC 8-1-6, IDEM, OAQ has determined that the following requirements represent BACT for the fermentation process at this source:

(a) The VOC emissions from the fermentation process shall be controlled using a wet scrubber and sodium bisulfite injection.

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

(c) The VOC emissions from the Fermentation Scrubber (CE005) shall not exceed 11.0 lbs/hr.

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

Introduction:

Maize AgriProducts, Inc will use distillation and dehydration to concentrate the ethanol produced in the fermentation process. The potential VOC emissions from these activities are estimated to be greater than 25 tons per year. Since this facility will be constructed after the January 1, 1980 applicability date and there are no other 326 IAC 8 rules applicable to this process, Maize AgriProducts, Inc. is required to control the VOC emissions from the distillation and dehydration process with BACT, pursuant to 326 IAC 8-1-6.

Step 1 – Identify Control Options

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

(a) IDEM, OAQ reviewed the following six (6) control technologies. The detailed description of each control technology can be found in Step 1 of Appendix B.1.

1. Carbon Adsorption;
2. Wet Scrubbers (packed tower);
3. Thermal Oxidation;
4. Catalytic Oxidation;
5. Flare; and
6. Refrigeration Condenser.

(b) The search for the distillation process in EPA's RACT/BACT/LAER Clearinghouse (RBLC) and Indiana Air Permits identified the following:

Plant	PBLD ID or Permit #	Date Issued and State	Facility	Control Technology and Permit Date	Stack Test Results and Dates
DRS Ventures, LLC	F139-22981-00020	11/13/06 (IN)	Distillation	Wet scrubber combined with a thermal oxidizer with an overall control efficiency of 98% or VOC < 10 ppmv. VOC emissions < 6.12 lbs/hr.	Under Construction
Central Indiana Ethanol, LLC	SPR 053-22564-00062	07/20/06 (IN)	Distillation/Dryers	RTOs with a control efficiency of 98% or VOC < 10 ppmv. VOC emissions < 7.5 lbs/hr.	Under Construction.
Premier Ethanol, LLC	F075-22858-00032	9/18/06 (IN)	Distillation	Wet scrubber combined with a thermal oxidizer with an overall control efficiency of 99% or VOC < 10 ppmv. VOC emissions < 10.5 lbs/hr.	Under Construction
Putnam Ethanol, LLC	SPM 133-22480-00003	3/23/06 (IN)	Distillation	TO/HRSG system with a control efficiency of 98% or VOC < 10ppmv. VOC emissions < 10.5 lbs/hr	Under Construction

Plant	PBLD ID or Permit #	Date Issued and State	Facility	Control Technology and Permit Date	Stack Test Results and Dates
The Andersons Clymers Ethanol, LLC	F017-21536-00023	2/15/06 (IN)	Distillation and Evaporation processes	Two TO/HRSG systems with a control efficiency of 98% or VOC < 10ppmv. VOC emissions < 8.15 lbs/hr	Under Construction
ASA Linden, LLC	F017-21453-00061	2/8/06 (IN)	Distillation	Two TO/HRSG systems with a control efficiency of 98% or VOC < 10ppmv. VOC emissions < 8.5 lbs/hr	Under Construction
Hartford Energy, LLC	F009-21592-00024	1/31/06 (IN)	Distillation	TO/HRSG system with a control efficiency of 98%. VOC emissions < 10.56 lbs/hr	Under Construction
Central Indiana Ethanol, LLC	F053-21057-00062	08/04/05 (IN)	Fermentation/ Distillation	Wet scrubber with a control efficiency of 98% or VOC < 20 ppmv. VOC emissions < 6.0 lbs/hr.	Under Construction
United Wisconsin Grain Producers	WI-0204	8/14/03 (WI)	Distillation/Dryers	RTO with a control efficiency of 98% or VOC emissions < 5 ppm	Not Available
Michigan Ethanol	MI-0359	11/04/02 (MI)	Distillation	Wet scrubber with a control efficiency of 98%. VOC emissions < 0.46 lbs/hr	94.0% (03/19/03)
Grain Processing Corp.	IN-0075	06/10/97 (IN)	Distillation	Wet scrubber with a control efficiency of 95%	Not Available
Cargill, Inc.	NE-0016	04/25/96 (NE)	Distillation	Wet scrubber and a VOC emission limit of 2.22 lbs/hr	Not Available

