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

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January 8, 2004

TO: Interested Parties / Applicant

RE: Iroquois Bio-Energy Company, LLC / 073-16720-00037

FROM: Paul Dubenetzky
Chief, Permits Branch
Office of Air Quality

Notice of Decision: Approval - Effective Immediately

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

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

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

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

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

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

Enclosures
FNPER.dot 9/16/03

FEDERALLY ENFORCEABLE STATE OPERATING PERMIT (FESOP)

Iroquois Bio-Energy Company, LLC
751 W. State Road 114
Rensselaer IN 47978-7265

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

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

This permit is issued in accordance with 326 IAC 2 and 40 CFR Part 70 Appendix A and contains the conditions and provisions specified in 326 IAC 2-8 as required by 42 U.S.C. 7401, et. seq. (Clean Air Act as amended by the 1990 Clean Air Act Amendments), 40 CFR Part 70.6, IC 13-15 and IC 13-17.

Operation Permit No.: 073-16720-00037	
Issued by: Original Signed by Paul Dubenetzky Paul Dubenetzky, Branch Chief Office of Air Quality	Issuance Date: January 8, 2004 Expiration Date: January 8, 2009

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SECTION A SOURCE SUMMARY

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

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

The Permittee owns and operates an ethanol manufacturing plant.

Authorized Individual:	Mr. Keith Gibson
Source Address:	751 W. State Road 114, Rensselaer IN 47978-7265
Mailing Address:	P. O. Box 218, Rensselaer, IN 47978-0218
SIC Code:	2869
Source Location Status:	Jasper County
County Status:	Attainment for all criteria pollutants
Source Status:	Federally Enforceable State Operating Permit (FESOP) Minor Source, under PSD Rules; Minor Source, Section 112 of the Clean Air Act

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

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

(a) Grain Receiving, Cleaning and Storage Operations, with a capacity of 58.1 tons of grain per hour, consisting of:

(1) Grain dump pits, identified as DP, where grain is discharged from hopper-bottom trucks.

(2) One (1) vibratory screening operation, which removes debris from grain.

(3) Discharge conveying operations.

(4) Five (5) grain storage silos with total storage capacity of 349,401 bushels.

Fugitive emissions from the dump pits and vibratory screening are minimized by enclosure inside a building. Particulate emissions inside the building are controlled by a baghouse rated at 99.9% efficiency, then exhausted through emission point EP-1.

(b) Surge Bin and Grain Milling Operations, consisting of:

(1) One (1) surge bin, identified as SB-202, with a capacity of four hours' supply of grain (approx. 8300 bushels).

(2) Grain conveying operations.

(3) Three (3) hammermills, identified as M-204 A, B, and C, which process grain into grain meal.

Particulate emissions from each hammermill are controlled by a baghouse rated at 99.9% efficiency, then exhausted through emission point EP-3. Particulate emissions from the surge bin are controlled by the hammermill baghouses.

(c) Boilers, consisting of:

(1) Two (2) natural gas fired boilers, identified as BLR-1701 A and B, each rated at 73.3 million British thermal units per hour.

Nitrogen oxide emissions from BLR-1701 A and B are controlled by low-NOX burners rated at 0.035 pounds per million British thermal units heat input, then exhausted through emission point EP-4..

(d) Mashing, Cooking and Liquefication Operations, consisting of:

(1) Meal conveying operations.

(2) One (1) mash mingler, where process water and/or hot water is added to meal to form mash.

(3) One (1) mash mix tank, where ammonia is added to mash as needed to adjust pH levels.

(4) One (1) jet cooker, where steam is injected to sterilize mash and gelatinize starch.

(5) One (1) liquefication tank, which cools mash after cooking.

Vapors from the liquefication tank are recycled to the Evaporation Operations.

(e) The Fermentation and Clean-in-Place (CIP) System, consisting of:

(1) Four (4) fermenters, including pumps and coolers, which ferment mash into beer. Carbon dioxide and ethanol vapors are emitted by this process.

(2) One (1) ethanol absorption column, identified as EAC-1, which recovers ethanol vapors from the fermenters and from the beer stills in the Distillation and Dehydration Operations.

(3) One (1) natural gas fired regenerative thermal oxidation (RTO) unit, rated at 0.63 million British thermal units per hour and 95% destruction efficiency.

(4) The Clean-in-Place (CIP) System.

(5) Associated pumps, compressors, pressure relief devices, sampling connection systems, open-ended valves or lines, valves, and flanges or other connectors in VOC service.

Volatile organic compound emissions that are not successfully recovered by the ethanol absorption column are controlled by the RTO unit, then exhausted through emission point EP-6.

(f) Distillation and Dehydration Operations, consisting of:

(1) One (1) beer well, which serves as a surge tank for beer.

(2) One (1) beer well agitator, which keeps solids from settling in the beer well.

(3) One (1) beer preheat train, utilizing hot vapors from the beer stills for heat input.

(4) Two (2) beer stills, which remove ethanol from beer, producing stillage as a byproduct. Noncondensible ethanol vapors and hydrous ethanol vapors are emitted from this process.

(5) One (1) stillage storage tank.

(6) Molecular sieve units, which remove water from superheated hydrous ethanol vapors. Superheating is done with process steam.

(7) One (1) molecular sieve cooler, which cools anhydrous ethanol vapors into liquid form.

(8) Associated pumps, compressors, pressure relief devices, sampling connection systems, open-ended valves or lines, valves, and flanges or other connectors in VOC service.

Noncondensible ethanol vapors from the beer stills are directed to the ethanol absorption column in the Fermentation and Clean-in-Place (CIP) System for recovery. Volatile organic compound emissions that are not successfully recovered by the ethanol absorption column are controlled by the RTO unit, then exhausted through emission point EP-6.

(g) Centrifugation Operations, consisting of:

(1) Five (5) stillage centrifuges, which split stillage into solids, identified as cake, and liquids which contain dissolved solids, identified as centrate.

(2) Cake conveying operations

(3) One (1) centrate storage tank.

(h) Evaporation Operations, consisting of:

(1) One (1) multiple-effect evaporator system, which removes water from centrate. This process produces concentrated dissolved solids (CDS) syrup.

(2) One (1) CDS syrup storage tank.

(i) Fuel Grade Product Blending Operations, consisting of:

(1) Two (2) shift tanks, identified as TK-801A and B, which store ethanol.

(2) One (1) recycle product tank, identified as TK-803, which stores ethanol.

(3) One (1) denaturant storage tank, identified as TK-805, which stores gasoline.

(4) One (1) final product storage tank, identified as TK-807, which stores fuel-grade ethanol.

(5) One (1) truck loading rack.

(6) Associated pumps, compressors, pressure relief devices, sampling connection systems, open-ended valves or lines, valves, and flanges or other connectors in VOC service.

(j) Distiller's Dry Grain with Solubles (DDGS) Drying Operations, consisting of:

(1) One (1) blender, which combines cake with CDS syrup.

(2) One (1) natural gas fired DDGS dryer, identified as DR-8XX, rated at 67 million British thermal units per hour. Nitrogen oxide emissions are controlled by low-NOX burners rated at 0.035 pounds per million British thermal units heat input, then exhausted through emission point EP-9.

(3) DDGS storage bins.

(4) Truck loadout operations. Particulate emissions are exhausted through emission point EP-10.

Volatile organic compound emissions from the DDGS Dryer are controlled by using the airflow as intake air for the dryer's burner flame. Emissions are then exhausted through emission point EP-9.

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

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

(a) Space heaters, process heaters, or boilers using natural gas-fired combustion with heat input equal to or less than ten million (10,000,000) British thermal units per hour.

(b) Equipment powered by internal combustion engines of capacity equal to or less than five hundred thousand (500,000) British thermal units per hour, provided that the total capacity of such equipment operated by this emission source does not exceed two million (2,000,000) British thermal units per hour.

(c) Combustion source flame safety purging on startup.

(d) A gasoline fuel transfer dispensing operation handling less than or equal to 1,300 gallons per day and filling storage tanks having a capacity equal to or less than 10,500 gallons.

(e) A petroleum fuel other than gasoline dispensing facility, having a storage tank capacity less than or equal to 10,500 gallons, and dispensing 3,500 gallons per day or less.

(f) Storage tanks with capacity less than or equal to 1,000 gallons and annual throughputs equal to or less than 12,000 gallons.

(g) Cleaners and solvents characterized as:

(1) having a vapor pressure equal to or less than two (2.0) kilo Pascals (fifteen (15) millimeters of mercury or three-tenths (0.3) pound per square inch) measured at thirty-eight (38) degrees Centigrade (one hundred (100) degrees Fahrenheit); or

(2) having a vapor pressure equal to or less than seven-tenths (0.7) kilo Pascal (five (5) millimeters of mercury or one-tenth (0.1) pound per square inch) measured at twenty (20) degrees Centigrade (sixty-eight (68) degrees Fahrenheit);

the use of which, for all cleaners and solvents combined, does not exceed one hundred forty-five (145) gallons per twelve (12) months.

(h) The following equipment where the usage does not result in the emission of HAPs:

(1) Brazing.

(2) Cutting torches.

(3) Soldering.

(4) Welding.

(i) One (1) process cooling tower, identified as CT-1401, consisting of six (6) cells. Each cell has a cooling fan.

(j) Blowdown for any of the following:

(1) Sight glass.

(2) Boilers.

(3) Cooling tower.

(4) Compressors.

(5) Pumps.

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

(l) Heat exchangers, identified as mash coolers, which are part of the Mashing, Cooking and Liquefication Operations.

(m) Heat exchanger cleaning and repair.

(n) Evaporation Operations, consisting of:

(1) One (1) multiple-effect evaporator system, which removes water from centrate. This process produces concentrated dissolved solids (CDS) syrup.

(2) One (1) CDS syrup storage tank.

(o) Paved and unpaved roads and parking lots with public access.

(p) Activities associated with emergencies, including:

(1) On-site fire training approved by IDEM.

(2) Diesel fired emergency generators not exceeding 1,600 horsepower.

(3) Stationary fire pumps.

(q) Filter or coalescer media changeout.

A.4 FESOP Applicability [326 IAC 2-8-2]

This source, otherwise required to have a Part 70 permit as described in 326 IAC 2-7-2(a), has applied to the Indiana Department of Environmental Management (IDEM), Office of Air Quality (OAQ) for a Federally Enforceable State Operating Permit (FESOP).

SECTION B GENERAL CONDITIONS

B.1 Permit No Defense [IC 13]

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

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

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

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

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

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

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

B.5 Termination of Right to Operate [326 IAC 2-8-9] [326 IAC 2-8-3(h)]

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

B.6 Severability [326 IAC 2-8-4(4)]

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

B.7 Property Rights or Exclusive Privilege [326 IAC 2-8-4(5)(D)]

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

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

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

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

B.9 Compliance Order Issuance [326 IAC 2-8-5(b)]

IDEM, OAQ may issue a compliance order to this Permittee upon discovery that this permit is in nonconformance with an applicable requirement. The order may require immediate compliance or contain a schedule for expeditious compliance with the applicable requirement.

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

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

(b) One (1) certification shall be included, using the attached Certification Form, with each submittal requiring certification.

(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 in letter form no later than July 1 of each year to:

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

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

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

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

(2) The compliance status;

(3) Whether compliance was continuous or intermittent;

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

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

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

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

(a) If required by specific condition(s) in Section D of this permit, the Permittee shall prepare and maintain Preventive Maintenance Plans (PMPs) no later than thirty (30) days prior to commencement of operation of the facility, 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.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

(A) A description of the emergency;

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

(C) Corrective actions taken.

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

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

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

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

(e) IDEM, OAQ may require that the Preventive Maintenance Plans required under 326 IAC 2-8-3(c)(6) be revised in response to an emergency.

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

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

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

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

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

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

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

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

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

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

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

using the attached Quarterly Deviation and Compliance Monitoring Report, or its equivalent. A deviation required to be reported pursuant to an applicable requirement that exists independent of this permit, shall be reported according to the schedule stated in the applicable requirement and does need to be included in this report.

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

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

B.15 Permit Modification, Reopening, Revocation and Reissuance, or Termination [326 IAC 2-8-4(5)(C)] [326 IAC 2-8-7(a)] [326 IAC 2-8-8]

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

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

(1) That this permit contains a material mistake.

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

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

(c) Proceedings by IDEM, OAQ to reopen and revise this permit shall follow the same procedures as apply to initial permit issuance and shall affect only those parts of this permit for which cause to reopen exists. Such reopening and revision shall be made as expeditiously as practicable. [326 IAC 2-8-8(b)]

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

B.16 Permit Renewal [326 IAC 2-8-3(h)]

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

Request for renewal shall be submitted to:

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

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

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

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

(B) If the date postmarked on the envelope or certified mail receipt, or affixed by the shipper on the private shipping receipt, is on or before the date it is

due. If the document is submitted by any other means, it shall be considered timely if received by IDEM, OAQ on or before the date it is due.

