INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
We Protect Hoosiers and Our Environment.

Mitchell E. Daniels Jr.
Governor

Thomas W. Easterly
Commissioner

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

TO: Interested Parties / Applicant

DATE: October 1, 2009

RE: Eli Lilly and Company – Clinton Laboratories/ 165-27702-00009

FROM: Matthew Stuckey, Branch 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, Suite N 501E, 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.dot12/03/07

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
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Mr. Donald G. Blair
Eli Lilly and Company - Clinton Laboratories
10500 South State Road 63
Clinton, IN 47842

October 1, 2009

Re: 165-27702-00009
Significant Source Modification to
Part 70 Renewal No.: T 165-27283-00009

Dear Mr. Blair:

Eli Lilly and Company - Clinton Laboratories was issued a Part 70 Operating Permit on October 1, 2004 for a pharmaceutical manufacturing plant. A letter requesting changes to this permit was received on March 31, 2009. Pursuant to 326 IAC 2-7-10.5 the following emission units are approved for modification at the source:

(a) D.2 Animal Health Manufacturing (AHM) – Fermentation Operations: The fermentation processes include the dry material storage area (C44A), the liquid material storage area (C44), raw material prep area (C43/C43A), the fermentation production areas (C41/C41A) and product storage area (C41). The detailed equipment list is located in Section D.2 of this permit.

(b) D.3 Animal Health Manufacturing (AHM) – Product Recovery Operations: The whole broth products from fermentation are continuously fed to the product recovery equipment as capacity allows. The product recovery operations consist of extraction, evaporation, centrifugation and drying processes (C45/C45A), solvent recovery (C45/C45A), raw and recovered material storage (C45), and product storage (C45/C45A). The detailed equipment list is located in Section D.3 of this permit.

(b) D.4 Animal Health Manufacturing (AHM) – Product Finishing Operations: The recovered and dried product from product recovery is continuously fed to the product finishing area as capacity allows. The product finishing operations consist of pelletizing, granulation, milling, mixing, conveying, blending and bagging equipment (C47/C47B/C47E). The detailed equipment list is located in Section D.4 of this permit.

The following construction conditions are applicable to the proposed project:

1. Effective Date of the Permit
Pursuant to IC 13-15-5-3, this approval becomes effective upon its issuance.

2. All requirements and conditions of this construction approval shall remain in effect unless modified in a manner consistent with procedures established pursuant to 326 IAC 2.

All other conditions of the permit shall remain unchanged and in effect. For your convenience, the entire Part 70 Operating Permit as modified will be provided at issuance.

This decision is subject to the Indiana Administrative Orders and Procedures Act – IC 4-21.5-3-5. If you have any questions on this matter, please contact Josiah Balogun, OAQ, 100 North Senate Avenue, MC 61-53, Room 1003, Indianapolis, Indiana, 46204-2251, or call at (800) 451-6027, and ask for Josiah Balogun or extension (4-5257), or dial (317) 234-5257.

Sincerely,

Matt Stuckey, Branch Chief
Permits Branch
Office of Air Quality

Attachments:
Updated Permit
Technical Support Document

JB

cc: File – Vermillion County
Vermillion County Health Department
U.S. EPA, Region V
Air Compliance Inspector
Compliance Data Section

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Prevention of Significant Deterioration (PSD) Flexible Permit and Significant Source Modification
OFFICE OF AIR QUALITY

Eli Lilly and Company - Clinton Laboratories
10500 South State Road 63
Clinton, Indiana 47842

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

This permit is issued in accordance with 326 IAC 2 and 40 CFR Part 70 Appendix A and contains the conditions and provisions specified in 326 IAC 2-7 as required by 42 U.S.C. 7401, et. seq. (Clean Air Act as amended by the 1990 Clean Air Act Amendments), 40 CFR Part 70.6, IC 13-15 and IC 13-17. This permit also addresses certain new source review requirements and is intended to fulfill the new source review procedures pursuant to 326 IAC 2-2 and 326 IAC 2-7-10.5, applicable to those conditions.

Significant Source Modification No.: 165-27702-00009	
Issued by: Matthew Stuckey, Branch Chief Permits Branch Office of Air Quality	Issuance Date: October 1, 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 2-7-4(c)][326 IAC 2-7-5(15)][326 IAC 2-7-1(22)]

The Permittee owns and operates a stationary pharmaceutical manufacturing plant.