Step 2 – Eliminate Technically Infeasible Control Options

IDEM, OAQ believes that carbon adsorption is not technically feasible for the control of VOC emissions from the distillation process. The primary VOC constituents emitted from this process are ethanol and acetaldehyde. Carbon adsorption is only technically feasible for VOC concentrations of 200 to 1,000 ppmv and an average VOC molecular weight of 50 to 60 atomic units.

Step 3 – Rank Remaining Control Technologies by Control Effectiveness

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

Control Technology	Control Efficiency
Wet Scrubber and Thermal Oxidizer	99% or <10 ppmv
Wet Scrubber	99% or <10 ppmv
Thermal Oxidizer	99% or <10 ppmv
Catalytic Oxidizer	98%
Flare	98%
Refrigeration Condenser	90%

Step 4 – Evaluate the Most Effective Controls and Document Results

A wet scrubber, a thermal oxidizer, and the combination of a wet scrubber and thermal oxidizer are each capable of achieving the same level of control.

Step 5 – Select BACT

The Permittee believes it can achieve 99% control efficiency or a concentration of less than 10 ppmv using sodium bisulfite in their wet scrubbers. Therefore, the Permittee proposes to use a wet scrubber as BACT for the distillation process. Therefore, pursuant to 326 IAC 8-1-6, IDEM, OAQ has determined that the following requirements represent BACT for the distillation process at this source:

(a) The VOC emissions from the distillation and dehydration process shall be controlled using a wet scrubber and sodium bisulfite injection.

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

(c) The VOC emissions from the Distillation Scrubber (CE006) shall not exceed 1.4 lbs/hr.

Appendix B.3
Best Available Control Technology (BACT) Determination
For the DDGS Dryers

Introduction:

VOCs will be emitted from the DDGS drying process as trace quantities of alcohol from the fermentation process are evaporated. Other sources of VOC emissions result from the combustion of fuel in the dryer and the partial oxidation of organic material during the drying process. The potential VOC emissions from the DDGS dryers are greater than 25 tons per year and there are no other rules in 326 IAC 8 applicable to DDGS dryers; therefore, the Permittee is required to control the VOC emissions from the DDGS dryers with BACT.

Step 1 – Identify Control Options

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

(a) IDEM, OAQ reviewed the following six (6) control technologies. The detailed description of each control technology can be found in Step 1 of Appendix B.1.

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

(b) The search for DDGS dryers in EPA's RACT/BACT/LAER Clearinghouse (RBLC) and Indiana Air Permits identified the following:

Plant	PBLD ID or Permit #	Date Issued and State	Facility	Control Technology and Permit Date	Stack Test Results and Dates
DRS Ventures, LLC	F139-22981-00020	11/13/06 (IN)	Dryers	Thermal Oxidation with an overall control efficiency of 98% or VOC < 10 ppmv. VOC emissions < 2.0 lbs/hr.	Under Construction
Central Indiana Ethanol, LLC	SPR 053-22564-00062	07/20/06 (IN)	Distillation/Dryers	RTOs with a control efficiency of 98% or VOC < 10 ppmv. VOC emissions < 7.5 lbs/hr.	Under Construction.
Premier Ethanol, LLC	F075-22858-00032	9/18/06 (IN)	Dryers	Thermal oxidizer with an overall control efficiency of 98% or VOC < 10 ppmv. VOC emissions < 10.5 lbs/hr.	Under Construction
Putnam Ethanol, LLC	SPM 133-22480-00003	3/23/06 (IN)	Dryers	TO/HRSG system with a control efficiency of 98% or VOC < 10 ppmv. VOC emissions < 10.5 lbs/hr	Under Construction
The Andersons Clymers Ethanol, LLC	F017-21536-00023	2/15/06 (IN)	Dryers	Two TO/HRSG systems with a control efficiency of 98% or VOC < 10 ppmv. VOC emissions < 8.15 lbs/hr	Under Construction
ASA Linden, LLC	F017-21453-00061	2/8/06 (IN)	Dryers	Two TO/HRSG systems with a control efficiency of 98% or VOC < 10 ppmv. VOC emissions < 8.5 lbs/hr	Under Construction
Hartford Energy, LLC	F009-21592-00024	1/31/06 (IN)	Dryers	TO/HRSG system with a control efficiency of 98%. VOC emissions < 10.56 lbs/hr	Under Construction
Central Indiana	F053-21057-	08/04/05 (IN)	Dryers	RTO with a control efficiency of	Under