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

(c) Right to Operate After Application for Renewal [326 IAC 2-8-9]
If the Permittee submits a timely and complete application for renewal of this permit, the source's failure to have a permit is not a violation of 326 IAC 2-8 until IDEM, OAQ takes final action on the renewal application, except that this protection shall cease to apply if, subsequent to the completeness determination, the Permittee fails to submit by the deadline specified in writing by IDEM, OAQ any additional information identified as needed to process the application.

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

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

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

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

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

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

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

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

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

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

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

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

(4) The Permittee notifies the:

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

and

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

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

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

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

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

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

B.19 Permit Revision Requirement [326 IAC 2-8-11.1]

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

B.20 Inspection and Entry [326 IAC 2-8-5(a)(2)] [IC 13-14-2-2][IC13-30-3-1]

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

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

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

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

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

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

B.21 Transfer of Ownership or Operational Control [326 IAC 2-8-10]

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

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

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

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

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

B.22 Annual Fee Payment [326 IAC 2-7-19][326 IAC 2-8-4(6)][326 IAC 2-8-16][326 IAC 2-1.1-7]

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

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

(c) The Permittee may call the following telephone numbers: 1-800-451-6027 or 317-233-4320 (ask for OAQ, I/M & Billing Section), to determine the appropriate permit fee.

SECTION C SOURCE OPERATION CONDITIONS

Entire Source

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

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

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

C.2 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.3 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.4 Incineration [326 IAC 4-2] [326 IAC 9-1-2(3)]

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

C.5 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.6 Operation of Equipment [326 IAC 2-8-5(a)(4)]

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

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]

All demolition projects require notification, whether or not asbestos is present.

(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.

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

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

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

(A) Asbestos removal or demolition start date;

(B) Removal or demolition contractor; or

(C) Waste disposal site.

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

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

All required notifications shall be submitted to:

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

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

(e) Procedures for Asbestos Emission Control
The Permittee shall comply with the applicable emission control procedures in 326 IAC 14-10-4 and 40 CFR 61.145(c). Per 326 IAC 14-10-4 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 or demolition, to use an Indiana Accredited Asbestos Inspector to thoroughly inspect the affected portion of the facility for the presence of asbestos. The requirement to use an Indiana accredited asbestos inspector is not federally enforceable.

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

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

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

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

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

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

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

(c) Pursuant to 326 IAC 3-6-4(b), all test reports must be received by IDEM, OAQ not later than forty-five (45) days after the completion of the testing. An extension may be granted by IDEM, OAQ if the source 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 shall be implemented when operation begins. If required by Section D, the Permittee shall be responsible for installing any necessary equipment and initiating any required monitoring related to that equipment.

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

C.12 Monitoring Methods [326 IAC 3] [40 CFR 60] [40 CFR 63]

Any monitoring or testing performed 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.

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

C.13 Risk Management Plan [326 IAC 2-8-4] [40 CFR 68.215]

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

C.14 Actions Related to Noncompliance Demonstrated by a Stack Test [326 IAC 2-8-4] [326 IAC 2-8-5]

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

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

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

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

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

C.15 General Record Keeping Requirements [326 IAC 2-8-4(3)] [326 IAC 2-8-5]

(a) Records of all required data, reports and support information 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 kept 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.16 General Reporting Requirements [326 IAC 2-8-4(3)(C)] [326 IAC 2-1.1-11]

(a) The source shall submit the attached Quarterly Deviation and Compliance Monitoring Report or its equivalent. Any deviation from permit requirements, the date(s) of each deviation, the cause of the deviation, and the response steps taken must be reported. This report shall be submitted within thirty (30) days of the end of the reporting period. The Quarterly Deviation and Compliance Monitoring Report shall include the certification by the "authorized individual" as defined by 326 IAC2-1.1-1(1).

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

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

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

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

(e) The first report covered the period commencing on the date of issuance of the original FESOP and ended on the last day of the reporting period. All subsequent reporting periods shall be based on calendar years.

Stratospheric Ozone Protection

C.17 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

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

Grain Receiving, Cleaning and Storage Operations, with a capacity of 58.1 tons of grain per hour, consisting of:

(a) Grain dump pits, identified as DP, where grain is discharged from hopper-bottom trucks.

(b) One (1) vibratory screening operation, which removes debris from grain.

(c) Discharge conveying operations.

(d) Grain storage silos with storage capacity of 349,401 bushels.

Fugitive emissions from the dump pits and vibratory screening are minimized by enclosure inside a building. Particulate emissions inside the building are controlled by a baghouse rated at 99.9% efficiency, then exhausted through emission point EP-1.

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

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

D.1.1 Fugitive Particulate Matter Emission Limitations [326 IAC 6-5]

Pursuant to 326 IAC 6-5 (Fugitive Particulate Matter Emission Limitations), fugitive particulate matter emissions shall be minimized by enclosure of dump pits and vibratory screening operations inside a building and venting of the building to a control device.

Compliance Determination Requirements

D.1.2 Testing Requirements [326 IAC 2-8-5(a)(1), (4)][326 IAC 2-1.1-11]

The Permittee is not required to test this facility by this permit.

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

D.1.3 Monitoring Not Required

There are no applicable compliance monitoring conditions for this facility.

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

D.1.4 Record Keeping Requirements

There are no specific record keeping requirements for this facility.

D.1.5 Reporting Requirements

There are no specific reporting requirements for this facility.

SECTION D.2 FACILITY OPERATION CONDITIONS

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

Surge Bins and Grain Milling Operations, with a capacity of 58.1 tons of grain per hour, consisting of:

(a) One (1) surge bin, identified as SB-202, with a capacity of four hours' supply of grain (approx. 8300 bushels).

(b) Grain conveying operations.

(c) Three (3) hammermills, identified as M-204 A, B, and C, which process grain into grain meal.

Particulate emissions from the surge bin and the hammermills are controlled by three (3) baghouses, each rated at 99.9% efficiency, then exhausted through emission point EP-3.

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

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

D.2.1 Particulate Matter (PM) [326 IAC 6-3-2(c)]

Pursuant to 326 IAC 6-3-2, particulate matter (PM) emissions shall be limited by the following equation for process weight rates greater than sixty thousand (60,000) pounds per hour:

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

For a process weight rate of 58.1 tons per hour, the equation states an emission limit of 46.0 pounds of particulate matter per hour.

D.2.2 Control Device Required for Particulate Matter (PM) [326 IAC 2-8]

The control devices for PM control shall be in operation at all times whenever an emission unit that it controls is in operation. Compliance with this condition will ensure that PM emissions are in compliance with Condition D.2.1 in this permit. Compliance with this condition, when combined with other requirements in this permit, will also ensure that source PM-10 emissions are less than 100 tons per year. Therefore 326 IAC 2-7 does not apply.

D.2.3 Preventive Maintenance Plan [326 IAC 2-8-4(9)]

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

Compliance Determination Requirements

D.2.4 Testing Requirements [326 IAC 2-8-5(a)(1), (4)][326 IAC 2-1.1-11]

The Permittee is not required to test this facility by this permit. However, IDEM may require compliance testing when necessary to determine if the facility is in compliance. If testing is required by IDEM, compliance shall be determined by a performance test conducted in accordance with Section C - Performance Testing.

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

D.2.5 Visible Emissions Notations

(a) Daily visible emission notations of the stack exhaust shall be performed during normal daylight operations when exhausting to the atmosphere. On and after the thirty-first day of operation, a trained employee shall record whether emissions are “normal” or “abnormal."

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

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

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

(e) The Compliance Response Plan for this facility shall contain troubleshooting contingency and response steps for when an abnormal emission is observed.

D.2.6 Parametric Monitoring

The Permittee shall record the total static pressure drop across the control device at least once weekly when the facility is in operation. Unless operated under conditions for which the Compliance Response Plan specifies otherwise, the pressure drop across the control device shall be maintained within the range recommended by the control device manufacturer or a range established during the latest stack test. The Compliance Response Plan for this unit shall contain troubleshooting contingency and response steps for when the pressure reading is outside of the above mentioned range for any one reading.

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

D.2.7 Control Device Inspections

An inspection shall be performed of the control device as outlined in the preventive maintenance plan, but not less than once every six (6) months. All defective parts shall be repaired or replaced as necessary.

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

D.2.8 Record Keeping Requirements

(a) To document compliance with Conditions D.2.5 , D.2.6 and D.2.7, the Permittee shall maintain a log of daily visible emission observations, weekly pressure gage readings, operation and preventive maintenance logs (including work purchases orders), and those additional inspections prescribed by the Preventative Maintenance Plan.

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

D.2.9 Reporting Requirements

A semi-annual summary of the information to document compliance 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 period being reported.

SECTION D.3 FACILITY OPERATION CONDITIONS

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

Boilers, consisting of:

(a) Two (2) natural gas fired boilers, identified as BLR-1701 A and B, each rated at 73.3 million British thermal units per hour.

Nitrogen oxide emissions from BLR-1701 A and B are controlled by low-NOX burners rated at 0.035 pounds per million British thermal units heat input, then exhausted through emission point EP-4.

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

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

D.3.1 Particulate Emission Limitations For Sources of Indirect Heating [326 IAC 6-2-4]

Pursuant to 326 IAC 6-2-4, particulate matter (PM) emissions shall not exceed 0.30 pounds per million British thermal units of heat input.

D.3.2 Preventive Maintenance Plan [326 IAC 2-8-4(9)]

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

Compliance Determination Requirement

D.3.3 Testing Requirements [326 IAC 2-8-5(a)(1), (4)][326 IAC 2-1.1-11]

The Permittee is not required to test this facility by this permit.

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

D.3.4 Monitoring Not Required

There are no applicable compliance monitoring conditions for this facility.

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

D.3.5 NSPS Record Keeping Requirement [326 IAC 12] [40 CFR 48c]

Pursuant to 40 CFR 48c(g), the Permittee shall record and maintain records of the amounts of fuel combusted during each day for BLR-1701 A and B, unless U.S. EPA modifies this requirement via authority in 40 CFR 60.13(i). Records shall be kept for a minimum period of two (2) years after such record is made.

D.3.6 NSPS Reporting Requirement [326 IAC 12] [40 CFR 48c]

Pursuant to the New Source Performance Standards (NSPS), Part 60.48c, Subpart Dc, the Permittee is hereby advised of the requirement to report the following at the appropriate times:

(a) Commencement of construction date (no later than 30 days after such date).

(b) Anticipated start-up date (not more than 60 days or less than 30 days prior to such date).

(c) Actual start-up date (within 15 days after such date).

Reports are to be sent to:

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

The application and enforcement of these standards have been delegated to the IDEM, OAQ. The requirements of 40 CFR Part 60 are also federally enforceable.

SECTION D.4 FACILITY OPERATION CONDITIONS

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

Mashing, Cooking and Liquefication Operations, consisting of:

(a) Meal conveying operations.

(b) One (1) mash mingler, where water is added to grain meal to form mash.

(c) One (1) mash mix tank, where ammonia is added to mash as needed to adjust pH levels.

(d) One (1) jet cooker, where steam is injected to sterilize mash and gelatinize starch.

(e) One (1) liquefication tank, which cools mash after cooking.

Vapors from the liquefication tank are recycled to the Evaporation Operations.

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

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

D.4.1 Fugitive Particulate Matter Emission Limitations [326 IAC 6-5]

Pursuant to 326 IAC 6-5 (Fugitive Particulate Matter Emission Limitations), fugitive particulate matter emissions shall be minimized by enclosure of meal conveying operations and redirection of vapors from the liquefication tank to the Evaporation Operations.

Compliance Determination Requirements

D.4.2 Testing Requirements [326 IAC 2-8-5(a)(1), (4)][326 IAC 2-1.1-11]

The Permittee is not required to test this facility by this permit.

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

D.4.3 Monitoring Not Required

There are no applicable compliance monitoring conditions for this facility.

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

D.4.4 Record Keeping Requirements

There are no specific record keeping requirements for this facility.

D.4.5 Reporting Requirements

There are no specific reporting requirements for this facility.

SECTION D.5 FACILITY OPERATION CONDITIONS

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

The Fermentation and Clean-in-Place (CIP) System, consisting of:

(a) Four (4) fermenters, including pumps and coolers, which ferment mash into beer. Carbon dioxide and ethanol vapors are emitted by this process.

(b) One (1) ethanol absorption column, identified as EAC-1, which recovers ethanol vapors from the fermenters and from the beer stills in the Distillation and Dehydration Operations.

(c) One (1) natural gas fired regenerative thermal oxidation (RTO) unit, rated at 0.63 million British thermal units per hour and 95% destruction efficiency.

(d) The Clean-in-Place (CIP) System, which cleans and sterilizes fermenting equipment.

(e) Associated pumps, compressors, pressure relief devices, sampling connection systems, open-ended valves or lines, valves, and flanges or other connectors in VOC service.

Volatile organic compound emissions that are not successfully recovered by the ethanol absorption column are controlled by the RTO unit, then exhausted through emission point EP-6.

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

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

D.5.1 Best Available Control Technology [326 IAC 8-1-6] [326 IAC 2-8]

Pursuant to 326 IAC 8-1-6 (General Reduction Requirements), the BACT (best available control technology) requirements apply.