Plant	PBLD ID or Permit #	Date Issued and State	Facility	Control Technology and Permit Date	Stack Test Results and Dates
Ethanol, LLC	00062			98%. VOC emissions < 6.0 lbs/hr	Construction
United Wisconsin Grain Producers	WI-0204	8/14/03 (WI)	Distillation/Dryers	RTO with a control efficiency of 98% or VOC emissions < 5 ppm	Not Available
Michigan Ethanol	MI-0359	11/04/02 (MI)	Dryer	RTO with a control efficiency of 95%	99.6% (03/19/03)
Archer Daniels Midland Co.	IL-0087	12/27/02 (IL)	Feed Dryer	RTO with a control efficiency of 95% and VOC < 10 ppm	Not Available
New Energy Corp.	T141-6956-00033	Draft (IN)	DDGS Dryers	RTO with a control efficiency of 95%	98.8% (RTO1) 99.2% (RTO2) (06/30/04)

Step 2 – Eliminate Technically Infeasible Control Options

After reviewing the above technologies, IDEM, OAQ eliminated carbon adsorption, catalytic oxidation, flares, and refrigeration condensers as not technically feasible for DDGS drying processes. The reasons for eliminating these control technologies are as follows:

Carbon adsorption: Carbon adsorption typically requires a VOC concentration of at least 200 to 1,000 ppm and an average VOC molecular weight of at least 50 to 60 atomic units. Therefore, IDEM, OAQ concludes that carbon adsorption is not an effective control for the DDGS dryers due to the characteristics of the dryer exhaust gases.

Catalytic Oxidizer: Catalytic oxidizers use a catalyst to lower the operating temperature of the oxidation unit. The catalyst must remain effective during operation in order for the control efficiency of the device be maintained. Fouling of the catalyst will rapidly decrease the control efficiency. The catalyst material used for catalytic oxidation has small channels for the waste gas stream to flow. As a result, particulate matter in the dryer exhaust streams is likely to accumulate in the catalyst material, thereby fouling the catalyst and reducing the control efficiency. For this reason, IDEM, OAQ has concluded that catalytic oxidation is an unreliable control technology for the dryers because of the presence of particulates in the exhaust gases.

Flares: Since flares do not maintain a constant combustion zone temperature, they require supplemental natural gas to enrich the waste gas stream if the VOC concentration is low. In order to increase the heat value of the DDGS dryers, natural gas must be added to the exhaust gases prior to the flare.

Refrigeration Condensers: IDEM, OAQ believes that condensers would be technically infeasible because the dryer exhaust characteristics of low VOC concentration and high volumetric flow rate would make them ineffective.

Step 3 – Rank Remaining Control Technologies by Control Effectiveness

IDEM, OAQ has ranked the remaining control technologies by control efficiency as follows:

Control Technology	Control Efficiency
Thermal Oxidation	99% or < 10 ppmv
Wet Scrubber	Less than 96%*

* A wet scrubber applied to this type of operation will not achieve the level of control that a thermal oxidizer will because of the large flow rate and dilute VOC concentration. Mass transfer in a contact scrubber is driven by concentration. Elevated temperature and particulate matter are also negative properties of this gas stream that make wet scrubbing a less appropriate control technology than the alternatives. The control efficiency is based on a wet scrubber that was applied to a spent grain dryer at an ethanol plant in Luverne, MN.

Step 4 – Evaluate the Most Effective Controls and Document Results

According to the analysis above, the most effective control is a thermal oxidizer with a control efficiency of 99%.