For this facility, BACT has been determined to be the use of one (1) natural gas fired regenerative thermal oxidation (RTO) unit, rated at 0.63 million British thermal units per hour and a minimum 95% destruction efficiency. All volatile organic compound emissions that are not successfully recovered by the ethanol absorption column shall be controlled by the RTO unit.

Furthermore, emissions of volatile organic compounds (VOC) from the RTO unit shall not exceed 0.3 pounds per hour. This condition, when combined with other requirements in this permit, limits source VOC emissions to less than 100 tons per year. Therefore 326 IAC 2-7 does not apply.

D.5.2 Control Device Required for Volatile Organic Compounds (VOC)

The control device for VOC control shall be in operation at all times whenever an emission unit that it controls is in operation.

D.5.3 New Source Performance Standards [326 IAC 12] [40 CFR 60]

Pursuant to 326 IAC 12 (40 CFR 60, Subpart VV) the Permittee shall satisfy the requirements of 40 CFR 60.482 through 60.487, as applicable, for equipment leaks from pumps, compressors, pressure relief devices, sampling connection systems, open-ended valves or lines, valves, and flanges or other connectors in VOC service.

D.5.4 Preventive Maintenance Plan [326 IAC 2-8-4(9)]

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

Compliance Determination Requirements

D.5.5 Testing Requirements [326 IAC 2-8-5(a)(1), (4)][326 IAC 2-1.1-11]

(a) Within 60 days after achieving the maximum production rate at which this facility will be operated, but not later than 180 days after commencing operation, the Permittee shall conduct a performance test to verify VOC control efficiency for the RTO unit utilizing methods as approved by the Commissioner. This test shall be repeated at least once every five years from the date of the most recent valid compliance demonstration. Testing shall be conducted in accordance with Section C - Performance Testing.

(b) The Permittee shall conduct performance tests for equipment leaks in accordance with 40 CFR 60 Subpart VV, as applicable.

D.5.6 Thermal Oxidizer Temperature

(a) A continuous monitoring system shall be calibrated, maintained, and operated on the thermal oxidizer for measuring operating temperature. The output of this system shall be recorded as an hourly average. From the date of issuance of this permit until the approved stack test results are available, the Permittee shall operate the RTO unit at or above the hourly average temperature of 1400 ^{0}F.

(b) The Permittee shall determine the hourly average temperature, from the most recent valid stack test, that demonstrates compliance with limits in Condition D.5.1, as approved by IDEM.

(c) On and after the date the approved stack test results are available, the Permittee shall operate the thermal oxidizer at or above the hourly average temperature that demonstrates compliance with limits in Condition D.5.1.

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

D.5.7 Parametric Monitoring [326 IAC 12][40 CFR 60]

(a) The Permittee shall determine the appropriate duct pressure or fan amperage, from the most recent valid stack test, that demonstrates compliance with limits in Condition D.5.1. as approved by IDEM.

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

(c) The Permittee shall develop and conduct a monitoring program for this facility addressing equipment leaks in accordance with 40 CFR 60 Subpart VV, as applicable.

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

D.5.8 Record Keeping Requirements [326 IAC 12] [40 CFR 60]

(a) To document compliance with Conditions D.5.1 and D.5.7, the Permittee shall maintain the following records:

(1) The continuous temperature records (on an hourly average basis) for the thermal oxidizer and the hourly average temperature used to demonstrate compliance during the most recent compliant stack test.

(2) Daily records of the duct pressure or fan amperage.

(b) To document compliance with Condition D.5.4, the Permittee shall maintain of records of any additional inspections prescribed by the Preventive Maintenance Plan.

(c) To document compliance with Condition D.5.7(c), the Permittee shall maintain records for equipment leaks within this facility in accordance with 40 CFR 60 Subpart VV, as applicable.

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

SECTION D.6 FACILITY OPERATION CONDITIONS

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

Distillation and Dehydration Operations, consisting of:

(a) One (1) beer well, which serves as a surge tank for beer.

(b) One (1) beer well agitator, which keeps solids from settling in the beer well.

(c) One (1) beer preheat train, utilizing hot vapors from the beer stills for heat input.

(d) Two (2) beer stills, which remove ethanol from beer, producing stillage as a byproduct. Noncondensible ethanol vapors and hydrous ethanol vapors are emitted from this process.

(e) One (1) stillage storage tank.

(f) Molecular sieve units, which remove water from superheated hydrous ethanol vapors. Superheating is done with process steam.

(g) One (1) molecular sieve cooler, which cools anhydrous ethanol vapors into liquid form.

(h) Associated pumps, compressors, pressure relief devices, sampling connection systems, open-ended valves or lines, valves, and flanges or other connectors in VOC service.

Noncondensible ethanol vapors from the beer stills are directed to the ethanol absorption column in the Fermentation and Clean-in-Place (CIP) System for recovery. Volatile organic compound emissions that are not successfully recovered by the ethanol absorption column are controlled by the RTO unit, then exhausted through emission point EP-6.

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

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

D.6.1 Best Available Control Technology [326 IAC 8-1-6] [326 IAC 2-8]

Pursuant to 326 IAC 8-1-6 (General Reduction Requirements), the BACT (best available control technology) requirements apply.

For this facility, BACT has been determined to be the following:

(a) All condensible ethanol vapors shall be directed to the molecular sieve units, which remove water from superheated hydrous ethanol vapors, then directed to the molecular sieve cooler, which cools the anhydrous ethanol vapors into liquid form. No condensible ethanol shall be emitted.

(b) Noncondensible ethanol vapors shall be directed to the ethanol absorption column in the Fermentation and Clean-in-Place (CIP) System, listed in Section D.5 of this permit, for recovery.

This condition, when combined with other requirements in this permit, limits source VOC emissions to less than 100 tons per year. Therefore 326 IAC 2-7 does not apply.

D.6.2 Control Device Required for Volatile Organic Compounds (VOC)

The control device for VOC control shall be in operation at all times whenever an emission unit that it controls is in operation.

D.6.3 New Source Performance Standards [326 IAC 12] [40 CFR 60]

Pursuant to 326 IAC 12 (40 CFR 60, Subpart VV) the Permittee shall satisfy the requirements of 40 CFR 60.482 through 60.487, as applicable, for equipment leaks from pumps, compressors, pressure relief devices, sampling connection systems, open-ended valves or lines, valves, and flanges or other connectors in VOC service.

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

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

Compliance Determination Requirements

D.6.5 Testing Requirements [326 IAC 2-8-5(a)(1), (4)][326 IAC 2-1.1-11]

(a) The Permittee is not required to test the molecular sieve units or the molecular sieve cooler by this permit. However, IDEM may require compliance testing when necessary to determine if the facility is in compliance. If testing is required by IDEM, compliance shall be determined by a performance test conducted in accordance with Section C - Performance Testing.

(b) The Permittee is required to test the RTO unit in accordance with Section D.5 of this permit.

(c) The Permittee shall conduct performance tests for equipment leaks in accordance with 40 CFR 60 Subpart VV, as applicable.

D.6.6 Thermal Oxidizer Temperature

The Permittee is required to operate the RTO unit in accordance with Section D.5 of this permit.

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

D.6.7 Parametric Monitoring [326 IAC 12][40 CFR 60]

(a) The Permittee is required to monitor the RTO unit in accordance with Section D.5 of this permit.

(b) The Permittee shall develop and conduct a monitoring program for this facility addressing equipment leaks in accordance with 40 CFR 60 Subpart VV, as applicable.

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

D.6.8 Record Keeping Requirements [326 IAC 12][40 CFR 60]

(a) The Permittee is required to maintain records for the RTO unit in accordance with Section D.5 of this permit.

(b) The Permittee shall maintain records for equipment leaks within this facility in accordance with 40 CFR 60 Subpart VV, as applicable.

SECTION D.7 FACILITY OPERATION CONDITIONS

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

Centrifugation Operations, consisting of:

(a) Five (5) stillage centrifuges, which split stillage into solids, identified as cake, and liquids which contain dissolved solids, identified as centrate.

(b) Cake conveying operations

(c) One (1) centrate storage tank.

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

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

D.7.1 Fugitive Particulate Matter Emission Limitations [326 IAC 6-5]

Pursuant to 326 IAC 6-5 (Fugitive Particulate Matter Emission Limitations), fugitive particulate matter emissions shall be minimized by conveying the cake while it remains moist.

Compliance Determination Requirements

D.7.2 Testing Requirements [326 IAC 2-8-5(a)(1), (4)][326 IAC 2-1.1-11]

The Permittee is not required to test this facility by this permit.

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

D.7.3 Monitoring Not Required

There are no applicable compliance monitoring conditions for this facility.

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

D.7.4 Record Keeping Requirements

There are no specific record keeping requirements for this facility.

D.7.5 Reporting Requirements

There are no specific reporting requirements for this facility.

SECTION D.8 FACILITY OPERATION CONDITIONS

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

Fuel Grade Product Blending Operations, consisting of:

(a) Two (2) shift tanks, identified as TK-801A and B, which store ethanol. Capacity: 68,250 gallons each.

(b) One (1) recycle product tank, identified as TK-803, which stores ethanol. Capacity: 68,250 gallons.

(c) One (1) denaturant storage tank, identified as TK-805, which stores gasoline. Capacity: 31,500 gallons.

(d) One (1) final product storage tank, identified as TK-807, which stores fuel-grade ethanol. Capacity: 68,250 gallons.

(e) One (1) truck loading rack, which dispenses fuel-grade ethanol into trucks.

(f) Associated pumps, compressors, pressure relief devices, sampling connection systems, open-ended valves or lines, valves, and flanges or other connectors in VOC service.

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

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

D.8.1 New Source Performance Standards [326 IAC 12][40 CFR 60 Subpart Kb]

Pursuant to 40 CFR Part 60.112b(a)(1), the Permittee shall equip storage tanks TK-801A, TK-801B, TK-803, TK-805 and TK-807 with an internal floating roof meeting the following specifications:

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

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

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

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

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

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

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

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

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

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

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

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

D.8.2 New Source Performance Standards [326 IAC 12][40 CFR 60 Subpart VV]

Pursuant to 326 IAC 12 (40 CFR 60, Subpart VV) the Permittee shall satisfy the requirements of 40 CFR 60.482 through 60.487, as applicable, for equipment leaks from pumps, compressors, pressure relief devices, sampling connection systems, open-ended valves or lines, valves, and flanges or other connectors in VOC service.

Compliance Determination Requirements

D.8.3 Testing Requirements [326 IAC 2-8-5(a)(1), (4)][326 IAC 2-1.1-11][326 IAC 12][40 CFR 60.113b(a)(1)]

After installing the internal floating roofs required in Condition D.8.1, the Permittee shall:

(a) Visually inspect the internal floating roof, the primary seal, and the secondary seal (if one is in service), prior to filling the storage vessel. 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 Permittee shall repair the items before filling the storage vessel.

(b) For vessels equipped with a double-seal system, the Permittee shall:

(1) Visually inspect the vessel as specified in part (c) and part (d) of this Condition; or

(2) Visually inspect the vessel as specified in part (d) of this Condition only, at least once every five years.

(c) For storage vessels equipped with a liquid-mounted or mechanical shoe primary seal, or for vessels equipped with a double-seal system where the Permittee elects to do so:

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 within 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 OAQ in the inspection report required in 40 CFR 60.115b(a)(3). Such a request for an extension must document that alternate storage capacity is unavailable and specify a schedule of actions the company will take that will assure that the control equipment will be repaired or the vessel will be emptied as soon as possible.

This inspection shall be repeated at least once every 12 months.

(d) For all storage vessels:

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.

This inspection shall be repeated at least once every 10 years, unless more frequent inspections are required elsewhere in this permit.

D.8.4 Testing Requirements [326 IAC 2-8-5(a)(1), (4)][326 IAC 2-1.1-11][326 IAC 12][40 CFR 60 Subpart VV]

The Permittee shall conduct performance tests for equipment leaks in accordance with 40 CFR 60 Subpart VV, as applicable.

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

D.8.5 Parametric Monitoring [326 IAC 12][40 CFR 60 Subpart VV]

The Permittee shall develop and conduct a monitoring program for this facility addressing equipment leaks in accordance with 40 CFR 60 Subpart VV, as applicable.

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

D.8.6 NSPS Reporting Requirements [40 CFR 60.113b(a)(5)][40 CFR 60.115b(a)(3) and (4)]

(a) The Permittee shall notify OAQ in writing at least 30 days prior to

(1) an initial filling, or

(2) a refilling after a complete emptying

of storage tanks TK-801A, TK-801B, TK-803, TK-805 or TK-807 to afford OAQ the opportunity to have an observer present.

(b) If the inspection is not planned and the Permittee could not have known about the inspection 30 days in advance of refilling the tank, the Permittee shall notify OAQ at least 7 days prior to the refilling of the storage vessel. Notification shall be made by telephone immediately followed by written documentation demonstrating why the inspection was unplanned. Alternatively, this notification including the written documentation may be made in writing and sent by express mail so that it is received by the Administrator at least 7 days prior to the refilling.

(c) If any of the conditions described in Condition D.8.2(c) are detected during the annual visual inspection, a report shall be furnished to OAQ 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.