Step 5 – Select BACT

The Maize AgriProducts facility proposed to use two thermal oxidizers, each with control efficiencies of 99%, to control the VOC emissions from the DDGS drying and cooling systems. The exhaust from the cooler/cyclone operation vents to the DDGS dryers as combustion air. The two thermal oxidizers (CE008 and CE009) control the exhaust from the DDGS dryers as well as the exhaust from the DDGS cooler/cylone operation. The two thermal oxidizers will vent to a common stack (PS010). Pursuant to 326 IAC 8-1-6, IDEM, OAQ has determined that the following requirements represent BACT for the DDGS drying and cooling systems at this source:

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

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

(c) The total VOC emissions from each of the thermal oxidation system stack (PS010) shall each not exceed 4.54 lbs/hr.

Appendix B.4
Best Available Control Technology (BACT) Determination
For the Denatured Ethanol Loadout System (EU035 and EU036)

Introduction:

Maize Products, Inc. will ship denatured ethanol using either railcars or tank trucks. During loading, VOCs will be emitted as ethanol vapors and gases present in the tanks from previous cargos are displaced by liquid ethanol. The railcars are dedicated tanks, but the trucks may carry gasoline or be unclean before filling with ethanol. The potential VOC emissions from this activity were calculated using the methodology in AP-42, Section 5.2, Transportation and Loading of Petroleum Liquids (1/95) and are estimated to be greater than 25 tons per year from the denatured ethanol loading operations (see calculations in Appendix A).

The potential VOC emissions from the denatured ethanol loadout system are greater than 25 tons per year. Since these units will be constructed after the January 1, 1980 applicability date and there are no other rules in 326 IAC 8 applicable to these units, the Permittee is required to control the VOC emissions from the ethanol loading racks with BACT.

Step 1 – Identify Control Options

(a) IDEM, OAQ reviewed the following five (5) control technologies. The detailed description of each control technology can be found in Step 1 of Appendix B.1.

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

(b) The search for ethanol loading process in EPA's RACT/BACT/LAER Clearinghouse (RBLC) and Indiana Air Permits identified the following

Plant	PBLD ID or Permit #	Date Issued and State	Facility	Control Technology and Permit Date	Stack Test Results and Dates
DRS Ventures, LLC	F139-22981-00020	11/13/05 (IN)	Ethanol Loading Rack	Flare with a control efficiency of 98%. VOC emissions < 0.26 lbs/hr.	Under Construction.
Central Indiana Ethanol, LLC	SPR 053-22564-00062	07/20/06 (IN)	Ethanol Loading Rack	Flare with a control efficiency of 98%. VOC < 0.92 lbs/hr.	Under Construction.
Premier Ethanol, LLC	F075-22858-00032	9/18/06 (IN)	Ethanol Loading Rack	Flare with a control efficiency of 98%. VOC emissions < 0.92 lbs/hr.	Under Construction.
Putnam Ethanol, LLC	SPM 133-22480-00003	3/23/06 (IN)	Ethanol Loading Rack	Flare with a control efficiency of 98%. VOC emissions < 0.92 lbs/hr.	Under Construction.
The Andersons Clymers Ethanol, LLC	F017-21536-00023	2/15/06 (IN)	Ethanol Loading Rack	Flare with a control efficiency of 98%. VOC emissions < 2.03 lbs/hr.	Under Construction.
ASA Linden, LLC	F017-21453-00061	2/8/06 (IN)	Ethanol Loading Rack	Flare with a control efficiency of 98%. VOC emissions < 1.25 lbs/hr.	Under Construction.