(d) After each inspection required by Condition D.8.2(d) 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 Condition D.8.2(d), a report shall be furnished to OAQ within 30 days of the inspection. The report shall identify the storage vessel and the reason it did not meet the specifications and list each repair made.

D.8.7 Record Keeping Requirements [40 CFR 115b(a)]

(a) After installing control equipment in accordance with Condition D.8.1, the Permittee shall keep a record of each inspection performed as required by Condition D.8.2. 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).

(b) For storage tanks TK-801A, TK-801B, TK-803, TK-805 and TK-807, the Permittee shall keep readily-accessible records showing the dimension of the storage vessel and an analysis showing the capacity of the storage vessel, for the life of each vessel.

(c) **The Permittee shall maintain records for equipment leaks within this facility in accordance with 40 CFR 60 Subpart VV, as applicable.**

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

D.8.8 Reporting Requirements [40 CFR 115b(a)(1)]

After installing control equipment in accordance with Condition D.8.1, the Permittee shall furnish OAQ with a report that describes the control equipment and certifies that the control equipment

meets the specifications of 40 CFR 60.112b(a)(1) and 40 CFR 60.113b(a)(1). This report shall be an attachment to the notification required by Condition D.8.3.

SECTION D.9 FACILITY OPERATION CONDITIONS

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

Distiller's Dry Grain with Solubles (DDGS) Drying Operations, consisting of:

(a) One (1) blender, which combines cake with CDS syrup.

(b) One (1) natural gas fired DDGS dryer, identified as DR-8XX, rated at 67 million British thermal units per hour. Nitrogen oxide emissions are controlled by low-NOX burners rated at 0.035 pounds per million British thermal units heat input, then exhausted through emission point EP-9.

(c) DDGS storage bins.

(d) Truck loadout operations. Particulate emissions are exhausted through emission point EP-10.

Volatile organic compound emissions from the DDGS Dryer are controlled by using the airflow as intake air for the dryer's burner flame. Emissions are then exhausted through emission point EP-9.

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

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

D.9.1 Particulate Matter (PM) [326 IAC 6-3-2(c)] [326 IAC 2-8]

PM and PM-10 emissions from Dryer DR-8XX shall be limited to 9.0 pounds per hour of PM or PM-10. Compliance with this condition will ensure that PM emissions are in compliance with 326 IAC 6-3-2(c). Compliance with this condition, when combined with other requirements in this permit, will also ensure that source PM-10 emissions are less than 100 tons per year. Therefore 326 IAC 2-2 and 326 IAC 2-7 do not apply.

D.9.2 Fugitive Particulate Matter Emission Limitations [326 IAC 6-5]

Pursuant to 326 IAC 6-5 (Fugitive Particulate Matter Emission Limitations), fugitive particulate matter emissions shall be minimized by the following:

(a) Enclosing truck loadout operations inside a building; and

(b) Leaving sufficient moisture in the cake after drying to avoid visible emissions during truck loadout operations.

D.9.3 Best Available Control Technology [326 IAC 8-1-6] [326 IAC 2-8]

Pursuant to 326 IAC 8-1-6 (General Reduction Requirements), the BACT (best available control technology) requirements apply.

For this facility, BACT has been determined to be the following:

(a) Approximately 10% of the dryer exhaust airflow shall be used as intake air for the dryer's burners at any time, allowing the VOC to be combusted as supplemental fuel.

(b) The remainder of the dryer exhaust airflow shall be recycled in a semi-closed-loop system until it is ready to be used as intake air for the dryer's burners. All dryer exhaust shall eventually pass through the dryer's burners.

(c) The dryer flame shall attain a minimum of 95% VOC destruction efficiency.

(d) Total VOC mass emissions after combustion by the dryer flame shall be limited to 10.9 pounds per hour.

This condition, when combined with other requirements in this permit, limits source VOC emissions to less than 100 tons per year. Therefore 326 IAC 2-7 does not apply.

D.9.4 Hazardous Air Pollutants (HAPs) [326 IAC 2-4.1] [326 IAC 2-8]

(a) Total emissions of HAP from Dryer DR-8XX shall be controlled to 5.0 pounds per hour or less by using the dryer exhaust airflow as intake air for the dryer's burner flame.

(b) Emissions of any single HAP from Dryer DR-8XX shall be controlled to 2.2 pounds per hour or less by using the dryer exhaust airflow as intake air for the dryer's burner flame.

This condition limits total source HAP emissions to less than 25 tons per year and limits source HAP emissions of any single HAP to less than 10 tons per year. Therefore, 326 IAC 2-7 does not apply and the maximum achievable control technology (MACT) requirement in 326 IAC 2-4.1-1 (New Source Toxics Control) does not apply.

D.9.5 Control Device Required for Volatile Organic Compounds (VOC) and Hazardous Air Pollutants (HAPs)

The dryer burners shall be in operation at all times whenever Dryer DR-8XX is in operation or whenever airflow is being recycled and has not yet exited the semi-closed loop system. Compliance with this condition, when combined with other requirements in this permit, will ensure compliance with Condition C.1 in this permit.

D.9.6 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 Dryer DR-8XX.

Compliance Determination Requirements

D.9.7 Testing Requirements [326 IAC 2-8-5(a)(1), (4)][326 IAC 2-1.1-11]

(a) Within 60 days after achieving the maximum production rate at which this facility will be operated, but not later than 180 days after commencing operation, the Permittee shall perform testing for PM and PM-10, volatile organic compounds, and HAPs on Dryer DR-8XX utilizing EPA methods approved by the Commissioner.

(b) PM-10 is the sum of filterable and condensible PM-10. For test methods that cannot differentiate between PM and PM-10, filterable PM-10 is assumed at 100% of filterable PM.

(c) The VOC test methods and procedures selected shall be based on a consideration of the diversity of the organic species present and their concentration, and on a consideration of the potential presence of interfering gases. The VOC testing shall evaluate, at a minimum, the following:

(1) Ethanol.

(2) Acetic Acid.

(3) Lactic Acid.

(4) 2-furfuraldehyde.

(5) Acetaldehyde.

(6) Acrolein.

(7) Formaldehyde.

(8) Methanol.

(9) Total VOC mass emissions.

(d) The tests on Dryer DR-8XX shall be repeated at intervals no longer than five (5) years from the date of the previous compliance demonstration.

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

D.9.8 Visible Emissions Notations

(a) Daily visible emission notations of the stack exhaust shall be performed during normal daylight operations when exhausting to the atmosphere. On and after the thirty-first day of operation, a trained employee shall record whether emissions are “normal” or “abnormal. “

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

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

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

(e) The Compliance Response Plan for this facility shall contain troubleshooting contingency and response steps for when an abnormal emission is observed.

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

D.9.9 Record Keeping Requirements

(a) To document compliance with Condition D.9.7, the Permittee shall maintain a log of daily visible emission observations, operation and preventive maintenance logs (including work purchases orders), and those additional inspections prescribed by the Preventative Maintenance Plan.

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

D.9.10 Reporting Requirements

A semi-annual summary of the information to document compliance 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 period being reported.

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

FEDERALLY ENFORCEABLE STATE OPERATING PERMIT (FESOP) CERTIFICATION

Source Name: Iroquois Bio-Energy Company, LLC
Source Address: 751 W. State Road 114, Rensselaer IN 47978-7265
Mailing Address: P. O. Box 218, Rensselaer, IN 47978-0218
Permit No.: 073-16720-00037

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

Please check what document is being certified:

? Annual Compliance Certification Letter

? Test Result (specify) _____

? Report (specify) _____

? Notification (specify) _____

? Affidavit (specify) _____

? Other (specify) _____

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

Signature:

Printed Name:

Title/Position:

Date:

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF AIR QUALITY

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

FEDERALLY ENFORCEABLE STATE OPERATING PERMIT (FESOP)
EMERGENCY OCCURRENCE REPORT

Source Name: Iroquois Bio-Energy Company, LLC
Source Address: 751 W. State Road 114, Rensselaer IN 47978-7265
Mailing Address: P. O. Box 218, Rensselaer, IN 47978-0218
Permit No.: 073-16720-00037

This form consists of 2 pages **Page 1 of 2**

? This is an emergency as defined in 326 IAC 2-7-1(12)
?The Permittee must notify the Office of Air Quality (OAQ), within four (**4**) business hours (1-800-451-6027 or 317-233-5674, ask for Compliance Section); and
?The Permittee must submit notice in writing or by facsimile within two (**2**) days (Facsimile Number: 317-233-5967), and follow the other requirements of 326 IAC 2-7-16

If any of the following are not applicable, mark N/A

Facility/Equipment/Operation:
Control Equipment:
Permit Condition or Operation Limitation in Permit:
Description of the Emergency:
Describe the cause of the Emergency:

If any of the following are not applicable, mark N/A **Page 2 of 2**

Date/Time Emergency started:
Date/Time Emergency was corrected:
Was the facility being properly operated at the time of the emergency? Y N Describe:
Type of Pollutants Emitted: TSP, PM-10, SO_2, VOC, NO_X, CO, Pb, other:
Estimated amount of pollutant(s) emitted during emergency:
Describe the steps taken to mitigate the problem:
Describe the corrective actions/response steps taken:
Describe the measures taken to minimize emissions:
If applicable, describe the reasons why continued operation of the facilities are necessary to prevent imminent injury to persons, severe damage to equipment, substantial loss of capital investment, or loss of product or raw materials of substantial economic value:

Form Completed by: _____

Title / Position: _____

Date: _____

Phone: _____

A certification is not required for this report.

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

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

Source Name: Iroquois Bio-Energy Company, LLC
Source Address: 751 W. State Road 114, Rensselaer IN 47978-7265
Mailing Address: P. O. Box 218, Rensselaer, IN 47978-0218
Permit No.: 073-16720-00037

Months: _____ **to** _____ **Year:** _____

This report is an affirmation that the source has met all the requirements stated in this permit. 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. Deviations that are required to be reported by an applicable requirement shall be reported according to the schedule stated in the applicable requirement and do not need to be included in this report. Additional pages may be attached if necessary. If no deviations occurred, please specify in the box marked "No deviations occurred this reporting period".

? NO DEVIATIONS OCCURRED THIS REPORTING PERIOD.

? THE FOLLOWING DEVIATIONS OCCURRED THIS REPORTING PERIOD

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

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

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

Form Completed By: _____

Title/Position: _____

Date: _____

Phone: _____

Attach a signed certification to complete this report.

Indiana Department of Environmental Management
Office of Air Quality

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

Source Background and Description

Source Name:	**Iroquois Bio-Energy Company, LLC**
Source Location:	**751 W. State Road 114, Rensselaer IN 47978-7265**
County:	**Jasper**
SIC Code:	**2869**
Operation Permit No.:	**073-16720-00037**
Permit Reviewer:	**Allen R. Davidson**

On June 23, 2003, the Office of Air Quality (OAQ) had a notice published in the *Rensselaer Republican* stating that Iroquois Bio-Energy Company, LLC had applied for a Federally Enforceable State Operating Permit (FESOP) for an ethanol manufacturing plant to be located at 751 W. State Road 114, Rensselaer IN 47978-7265. 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.

Alex Sagady of Sagady and Associates submitted comments on the proposed FESOP. The summary of the comments and OAQ responses are as follows:

Comment 1a:

Other jurisdictions (i.e. Michigan and Illinois) consider ethanol plants to be chemical production process plants within the meaning of the listed source categories in the federal PSD rule that are subject to the 100 ton threshold for major stationary source status and the requirement to include fugitive emissions towards that threshold. The Technical Support Document seems to consider this plant as not being in that list and subject to a 250 ton limitation and being allowed to exclude fugitive emissions. The matter about whether or not Iroquois is a chemical production plant in the listed source categories thus becomes a critical issue given the rest of the estimated fugitive emission sources in the company's estimate would put the predicted emission over 100 tons if they were included towards the total.

Comment 1b:

Did IDEM's newly approved PSD rules for federal PSD program authorization permit ethanol plants to drop out of the chemical production plant category that other states consider applicable for a plant like Iroquois?

Response 1:

Agricultural products processing operations are not typically part of the 28 listed source categories under 326 IAC 2-2-1(y)(1). Upon further consideration, OAQ has concluded that motor fuel grade ethanol plants are classifiable as "chemical process plants" under 326 IAC 2-2-1(y)(1)(U). This conclusion is based on the following:

(a) The primary purpose of this plant will be to produce a nonpotable version of ethanol. The DDGS which is produced as a byproduct and sold as cattle feed is a secondary purpose.

(b) EPA Document AP-42, which provides summaries and emission factors for various processes, lists most agricultural products processing operations in Chapter 9 - "Food and Agricultural Industries." However, U.S. EPA keeps a placeholder for ethanol production in Chapter 6 - "Organic Chemical Process Industry."

(c) Motor fuel grade ethanol plants are subject to the requirements of the New Source Performance Standards Subpart VV - "Standards of Performance for Equipment Leaks of VOC in the Synthetic Organic Chemicals Manufacturing Industry."

(d) U.S. EPA has sought enforcement action against at least one existing ethanol plant alleging that it is a chemical process plant under the major source definition and that it failed to comply with 40 CFR 52.21.

Since this type of emission source is one of the twenty-eight (28) listed sources under 326 IAC 2-2, the fugitive particulate matter (PM) and volatile organic compound (VOC) emissions are counted toward determination of PSD applicability.

The following changes were made to the permit, in order to accommodate the inclusion of fugitive PM and PM-10 emissions under the FESOP thresholds:

D.9.1 Particulate Matter (PM) [326 IAC 6-3-2(c)] [326 IAC 2-8]

PM and PM-10 emissions from Dryer DR-8XX shall be limited to ~~11.0~~ **9.0** pounds per hour of PM or PM-10. Compliance with this condition will ensure that PM emissions are in compliance with 326 IAC 6-3-2(c). Compliance with this condition, when combined with other requirements in this permit, will also ensure that source PM-10 emissions are less than 100 tons per year. Therefore **326 IAC 2-2 and** 326 IAC 2-7 ~~does~~ **do** not apply.

Changes to VOC limits are addressed elsewhere in this addendum.

Comment 2:

This emission source is subject to the requirements of the New Source Performance Standards Subpart VV - "Standards of Performance for Equipment Leaks of VOC in the Synthetic Organic Chemicals Manufacturing Industry." There are no conditions relating to Subpart VV in the draft permit

Response 2:

OAQ has reviewed the rule, and the rule was found to be applicable. The following changes were made to the permit:

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

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

[Items (a) through (d) remain unchanged.]

(e) The Fermentation and Clean-in-Place (CIP) System, consisting of:

(1) Four (4) fermenters, including pumps and coolers, which ferment mash into beer. Carbon dioxide and ethanol vapors are emitted by this process.

(2) One (1) ethanol absorption column, identified as EAC-1, which recovers ethanol vapors from the fermenters and from the beer stills in the Distillation and Dehydration Operations.

(3) One (1) natural gas fired regenerative thermal oxidation (RTO) unit, rated at 0.63 million British thermal units per hour and 95% destruction efficiency.

(4) The Clean-in-Place (CIP) System.

(5) Associated pumps, compressors, pressure relief devices, sampling connection systems, open-ended valves or lines, valves, and flanges or other connectors in VOC service.

Volatile organic compound emissions that are not successfully recovered by the ethanol absorption column are controlled by the RTO unit, then exhausted through emission point EP-6.

(f) Distillation and Dehydration Operations, consisting of:

(1) One (1) beer well, which serves as a surge tank for beer.

(2) One (1) beer well agitator, which keeps solids from settling in the beer well.

(3) One (1) beer preheat train, utilizing hot vapors from the beer stills for heat input.

(4) Two (2) beer stills, which remove ethanol from beer, producing stillage as a byproduct. Noncondensible ethanol vapors and hydrous ethanol vapors are emitted from this process.

(5) One (1) stillage storage tank.

(6) Molecular sieve units, which remove water from superheated hydrous ethanol vapors. Superheating is done with process steam.

(7) One (1) molecular sieve cooler, which cools anhydrous ethanol vapors into liquid form.

(8) Associated pumps, compressors, pressure relief devices, sampling connection systems, open-ended valves or lines, valves, and flanges or other connectors in VOC service.

Noncondensible ethanol vapors from the beer stills are directed to the ethanol absorption column in the Fermentation and Clean-in-Place (CIP) System for recovery. Volatile organic compound emissions that are not successfully recovered by the ethanol absorption column are controlled by the RTO unit, then exhausted through emission point EP-6.

(g) Centrifugation Operations, consisting of:

(1) Five (5) stillage centrifuges, which split stillage into solids, identified as cake, and liquids which contain dissolved solids, identified as centrate.

(2) Cake conveying operations

(3) One (1) centrate storage tank.

(h) Evaporation Operations, consisting of:

(1) One (1) multiple-effect evaporator system, which removes water from centrate. This

process produces concentrated dissolved solids (CDS) syrup.

(2) One (1) CDS syrup storage tank.

(i) Fuel Grade Product Blending Operations, consisting of:

(1) Two (2) shift tanks, identified as TK-801A and B, which store ethanol.

(2) One (1) recycle product tank, identified as TK-803, which stores ethanol.

(3) One (1) denaturant storage tank, identified as TK-805, which stores gasoline.

(4) One (1) final product storage tank, identified as TK-807, which stores fuel-grade ethanol.

(5) One (1) truck loading rack.

(6) Associated pumps, compressors, pressure relief devices, sampling connection systems, open-ended valves or lines, valves, and flanges or other connectors in VOC service.

(j) Distiller's Dry Grain with Solubles (DDGS) Drying Operations, consisting of:

(1) One (1) blender, which combines cake with CDS syrup.

(2) One (1) natural gas fired DDGS dryer, identified as DR-8XX, rated at 67 million British thermal units per hour. Nitrogen oxide emissions are controlled by low-NOx burners rated at 0.035 pounds per million British thermal units heat input, then exhausted through emission point EP-9.

(3) DDGS storage bins.

(4) Truck loadout operations. Particulate emissions are exhausted through emission point EP-10.

Volatile organic compound emissions from the DDGS Dryer are controlled by using the airflow as intake air for the dryer's burner flame. Emissions are then exhausted through emission point EP-9.

D.5.3 New Source Performance Standards [326 IAC 12] [40 CFR 60]

Pursuant to 326 IAC 12 (40 CFR 60, Subpart VV) the Permittee shall satisfy the requirements of 40 CFR 60.482 through 60.487, as applicable, for equipment leaks from pumps, compressors, pressure relief devices, sampling connection systems, open-ended valves or lines, valves, and flanges or other connectors in VOC service.

[Conditions subsequent to Condition D.5.3 were renumbered.]

~~D.5.4~~ **D.5.5** Testing Requirements [326 IAC 2-8-5(a)(1), (4)][326 IAC 2-1.1-11]

(a) Within 60 days after achieving the maximum production rate at which this facility will be operated, but not later than 180 days after commencing operation, the Permittee shall conduct a performance test to verify VOC control efficiency for the RTO unit utilizing methods as approved by the Commissioner. This test shall be repeated at least once every five years from the date of the most recent valid compliance demonstration. Testing shall be conducted in accordance with Section C - Performance Testing.

(b) The Permittee shall conduct performance tests for equipment leaks in accordance with 40 CFR 60 Subpart VV, as applicable.

~~D.5.6~~ **D.5.7** Parametric Monitoring **[326 IAC 12][40 CFR 60]**

(a) The Permittee shall determine the appropriate duct pressure or fan amperage, from the most recent valid stack test, that demonstrates compliance with limits in Condition D.5.1. as approved by IDEM.

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

(c) The Permittee shall develop and conduct a monitoring program for this facility addressing equipment leaks in accordance with 40 CFR 60 Subpart VV, as applicable.

~~D.5.7~~ **D.5.8** Record Keeping Requirements [326 IAC 12] [40 CFR 60]

(a) To document compliance with Conditions D.5.1 and ~~D.5.6~~ **D.5.7**, the Permittee shall maintain the following records:

(1) The continuous temperature records (on an hourly average basis) for the thermal oxidizer and the hourly average temperature used to demonstrate compliance during the most recent compliant stack test.

(2) Daily records of the duct pressure or fan amperage.

(b) To document compliance with Condition ~~D.5.3~~ **D.5.4**, the Permittee shall maintain of records of any additional inspections prescribed by the Preventive Maintenance Plan.

(c) **To document compliance with Condition D.5.7(c), the Permittee shall maintain records for equipment leaks within this facility in accordance with 40 CFR 60 Subpart VV, as applicable.**

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

D.6.3 New Source Performance Standards [326 IAC 12] [40 CFR 60]

Pursuant to 326 IAC 12 (40 CFR 60, Subpart VV) the Permittee shall satisfy the requirements of 40 CFR 60.482 through 60.487, as applicable, for equipment leaks from pumps, compressors, pressure relief devices, sampling connection systems, open-ended valves or lines, valves, and flanges or other connectors in VOC service.

[Conditions subsequent to Condition D.6.3 were renumbered.]

~~D.6.4~~ **D.6.5** Testing Requirements [326 IAC 2-8-5(a)(1), (4)][326 IAC 2-1.1-11]

(a) The Permittee is not required to test the molecular sieve units or the molecular sieve cooler by this permit. However, IDEM may require compliance testing when necessary to determine if the facility is in compliance. If testing is required by IDEM, compliance shall be determined by a performance test conducted in accordance with Section C - Performance Testing.

(b) The Permittee is required to test the RTO unit in accordance with Section D.5 of this permit.

(c) The Permittee shall conduct performance tests for equipment leaks in accordance with 40 CFR 60 Subpart VV, as applicable.

~~D.6.6~~ **D.6.7** Parametric Monitoring **[326 IAC 12][40 CFR 60]**

(a) The Permittee is required to monitor the RTO unit in accordance with Section D.5 of this permit.

(b) The Permittee shall develop and conduct a monitoring program for this facility addressing equipment leaks in accordance with 40 CFR 60 Subpart VV, as applicable.

~~D.6.7~~ **D.6.8** Record Keeping Requirements **[326 IAC 12][40 CFR 60]**

(a) The Permittee is required to maintain records for the RTO unit in accordance with Section D.5 of this permit.

(b) The Permittee shall maintain records for equipment leaks within this facility in accordance with 40 CFR 60 Subpart VV, as applicable.

D.8.2 New Source Performance Standards [326 IAC 12] [40 CFR 60 Subpart VV]

Pursuant to 326 IAC 12 (40 CFR 60, Subpart VV) the Permittee shall satisfy the requirements of 40 CFR 60.482 through 60.487, as applicable, for equipment leaks from pumps, compressors, pressure relief devices, sampling connection systems, open-ended valves or lines, valves, and flanges or other connectors in VOC service.

[Conditions subsequent to Condition D.8.2 were renumbered.]

D.8.4 Testing Requirements [326 IAC 2-8-5(a)(1), (4)][326 IAC 2-1.1-11][326 IAC 12][40 CFR 60 Subpart VV]

The Permittee shall conduct performance tests for equipment leaks in accordance with 40 CFR 60 Subpart VV, as applicable.

D.8.5 Parametric Monitoring [326 IAC 12][40 CFR 60 Subpart VV]

The Permittee shall develop and conduct a monitoring program for this facility addressing equipment leaks in accordance with 40 CFR 60 Subpart VV, as applicable.

~~D.8.5~~ **D.8.7** Record Keeping Requirements [40 CFR 115b(a)]

(a) After installing control equipment in accordance with Condition D.8.1, the Permittee shall keep a record of each inspection performed as required by Condition ~~D.8.2~~ **D.8.3**. 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).

(b) For storage tanks TK-801A, TK-801B, TK-803, TK-805 and TK-807, the Permittee shall keep readily-accessible records showing the dimension of the storage vessel and an analysis showing the capacity of the storage vessel, for the life of each vessel.

(c) **The Permittee shall maintain records for equipment leaks within this facility in accordance with 40 CFR 60 Subpart VV, as applicable.**

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

Comment 3a:

On the DDGS dryer manufacturer's website, it was noted that there is one other location in the United States where there is an EcoDry installation. Do you have any information on that other unit, such as a stack test, process throughput and/or production rate data and other information that would justify the emission factor estimate at Iroquois?

Comment 3b:

There is a news article on the DDGS dryer manufacturer's web site discussing a May 2002 startup of a US ethanol plant with an EcoDry system.

Response 3:

The SwissCombi web site implies that Inca Presswood Materials, a pallet manufacturer in Dover, Ohio, has used their EcoDry equipment. Since it is a dissimilar industry as Iroquois, OAQ concluded that it would not be useful to use it for comparison.

The unnamed ethanol plant mentioned on the SwissCombi web site, described as a "client in the Midwest of the US," is not located in the state of Indiana. The state where it is located has a statute which allows companies to claim confidentiality on emissions test data, preventing OAQ from obtaining a copy of the test data directly from that state's environmental agency.

OAQ required Iroquois Bio-Energy Company to provide further information about test results which back the manufacturer's emission guarantees. The test results submitted by Iroquois indicated compliance with the manufacturer's guarantee. Although the company name and plant identification numbers had been removed from the test report, OAQ could nonetheless verify the identity of the tested plant by cross-referencing technical specifications with the air permits databases of other states. The plant in the test results is the same ethanol plant mentioned on the SwissCombi web site.

Comment 4:

From what I read in the file, it isn't clear that their vendor guarantee commits VOC limits and test methods that embody full speciated consideration of all oxygenates. I interpret their guarantee to be compliance by "as carbon" VOC testing.

Response 4:

Iroquois Bio-Energy Company must perform a total VOC test using EPA approved methods or modified EPA methods that are acceptable to the OAQ Compliance Data Section. This will most likely involve a modified EPA Method 25A VOC test, which evaluates emissions as carbon or as some calibration gas such as propane. The data would then be adjusted to account for non carbon elements of VOC based upon the organic species present and their concentration.

The DDGS dryer manufacturer's guarantee of 5.9 pounds per hour was for VOC measured as carbon. Thus, total mass VOC emissions would be higher, and 326 IAC 8-1-6 is applicable to the dryer.