Plant	PBLD ID or Permit #	Date Issued and State	Facility	Control Technology and Permit Date	Stack Test Results and Dates
Hartford Energy, LLC	F009-21592-00024	1/31/06 (IN)	Ethanol Loading Rack	Flare with a control efficiency of 98%. VOC emissions < 0.0224 lbs per 1000 gallons of denatured ethanol, and < 0.70 tpy. Submerged fill loading that uses normal service.	Under Construction.
Central Indiana Ethanol, LLC	F053-21057-00062	08/04/05 (IN)	Ethanol Loading Rack	Flare with a control efficiency of 98%	Under Construction.
Motiva Enterprises, L.L.C.	CT-0149	10/22/03 (CT)	Fuel Loading Rack	Vapor recovery unit with carbon absorption unit	Not Available
United Wisconsin Grain Producers	WI-0204	8/14/03 (WI)	Ethanol Loading Rack	Flare with a control efficiency of 94%	Not Available
Archer Daniels Midland Co.	IL-0090	03/28/03 (IL)	Ethanol Loading Rack	Flare with a control efficiency of 95%	Not Available
Van Waters & Rogers	CA-0894	09/01/99 (CA)	Truck Loading Stations	Thermal oxidizer with a control efficiency of 95%	Not Available

Step 2 – Eliminate Technically Infeasible Control Options

After reviewing the above technologies, IDEM, OAQ eliminated carbon adsorption and wet scrubbers as not technically feasible for ethanol loadout processes. The reasons for eliminating these technologies are as follows:

Carbon Adsorption: Carbon adsorption is effective when there is sufficient VOC concentration and adequate van der Waals interactions. Because the primary VOC being emitted is ethanol, the van der Waals interactions would be minimal. Therefore, carbon adsorption is not typically used in this type of application. According to Calgon Carbon Industries, carbon adsorption is actually used in some applications to purify ethanol. This means that carbon adsorption is so ineffective at capturing ethanol that it is used to remove contaminants from ethanol. Therefore, carbon adsorption is considered technologically infeasible for controlling the VOC emissions from the ethanol loadout facility.

Wet Scrubbers: Wet scrubbers are reasonably effective for controlling VOC emissions when the VOCs are easily absorbed in water. Several characteristics control the effectiveness of wet scrubbers for VOC removal. The one parameter that can be easily analyzed to determine if wet scrubbing is effective is the solubility of the pollutants in the absorbent (water). The constituents in gasoline include many different organic compounds. Some of these compounds have limited solubility in water and, therefore, potentially affect the control efficiency of the scrubber. A significant amount of VOC emissions emitted during loadout arises from the displacement of petroleum or gasoline vapors present in the tank from the previous cargo. While the emissions from the ethanol would be effectively controlled by a wet scrubber, the VOC emissions resulting from the displacement of gasoline or petroleum vapors would not be effectively controlled by a wet scrubber.

Step 3 – Rank Remaining Control Technologies by Control Effectiveness

A condenser, thermal oxidizer, and flare are the only technically feasible control options for the ethanol loadout. IDEM, OAQ reviewed industry data to determine the VOC control efficiency of each of the remaining control technologies. The results of this review are summarized in the following table:

Control Technology	VOC Control Efficiency
Flare	98%
Thermal Oxidizer	99%
Refrigeration Condenser	Greater than 90%

Step 4 – Evaluate the Most Effective Controls and Document Results

IDEM is aware that other vendors have guaranteed control efficiencies of 99% to control similar processes for other proposed ethanol plants. However, BACT limitations do not necessarily need to

reflect the highest possible control efficiency achievable by the technology on which the emission limitation is based. The permitting authority has discretion to base the emission limitation on a control efficiency that is somewhat lower than the optimal level.

Step 5 – Select BACT

Maize AgriProducts, Inc. proposed to use a flare, identified as CE007, with a destruction efficiency of 98% to control the VOC emissions from the denatured ethanol loadout system (EU035 and EU036). Pursuant to 326 IAC 8-1-6, IDEM, OAQ has determined that the following requirements represent BACT for the denatured ethanol loadout system (EU035 and EU036) at this source:

(a) VOC emissions from the denatured ethanol loadout system (EU035 and EU036) shall be collected and controlled by enclosed flare CE007 when loading denatured ethanol to truck.

(b) The overall control efficiency for the vapor collection system and enclosed flare CE007 shall be at least 98%.

(c) VOC emissions from flare CE007 exhaust shall not exceed 0.10 pounds per thousand gallons of denatured ethanol loaded.

(d) The denatured ethanol loading rack system (EU035 and EU036) shall use only submerged fill loading.