OAQ required Iroquois Bio-Energy Company to provide further information about the dryer's VOC control efficiency. The test results submitted by Iroquois measured VOC emissions at the inlet and the outlet of the combustion chamber. The tests demonstrated the minimum destruction efficiency to be significantly higher than the 95% minimum that OAQ considers as BACT for DDGS drying operations.

The following changes were made to the permit:

D.9.3 Best Available Control Technology [326 IAC 8-1-6] [326 IAC 2-8]

Pursuant to 326 IAC 8-1-6 (General Reduction Requirements), the BACT (best available control technology) requirements apply.

For this facility, BACT has been determined to be the following:

(a) Approximately 10% of the dryer exhaust airflow shall be used as intake air for the dryer's burners at any time, allowing the VOC to be combusted as supplemental fuel.

(b) The remainder of the dryer exhaust airflow shall be recycled in a semi-closed-loop system until it is ready to be used as intake air for the dryer's burners. All dryer exhaust shall eventually pass through the dryer's burners.

(c) **The dryer flame shall attain a minimum of 95% VOC destruction efficiency.**

(d) **Total** VOC **mass** emissions after combustion by the dryer flame shall be limited to ~~5.7~~ **10.9** pounds per hour.

This condition, when combined with other requirements in this permit, limits source VOC emissions to less than 100 tons per year. Therefore 326 IAC 2-7 does not apply.

D.9.7 Testing Requirements [326 IAC 2-8-5(a)(1), (4)][326 IAC 2-1.1-11]

(a) Within 60 days after achieving the maximum production rate at which this facility will be operated, but not later than 180 days after commencing operation, the Permittee shall perform testing for PM and PM-10, volatile organic compounds, and HAPs on Dryer DR-8XX utilizing EPA methods approved by the Commissioner.

(b) **PM-10 is the sum of filterable and condensible PM-10.** For test methods that cannot differentiate between PM and PM-10, filterable PM-10 is assumed at 100% of filterable PM.

~~(b)~~ **(c)** **The VOC test methods and procedures selected shall be based on a consideration of the diversity of the organic species present and their concentration, and on a consideration of the potential presence of interfering gases.** The VOC testing shall evaluate, at a minimum, the following ~~emissions~~:

(1) ~~Total volatile organic compounds.~~

~~(2)~~ Ethanol.

~~(3)~~ **(2)** Acetic Acid.

~~(4)~~ **(3)** Lactic Acid.

~~(5)~~ **(4)** 2-furfuraldehyde.

~~(6)~~ **(5)** Acetaldehyde.

~~(7)~~ **(6)** Acrolein.

~~(8)~~ **(7)** Formaldehyde.

~~(9)~~ **(8)** Methanol.

(9) Total VOC mass emissions.

~~(c)~~ **(d)** ~~These~~ **The** tests **on Dryer DR-8XX** shall be repeated at intervals no longer than five (5) years from the date of the previous compliance demonstration. ~~PM-10 includes filterable and condensible PM-10.~~

In addition to the changes made above, Condition B.10 was removed from the permit:

~~B.10 Compliance with Permit Conditions [326 IAC 2-8-4(5)(A)] [326 IAC 2-8-4(5)(B)]~~

~~(a) The Permittee must comply with all conditions of this permit. Noncompliance with any provisions of this permit is grounds for:~~

~~(1) Enforcement action;~~

~~(2) Permit termination, revocation and reissuance, or modification; and~~

~~(3) Denial of a permit renewal application.~~

~~(b) 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.~~

~~(c) 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.~~

The provisions of the former Condition B.10 were added to Page 1 of the permit:

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

Indiana Department of Environmental Management
Office of Air Quality

Technical Support Document (TSD) for a
Federally Enforceable State Operating Permit (FESOP)

Source Background and Description

Source Name:	**Iroquois Bio-Energy Company, LLC**
Source Location:	**751 W. State Road 114, Rensselaer IN 47978-7265**
County:	**Jasper**
SIC Code:	**2869**
Application No.:	**073-16720-00037**
Permit Reviewer:	**Allen R. Davidson**

On January 28, 2003, the Office of Air Quality (OAQ) received an application from Iroquois Bio-Energy Company, LLC relating to the construction and operation of an ethanol manufacturing plant to be located at 751 W. State Road 114, Rensselaer IN 47978-7265. The emission source consists of the following facilities:

(a) Grain Receiving, Cleaning and Storage Operations, with a capacity of 58.1 tons of grain per hour, consisting of:

(1) Grain dump pits, identified as DP, where grain is discharged from hopper-bottom trucks.

(2) One (1) vibratory screening operation, which removes debris from grain.

(3) Discharge conveying operations.

(4) Five (5) grain storage silos with total storage capacity of 349,401 bushels.

Fugitive emissions from the dump pits and vibratory screening are minimized by enclosure inside a building. Particulate emissions inside the building are controlled by a baghouse rated at 99.9% efficiency, then exhausted through emission point EP-1.

(b) Surge Bins and Grain Milling Operations, with a capacity of 58.1 tons of grain per hour, consisting of:

(1) One (1) surge bin, identified as SB-202, with a capacity of four hours' supply of grain (approx. 8300 bushels).

(2) Grain conveying operations.

(3) Three (3) hammermills, identified as M-204 A, B, and C, which process grain into grain meal.

Particulate emissions from the surge bin and the hammermills are controlled by three (3) baghouses, each rated at 99.9% efficiency, then exhausted through emission point EP-3.

(c) Boilers, consisting of:

(1) Two (2) natural gas fired boilers, identified as BLR-1701 A and B, each rated at 73.3 million British thermal units per hour.

Nitrogen oxide emissions from BLR-1701 A and B are controlled by low-NOx burners rated at 0.035 pounds per million British thermal units heat input, then exhausted through emission point EP-4.

(d) Mashing, Cooking and Liquefication Operations, consisting of:

(1) Meal conveying operations.

(2) One (1) mash mingler, where water is added to grain meal to form mash.

(3) One (1) mash mix tank, where ammonia is added to mash as needed to adjust pH levels.

(4) One (1) jet cooker, where steam is injected to sterilize mash and gelatinize starch.

(5) One (1) liquefication tank, which cools mash after cooking.

Vapors from the liquefication tank are recycled to the Evaporation Operations.

(e) The Fermentation and Clean-in-Place (CIP) System, consisting of:

(1) Four (4) fermenters, including pumps and coolers, which ferment mash into beer. Carbon dioxide and ethanol vapors are emitted by this process.

(2) One (1) ethanol absorption column, identified as EAC-1, which recovers ethanol vapors from the fermenters and from the beer stills in the Distillation and Dehydration Operations.

(3) One (1) natural gas fired regenerative thermal oxidation (RTO) unit, rated at 0.63 million British thermal units per hour and 95% destruction efficiency.

(4) The Clean-in-Place (CIP) System, which cleans and sterilizes fermenting equipment.

Volatile organic compound emissions that are not successfully recovered by the ethanol absorption column are controlled by the RTO unit, then exhausted through emission point EP-6.

(f) Distillation and Dehydration Operations, consisting of:

(1) One (1) beer well, which serves as a surge tank for beer.

(2) One (1) beer well agitator, which keeps solids from settling in the beer well.

(3) One (1) beer preheat train, utilizing hot vapors from the first beer still for heat input.

(4) Two (2) beer stills in series, which remove ethanol from beer, producing stillage as a byproduct. Noncondensible ethanol vapors and hydrous ethanol vapors are emitted from this process.

(5) One (1) stillage storage tank.

(6) Molecular sieve units, which remove water from superheated hydrous ethanol vapors. Superheating is done with process steam.

(7) One (1) molecular sieve cooler, which cools anhydrous ethanol vapors into liquid form.

Noncondensible ethanol vapors from the beer stills are directed to the ethanol absorption column in the Fermentation and Clean-in-Place (CIP) System for recovery.

(g) Centrifugation Operations, consisting of:

(1) One (1) stillage centrifuge, which splits stillage into solids, identified as cake, and liquids which contain dissolved solids, identified as centrate.

(2) Cake conveying operations.

(3) One (1) centrate storage tank.

(h) Fuel Grade Product Blending Operations, consisting of:

(1) Two (2) shift tanks, identified as TK-801A and B, which store ethanol, each with a storage capacity of 68,250 gallons.

(2) One (1) recycle product tank, identified as TK-803, which stores ethanol, with a storage capacity of 68,250 gallons.

(3) One (1) denaturant storage tank, identified as TK-805, which stores gasoline, with a storage capacity of 31,500 gallons.

(4) One (1) final product storage tank, identified as TK-807, which stores fuel-grade ethanol, with a storage capacity of 68,250 gallons.

(5) One (1) truck loading rack, with a maximum capacity of 5966 gallons per hour, which dispenses fuel-grade ethanol into trucks.

(i) Distiller's Dry Grain with Solubles (DDGS) Drying Operations, with a capacity of 58.1 tons of grain per hour consisting of:

(1) One (1) blender, which combines cake with CDS syrup.

(2) One (1) natural gas fired DDGS dryer, identified as DR-8XX, rated at 67 million British thermal units per hour. Nitrogen oxide emissions are controlled by low-NOx burners rated at 0.035 pounds per million British thermal units heat input, then exhausted through emission point EP-9.

(3) DDGS storage bins.

(4) Truck loadout operations. Particulate emissions are exhausted through emission point EP-10.

Volatile organic compound emissions from the DDGS Dryer are controlled by using the airflow as intake air for the dryer's burner flame. Emissions are then exhausted through emission point EP-9.

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

(a) Space heaters, process heaters, or boilers using natural gas-fired combustion with heat input equal to or less than ten million (10,000,000) British thermal units per hour.

(b) Equipment powered by internal combustion engines of capacity equal to or less than five hundred thousand (500,000) British thermal units per hour, provided that the total capacity of such equipment operated by this emission source does not exceed two million (2,000,000) British thermal units per hour.

(c) Combustion source flame safety purging on startup.

(d) A gasoline fuel transfer dispensing operation handling less than or equal to 1,300 gallons per day and filling storage tanks having a capacity equal to or less than 10,500 gallons.

(e) A petroleum fuel other than gasoline dispensing facility, having a storage tank capacity less than or equal to 10,500 gallons, and dispensing 3,500 gallons per day or less.

(f) Storage tanks with capacity less than or equal to 1,000 gallons and annual throughputs equal to or less than 12,000 gallons.

(g) Cleaners and solvents characterized as:

(1) having a vapor pressure equal to or less than two (2.0) kilo Pascals (fifteen (15) millimeters of mercury or three-tenths (0.3) pound per square inch) measured at thirty-eight (38) degrees Centigrade (one hundred (100) degrees Fahrenheit); or

(2) having a vapor pressure equal to or less than seven-tenths (0.7) kilo Pascal (five (5) millimeters of mercury or one-tenth (0.1) pound per square inch) measured at twenty (20) degrees Centigrade (sixty-eight (68) degrees Fahrenheit);

the use of which, for all cleaners and solvents combined, does not exceed one hundred forty-five (145) gallons per twelve (12) months.

(h) The following equipment where the usage does not result in the emission of HAPs:

(1) Brazing.

(2) Cutting torches.

(3) Soldering.

(4) Welding.

(i) One (1) process cooling tower, identified as CT-1401, consisting of six (6) cells. Each cell has a cooling fan.

(j) Blowdown for any of the following:

(1) Sight glass.

(2) Boilers.

(3) Cooling tower.

(4) Compressors.

(5) Pumps.

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

(l) Heat exchangers, identified as mash coolers, which are part of the Mashing, Cooking and Liquefication Operations.

(m) Heat exchanger cleaning and repair.

(n) Evaporation Operations, consisting of:

(1) One (1) multiple-effect evaporator system, which removes water from centrate. This process produces concentrated dissolved solids (CDS) syrup.

(2) One (1) CDS syrup storage tank.

(o) Paved and unpaved roads and parking lots with public access.

(p) Activities associated with emergencies, including:

(1) On-site fire training approved by IDEM.

(2) Diesel fired emergency generators not exceeding 1,600 horsepower.

(3) Stationary fire pumps.

(q) Filter or coalescer media changeout.

History

This is a new emission source. This application is the first received for this source.

Enforcement Issues

There are no enforcement actions pending against this emission source.

Stack Summary

Stack ID	Operation	Height (feet)	Diameter (feet)	Flow Rate (acfm)	Temperature (^{0}F)
EP-1	Grain Receiving	15	1.5	5,100	70
EP-3	Surge Bin and Grinding Mills (per baghouse)	35	1.0	2,200	122
EP-4	Boilers	35	3.8	26,000	502
EP-6	Ethanol Absorption	40	2.0	5,000	70
EP-7	VOL Storage Tanks	-	-	-	70
EP-8	Ethanol Truck Loadout	-	-	-	70
EP-9	DDGS Dryer	56	4.42	63,000	320
EP-10	DDGS Truck Loadout	-	-	-	70
EP-11	Process Cooling Tower (per cell)	15	14	283,600	150

Blank fields denote fugitive emission points.

Recommendation

The staff recommends to the Commissioner that the emission source be issued a Federally Enforceable State Operating Permit (FESOP). This recommendation is based on the following facts and conditions:

Unless otherwise stated, information used in this review was derived from the application and additional information submitted by the applicant.

An application for the purposes of this review was received on January 28, 2003.

Emission Calculations

See Appendix A of this document for detailed emissions calculations. (6 pages)

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 to emit any air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of a source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or type or amount of material combusted, stored, or processed shall be treated as part of its design if the limitation is enforceable by the U. S. EPA."

The following table reflects the new source potential to emit. Control equipment is not considered federally enforceable until it has been required in a federally enforceable permit:

Pollutant	Potential To Emit (tons/year)
PM	490.0
PM-10	326.1
SO_2	0.6
VOC	116.0
CO	78.8
NO_x	93.6

HAP's	Potential To Emit (tons/year)
Formaldehyde	9.30
Methanol	0.67
Acetaldehyde	20.46
Acrolein	2.76
TOTAL	33.19

The potential to emit (as defined in 326 IAC 2-1.1-1(16)) particulate matter and volatile organic compounds are each greater than 100 tons per year. The potential to emit a single hazardous air pollutant (HAP) is equal to or greater than ten (10) tons per year, and the potential to emit a combination of HAP is greater than or equal to twenty-five (25) tons per year. Therefore, the source is potentially subject to the provisions of 326 IAC 2-7.

Potential to Emit After Issuance

The table below summarizes the potential to emit, reflecting all limits after controls. The control equipment is considered federally enforceable after issuance of a Federally Enforceable State Operating Permit:

Pollutant	Potential To Emit (tons/year)	PSD Significant Level (tons/yr)
PM	98.5	250
PM-10	68.4	250
SO_2	0.6	250
VOC	41.7	250
CO	78.8	250
NO_x	32.7	250

HAP	Potential To Emit (tons/year)	PSD Significant Level (tons/yr)
Any single HAP	9.7	n/a
TOTAL	23.0	n/a

Emissions of particulate matter and volatile organic compounds will be controlled to less than 100 tons per year by federally enforceable requirements. Emissions of any single HAP will be controlled to less than ten (10) tons per year and the combination of HAP will be controlled to less than twenty-five (25) tons per year by federally enforceable requirements. Therefore, this source will not be subject to the provisions of 326 IAC 2-7, but will be instead subject to the provisions of 326 IAC 2-8.

County Attainment Status

The source is located in Jasper County.

Pollutant	Status
PM-10	attainment
SO_2	attainment
NO_2	attainment
Ozone	attainment
CO	attainment
Lead	attainment

Volatile organic compounds (VOC) are precursors for the formation of ozone. Therefore, VOC emissions are considered when evaluating the rule applicability relating to the ozone standards. Jasper County has been designated as attainment or unclassifiable for ozone and for all other pollutants. Therefore, all emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2.

Federal Rule Applicability

The boilers are subject to the requirements of the New Source Performance Standards, 326 IAC 12 (40 CFR 60), Subpart Dc since the fuel firing capacity is greater than 10 million Btu per hour. See "State Rule Applicability - Boilers" for a detailed analysis.

The ethanol storage tanks are not subject to the requirements of the New Source Performance Standards, 326 IAC 12 (40 CFR 60), Subpart Ka, since the subpart is only applicable to petroleum fuels. Motor fuel grade ethanol does not conform to the definition of petroleum liquids under 40 CFR 60.111b(i).

Denaturant Tank TK-805 is not subject to the requirements of the New Source Performance Standards, 326 IAC 12 (40 CFR 60), Subpart Ka, since the storage capacity is less than 40,000 gallons.

The four ethanol storage tanks TK-801A, TK-801B, TK-803, TK-805 and denaturant tank TK-805 are subject to the requirements of the New Source Performance Standards, 326 IAC 12 (40 CFR 60), Subpart Kb, since the storage capacity of each is greater than 40 cubic meters (10,588 gallons). This subpart sets no emission limits on the tanks, but it does require equipment to control emissions. The tanks will comply with the subpart by the use of internal floating roofs pursuant to 40 CFR 60.112b(a)(1).

The grain storage silos are not subject to subject to the requirements of the New Source Performance Standards, 326 IAC 12 (40 CFR 60), Subpart DD, since the source's storage capacity of grain is less than one million bushels.

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

State Rule Applicability - Entire Source

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

Since this type of emission source is not one of the twenty-eight (28) listed sources under 326 IAC 2-2 and since there are no applicable New Source Performance Standards (NSPS) that were in effect on August 7, 1980, the fugitive particulate matter (PM) and volatile organic compound (VOC) emissions are not counted toward determination of PSD and Emission Offset applicability. NSPS Subpart Kb was not in effect until July 23, 1984. NSPS Subpart Dc was not in effect until June 9, 1989.

This is not a major emission source for Prevention of Significant Deterioration (PSD), 326 IAC 2-2 because the potential to emit every attainment pollutant is less than the PSD significant levels. Therefore, pursuant to 326 IAC 2-2, the PSD requirements do not apply.

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

This source is not subject to 326 IAC 2-4.1-1 (New Source Toxics Control). The source does not have potential to emit 10 tons per year of any HAP or 25 tons per year of any combination of HAP after federally enforceable controls and limits.

326 IAC 2-6 (Emission Reporting)

This source is not subject to 326 IAC 2-6 (Emission Reporting), because it does not have the potential to emit more than one hundred (100) tons per year of any pollutant specified in the rule after federally enforceable controls and limits.

326 IAC 2-8 (Federally Enforceable State Operating Permit Program)

Emissions of PM-10 and VOC will be controlled to less than 100 tons per year, emissions of any single HAP will be controlled to less than 10 tons per year and the combination of HAP will be controlled to less than 25 tons per year, by federally enforceable requirements as follows:

(a) PM-10 emissions from the surge bin and the hammermills are controlled by three (3) baghouses, each rated at 99.9% efficiency. The control devices shall be in operation at all times whenever an emission unit that it controls is in operation. The baghouses will control PM-10 emissions from the surge bin and the hammermills to 0.7 pounds per hour (3.07 tons per year).

(b) VOC emissions from the fermenters and from the beer stills that are not successfully recovered by the ethanol absorption column are controlled by the RTO unit. The control devices shall be in operation at all times whenever an emission unit that it controls is in operation. Furthermore, emissions of VOC from the RTO unit shall not exceed 0.3 pounds per hour (1.31 tons per year). Testing will be required to ensure that this emission limit is met.

(c) All condensible ethanol vapors from the Distillation and Dehydration Operations shall be directed to the molecular sieve units, which remove water from superheated hydrous ethanol vapors, then directed to the molecular sieve cooler, which cools the anhydrous ethanol vapors into liquid form. No condensible ethanol shall be emitted.

(d) PM-10 emissions from Dryer DR-8XX shall be limited to 11.0 pounds per hour (48.2 tons per year). The applicant has submitted a guarantee from the dryer manufacturer that this limit will be met. Testing will be required to ensure that this emission limit is met.

(e) VOC emissions from Dryer DR-8XX shall be controlled to 5.68 pounds per hour (24.9 tons per year) by using the airflow as intake air for the dryer's burner flame. The applicant has submitted a guarantee from the dryer manufacturer that this limit will be met. Testing will be required to ensure that this emission limit is met.

(f) Total emissions of HAP from Dryer DR-8XX will be controlled to 5.0 pounds per hour (21.9 tons per year) by using the airflow as intake air for the dryer's burner flame. The applicant has submitted a guarantee from the dryer manufacturer that this limit will be met. Testing will be required to ensure that this emission limit is met.

(g) Emissions of any single HAP from Dryer DR-8XX will be controlled to 2.2 pounds per hour by using the airflow as intake air for the dryer's burner flame. The applicant has submitted a guarantee from the dryer manufacturer that this limit will be met. Testing will be required to ensure that this emission limit is met.

This source, after federally enforceable controls and limits, will not be subject to the provisions of 326 IAC 2-7, but will be instead subject to the provisions of 326 IAC 2-8.

326 IAC 5-1 (Visible Emissions Limitations)

Pursuant to 326 IAC 5-1-2 (Opacity Limitations), except as provided in 326 IAC 5-1-3 (Temporary Exemptions), opacity shall meet the following:

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

(b) Opacity shall not exceed sixty percent (60%) for more than a cumulative total of fifteen (15) minutes (sixty (60) readings) as measured according to 40 CFR 60, Appendix A, Method 9 or fifteen (15) one (1) minute nonoverlapping integrated averages for a continuous opacity monitor) in a six (6) hour period.

326 IAC 6-4 (Fugitive Dust Emissions)

This source is subject to 326 IAC 6-4. Pursuant to 326 IAC 6-4 (Fugitive Dust Emissions), fugitive dust may not be visibly crossing the property lines of the source, except as provided in 326 IAC 6-4-6.

326 IAC 6-5 (Fugitive Particulate Matter Emission Limitations)

This source is subject to 326 IAC 6-5 (Fugitive Particulate Matter Emission Limitations). This rule applies to any new source of fugitive particulate matter emissions, located anywhere in the state, where fugitive dust emissions would require a permit as set forth in 326 IAC 2. This new source has fugitive particulate matter emissions greater than 25 tons per year, satisfying the criteria.

Pursuant to 326 IAC 6-5, the applicant is required to implement a fugitive dust control plan. See the state rule applicability for the individual facilities for more details about fugitive dust control measures.

State Rule Applicability - Grain Receiving, Cleaning and Storage Operations

326 IAC 6-5 (Fugitive Particulate Matter Emission Limitations)

Pursuant to 326 IAC 6-5 (Fugitive Particulate Matter Emission Limitations), fugitive particulate matter emissions shall be minimized by enclosure of dump pits and vibratory screening operations inside a building and venting of the building to a control device.

State Rule Applicability - Surge Bins and Grain Milling Operations

326 IAC 6-3-2 (Particulate Emissions Limitations)

This facility is subject to 326 IAC 6-3-2. Pursuant to 326 IAC 6-3-2 (Particulate Emissions Limitations), particulate matter (PM) emissions shall be limited by the following equation for process weight rates in excess of sixty thousand (60,000) pounds per hour:

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

For a process weight rate of 58.1 tons per hour, the equation states an emission limit of 46.0 pounds of particulate matter per hour. The control equipment shall be in operation at all times when an emission unit that it controls is in operation, in order to comply with this limit.

State Rule Applicability - Boilers

326 IAC 6-2 (Particulate Emission Limitations For Sources of Indirect Heating)

This facility is subject to 326 IAC 6-2-4. Pursuant to 326 IAC 6-2-4, particulate matter (PM) emissions shall be limited by an equation which provides a limit of 0.30 pounds per million British thermal units of heat input. See Appendix A for detailed calculations. (6 pages)

326 IAC 12 (New Source Performance Standards)

Pursuant to the New Source Performance Standards (NSPS), Part 60.48c, Subpart Dc, the Permittee is required to report the following at the appropriate times:

(a) Commencement of construction date (no later than 30 days after such date).

(b) Anticipated start-up date (not more than 60 days or less than 30 days prior to such date).

(c) Actual start-up date (within 15 days after such date).

Pursuant to 40 CFR 48c(g), the applicant shall record and maintain records of the amounts of each fuel combusted during each day.

The requirements of the New Source Performance Standards (NSPS), Part 60.48c(g), Subpart Dc, may be altered by the U.S. EPA via authority in 40 CFR 60.13(i). If the applicant desires to change the frequency from daily recording to monthly recording, the applicant must send a request to the following address:

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

Any such request should reference both NSPS requirement 40 CFR 48c(g) and the February 20, 1992 EPA memo from John Rasnic to Jewell Harper.

Pursuant to 40 CFR 48c(i), records shall be kept for a minimum period of two (2) years after such record is made.

State Rule Applicability - Mashing, Cooking and Liquefication Operations

326 IAC 6-5 (Fugitive Particulate Matter Emission Limitations)

Pursuant to 326 IAC 6-5 (Fugitive Particulate Matter Emission Limitations), fugitive particulate matter emissions shall be minimized by enclosure of meal conveying operations and redirection of vapors from the liquefication tank to the Evaporation Operations.

State Rule Applicability - The Fermentation and Clean-in-Place (CIP) System

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

This facility is subject to 326 IAC 8-1-6 (General Reduction Requirements) because the potential to emit volatile organic compounds is greater than twenty-five (25) tons per year before controls. Therefore, the BACT (best available control technology) requirements apply.

For this facility, BACT has been determined to be the use of one (1) natural gas fired regenerative thermal oxidation (RTO) unit, rated at 0.63 million British thermal units per hour and 95% destruction efficiency. Volatile organic compound emissions that are not successfully recovered by the ethanol absorption column shall be controlled by the RTO unit, then exhausted through emission point EP-6.

State Rule Applicability - Distillation and Dehydration Operations

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

This facility is subject to 326 IAC 8-1-6 (General Reduction Requirements) because the potential to emit volatile organic compounds is greater than twenty-five (25) tons per year before controls. Therefore, the BACT (best available control technology) requirements apply.

Noncondensible ethanol vapors from the beer stills are directed to the ethanol absorption column in the Fermentation and Clean-in-Place (CIP) System for recovery. For these vapors, BACT has been determined to be the use of one (1) natural gas fired regenerative thermal oxidation (RTO) unit, rated at 0.63 million British thermal units per hour and 95% destruction efficiency. Noncondensible ethanol vapors that are not successfully recovered by the ethanol absorption column shall be controlled by the RTO unit. Thermal oxidation technology is a commonly accepted form of BACT.

Condensible ethanol vapors from the beer stills are directed to the molecular sieve units, which remove water from superheated hydrous ethanol vapors, then are directed to the molecular sieve cooler, which cools anhydrous ethanol vapors into liquid form. For these vapors, BACT has been determined to be the use of one (1) molecular sieve cooler. Vapor condensation technology is a commonly accepted form of BACT.

State Rule Applicability - Centrifugation Operations

326 IAC 6-5 (Fugitive Particulate Matter Emission Limitations)

Pursuant to 326 IAC 6-5 (Fugitive Particulate Matter Emission Limitations), fugitive particulate matter emissions shall be minimized by conveying the cake while it remains moist.

State Rule Applicability - Fuel Grade Product Blending Operations

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

The truck loading rack is not subject to 326 IAC 8-1-6 (General Reduction Requirements) because the potential to emit volatile organic compounds is less than twenty-five (25) tons per year. Therefore, the BACT (best available control technology) requirements do not apply.

State Rule Applicability - Distiller's Dry Grain with Solubles (DDGS) Drying Operations

326 IAC 6-3-2 (Particulate Emissions Limitations)

The DDGS dryer is subject to 326 IAC 6-3-2. Pursuant to 326 IAC 6-3-2 (Particulate Emissions Limitations), particulate matter (PM) emissions shall be limited by the following equation for process weight rates in excess of sixty thousand (60,000) pounds per hour:

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

For a process weight rate of 17.6 tons per hour, this equation provides an emission limit of 28.0 pounds per hour. However, this emission rate is superseded by the 100 ton per year (22.8 pounds per hour) source emission limit.

326 IAC 6-5 (Fugitive Particulate Matter Emission Limitations)

Pursuant to 326 IAC 6-5 (Fugitive Particulate Matter Emission Limitations), fugitive particulate matter emissions shall be minimized by the following:

(a) Enclosing truck loadout operations inside a building; and

(b) Leaving sufficient moisture in the cake after drying to avoid visible emissions during truck loadout operations.

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

The DDGS dryer is subject to 326 IAC 8-1-6 (General Reduction Requirements) because the potential to emit volatile organic compounds is greater than twenty-five (25) tons per year before controls. Therefore, the BACT (best available control technology) requirements apply.

For this facility, BACT has been determined to be the following:

(a) Approximately 10% of the dryer exhaust airflow will be used as intake air for the dryer's burners.

(b) The remainder of the dryer exhaust airflow will be recycled in a semi-closed-loop system.

(c) VOC emissions will be limited to 5.7 pounds per hour.

Conclusion

The construction and operation of this emission source shall be subject to the conditions of the attached FESOP, No. 073-16720-00037.

Appendix A: Emissions Calculations

Company Name: Iroquois Bio-Energy Company, LLC
Address City IN Zip: 751 West State Road 114, Rensselaer, IN 47978
ID: 073-16720-00037
Reviewer: Allen R. Davidson
Date: 02/17/03

Surge Bins and Grain Milling Operations:

The following calculations determine emissions from the hammermill based on AP-42 Chapter 9.9.1:

$$\frac{58.073 \text{ ton}}{\text{hr}} * \frac{0.012 \text{ lb PM}}{\text{ton}} = 0.70 \text{ lb/hr}$$

0.70 lb/hr * 8760 hr/yr / 2000 lb/ton = 3.05 ton/yr

Before Controls:
3.05 ton/yr / 1.1% emitted = 277.74 ton/yr

The following calculations determine the emission limit under 326 IAC 6-3-2:

E = 55 * (58.073 ^ 0.11) - 40 = 45.98 lb/hr

45.98 lb/hr * 8760 hr/yr / 2000 lb/ton = 201.39 ton/yr

Boilers:

The following calculations determine the emission limit under 326 IAC 6-2-4:

1.09 / 146.6 ^ 0.26 = 0.298 lb/MMBtu

$$\frac{0.298 \text{ lb}}{\text{MMBtu}} * \frac{146.6 \text{ MMBtu}}{\text{hr}} * \frac{8760 \text{ hr/yr}}{2000 \text{ lb/ton}} = 191.35 \text{ ton/yr}$$

The following calculations determine NOx emissions from the boilers after controls:

$$\frac{146.6 \text{ MMBtu}}{\text{hr}} * \frac{0.035 \text{ lb NOx}}{\text{MMBtu}} = \frac{5.131 \text{ lb NOx}}{\text{hr}}$$

5.13 lb/hr * 8760 hr/yr / 2000 lb/ton = 22.47 ton/yr

Ethanol Absorption Column:

The following calculations determine unrecovered ethanol (VOC) emissions based on mass balance estimates supplied by the applicant:

5.9 lb/hr * 8760 hr/yr / 2000 lb/ton = 25.84 ton/yr

After Controls: 25.84 ton/yr * 5.0% emitted = 1.29 ton/yr

DDGS Drying:

The following calculations determine the emission limit under 326 IAC 6-3-2:

E = 4.1 * (17.6 ^ 0.67) = 28.01 lb/hr

28.01 lb/hr * 8760 hr/yr / 2000 lb/ton = 122.67 ton/yr

Filterable and condensible PM / PM-10 emissions will be limited to 9.00 lb/hr to maintain source FESOP emission levels:

9.00 lb/hr * 8760 hr/yr / 2000 lb/ton = 39.42 ton/yr

VOL Storage Tanks:

The following emissions were estimated using TANKS software version 4.0.9:

		Breathing	Working		Total
TK-801A		3.23	0.52		3.75
TK-801B		3.23	0.52		3.75
TK-803		1.25	0.52		1.77

	Rim Seal	Withdrawal Loss	Deck Fitting	Deck Seam	Total
TK-805	0.26	0.02	0.57	0.00	0.85
TK-807	0.11	0.00	0.08	0.00	0.19

Total (all tanks): 10.304 ton/yr

DDGS Truck Loading:

The following calculations determine the particulate emissions before controls:

17.6 ton/hr * 0.086 lb PM/ton * 8760 hr/yr * ton/2000 lb = 6.63 ton PM/yr

17.6 ton/hr * 0.029 lb PM_{10}/ton * 8760 hr/yr * ton/2000 lb = 2.24 ton PM_{10}/yr

Equipment Leaks of VOC:

The applicant has estimated fugitive VOC emissions at 17.8 tons per year.

Ethanol Truck Loading Rack:

The applicant has estimated fugitive VOC emissions at 15.6 tons per year.

Appendix A: Emissions Calculations

Company Name: Iroquois Bio-Energy Company, LLC
Address City IN Zip: 751 West State Road 114, Rensselaer, IN 47978
ID: 073-16720-00037
Reviewer: Allen R. Davidson
Date: 02/17/03

DDGS Drying:

The following calculations determine the particulate emissions before controls based on test data of Agri-Energy Ethanol, Luverne, MN:

0.0736 grain/dscf * 63000 acf/min * 528 deg. R/(460 + 320) deg. R * (100% - 47 % moisture)/100 % * 525600 min/year * 1 lb/7000 grain * 1 ton/2000 lb = 62.45 ton/yr

The following calculations determine the NOx emissions after controls:

67 MMBtu/hr * 0.035 lb NOx/MMBtu = 2.345 lb NOx/hr

2.35 lb/hr * 8760 hr/yr / 2000 lb/ton = 10.27 ton/yr

The following calculations determine the VOC emissions before controls based on test data of Agri-Energy Ethanol, Luverne, MN:

	Molecular Weight	% Carbon	Parts Per Million (ppm) Run 1	Run 2	Run 3	Avg
Ethanol:	46.07 lb/lb-mol	52.1%	24.61	34.55	35.88	31.68
Acetic Acid:	60.05 lb/lb-mol	40.0%	17.85	18.49	18.23	18.19
Formaldehyde:	30.03 lb/lb-mol	40.0%	19.79	19.96	19.50	19.75
Methanol:	32.04 lb/lb-mol	37.5%	1.68	1.23	1.08	1.33
Acetaldehyde:	44.06 lb/lb-mol	54.5%	28.10	30.96	29.81	29.62
Acrolein:	56.06 lb/lb-mol	64.3%	2.24	3.66	3.52	3.14
Furfural:	96.09 lb/lb-mol	62.5%	1.32	1.02	0.76	1.03

63000 acf/min * 528 deg. R/(460 + 320) deg. R * (100% - 47 % moisture)/100 % = 22602 scf/min

Ethanol:

31.68 part/1000000 * 22602 scf/min * 46.07 lb/lb-mol * lb-mol/379 scf * 60 min/hr = 5.22 lb/hr or 22.87 ton/yr

Acetic Acid:

18.19 part/1000000 * 22602 scf/min * 60.05 lb/lb-mol * lb-mol/379 scf * 60 min/hr = 3.91 lb/hr or 17.12 ton/yr

1000000		min		lb-mol	379	scf		hr		hr				yr

Formaldehyde:

$$\frac{19.75\ \text{part}}{1000000} * \frac{22602\ \text{scf}}{\text{min}} * \frac{30.03\ \text{lb}}{\text{lb-mol}} * \frac{\text{lb-mol}}{379\ \text{scf}} * \frac{60\ \text{min}}{\text{hr}} = \frac{2.12\ \text{lb}}{\text{hr}} \quad \text{or} \quad \frac{9.30\ \text{ton}}{\text{yr}}$$

Methanol:

1.33 part * 22602 scf * 32.04 lb * lb-mol * 60 min = 0.15 lb or 0.67 ton
1000000 min lb-mol 379 scf hr hr yr

Acetaldehyde:

29.62 part * 22602 scf * 44.06 lb * lb-mol * 60 min = 4.67 lb or 20.46 ton
1000000 min lb-mol 379 scf hr hr yr

Acrolein:

3.14 part * 22602 scf * 56.06 lb * lb-mol * 60 min = 0.63 lb or 2.76 ton
1000000 min lb-mol 379 scf hr hr yr

Furfural:

1.03 part * 22602 scf * 96.09 lb * lb-mol * 60 min = 0.36 lb or 1.56 ton
1000000 min lb-mol 379 scf hr hr yr

Total for VOC: 17.06 lb/hr or 74.73 ton/yr

The following calculations determine the HAP emissions before controls based on test data of Agri-Energy Ethanol, Luverne, MN:

Formaldehyde:	9.30 ton/yr
Methanol:	0.67 ton/yr
Acetaldehyde:	20.46 ton/yr
Acrolein:	2.76 ton/yr
Total for HAP:	33.18 ton/yr

The applicant has submitted a guarantee from the manufacturer of the DDGS dryer that the following emissions will not be exceeded after controls:

PM (filterable)	1.7 lb/hr or	7.45 ton/yr
NOx	9.5 lb/hr or	41.61 ton/yr
VOC: *	10.94 lb/hr or	47.93 ton/yr
CO	10.50 lb/hr or	45.99 ton/yr
Single HAP:	2.20 lb/hr or	9.64 ton/yr
Total for HAP:	5.00 lb/hr or	21.90 ton/yr

* The manufacturer's VOC guarantee was for 5.9 lb/hr measured as carbon.
Carbon is approximately 53% of the total mass of the VOC constituents.

Summary of Emissions:

	Before Control	After Control
PM	489.99 ton/yr	96.39 ton/yr
PM-10	326.07 ton/yr	61.83 ton/yr
SO_2	0.56 ton/yr	0.56 ton/yr
NOx	93.83 ton/yr	32.74 ton/yr
VOC	116.03 ton/yr	98.09 ton/yr
CO	78.82 ton/yr	78.82 ton/yr

The following calculations determine the carbon concentrations based on test data of Agri-Energy Ethanol, Luverne, MN:

	Molecular Weight	Formula	Parts C	% Carbon	Parts Per Million (ppm) Run 1	Run 2	Run 3	Avg
Ethanol:	46.07 lb/lb-mol	C2H6O	2	52.1%	24.61	34.55	35.88	31.68
Acetic Acid:	60.05 lb/lb-mol	C2H4O2	2	40.0%	17.85	18.49	18.23	18.19
Formaldehyde:	30.03 lb/lb-mol	CH2O	1	40.0%	19.79	19.96	19.50	19.75
Methanol:	32.04 lb/lb-mol	CH4O	1	37.5%	1.68	1.23	1.08	1.33
Acetaldehyde:	44.06 lb/lb-mol	C2H4O	2	54.5%	28.10	30.96	29.81	29.62
Acrolein:	56.06 lb/lb-mol	C3H4O	3	64.3%	2.24	3.66	3.52	3.14
Furfural:	96.09 lb/lb-mol	C5H4O2	5	62.5%	1.32	1.02	0.76	1.03