Source Address:	10500 South State Road 63, Clinton, Indiana 47842
Mailing Address:	10500 S SR 63, Clinton, IN 47842
General Source Phone Number:	765-832-4400
SIC Code:	2833, 2834, 2879
County Location:	Vermillion
Source Location Status:	Attainment for all criteria pollutants
Source Status:	Part 70 Operating Permit Program Major Source, under PSD Rules Major Source, Section 112 of the Clean Air Act 1 of 28 Source Categories

A.2 Emission Units and Pollution Control Equipment Summary [326 IAC 2-7-4(c)(3)][326 IAC 2-7-5(15)]

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

(a) D.1 Utilities Operations: The utilities operations consist of one coal-fired boiler equipped with an ash handling system, four natural gas/fuel oil boilers, and other miscellaneous support equipment. The boilers provide steam to process operations in animal health manufacturing. The detailed equipment list is located in Section D.1 of this permit.

(b) D.2 Animal Health Manufacturing (AHM) – Fermentation Operations: The fermentation processes include the dry material storage area (C44A), the liquid material storage area (C44), raw material prep area (C43/C43A), the fermentation production areas (C41/C41A) and product storage area (C41). The detailed equipment list is located in Section D.2 of this permit.

(c) D.3 Animal Health Manufacturing (AHM) – Product Recovery Operations: The whole broth products from fermentation are continuously fed to the product recovery equipment as capacity allows. The product recovery operations consist of extraction, evaporation, centrifugation and drying processes (C45/C45A), solvent recovery (C45/C45A), raw and recovered material storage (C45), and product storage (C45/C45A). The detailed equipment list is located in Section D.3 of this permit.

(d) D.4 Animal Health Manufacturing (AHM) – Product Finishing Operations: The recovered and dried product from product recovery is continuously fed to the product finishing area as capacity allows. The product finishing operations consist of pelletizing, granulation, milling, mixing, conveying, blending and bagging equipment (C47/C47B/C47E). The detailed equipment list is located in Section D.4 of this permit.

(e) [Reserved]

(f) [Reserved]

(g) [Reserved]

(h) [Reserved]

(i) [Reserved]

(j) [Reserved]

(k) [Reserved]

(l) [Reserved]

(m) [Reserved]

(n) [Reserved]

(o) [Reserved]

A.3 Specifically Regulated Insignificant Activities
[326 IAC 2-7-1(21)][326 IAC 2-7-4(c)][326 IAC 2-7-5(15)]

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

(1) D.2 Animal Health Manufacturing (AHM) – Fermentation Operations: Various mixers, bump tanks and fermenter tanks in the fermentation operations each emitting less than 5 pounds PM10 per hour or 25 pounds per day.
[326 IAC 6-3-2].

(2) D.16 Insignificant Activities: This section provides specific requirements for cold-cleaning organic solvent degreasing operations at the site which are defined as insignificant activities pursuant to 326 IAC 2-7-1(21)(G)(vi)(CC).

(b) This stationary source also includes the following insignificant activities, as defined in 326 IAC 2-7-1(21), that do not have applicable requirements:

(1) Natural gas-fired combustion sources with heat input equal to or less than ten million (10,000,000) Btu per hour;

(2) Propane or liquefied petroleum gas, or butane-fired combustion sources with heat input equal to or less than six million (6,000,000) Btu per hour;

(3) Equipment powered by internal combustion engines of capacity equal to or less than 500,000 Btu/hour, except where total capacity of equipment operated by one stationary source exceeds 2,000,000 Btu/hour;

(4) Combustion source flame safety purging on startup;

(5) A gasoline fuel transfer and dispensing operation handling less than or equal to 1,300 gallons per day, such as filling of tanks, locomotives, automobiles, having a storage capacity less than or equal to 10,500 gallons;

(6) A petroleum fuel, other than gasoline, dispensing facility, having a storage capacity of less than or equal to 10,500 gallons, and dispensing less than or equal to 230,000 gallons per month;

(7) VOC/HAP storage tanks with capacity less than or equal to 1,000 gallons and annual throughputs less than 12,000 gallons;

(8) VOC/HAP storage vessels storing lubricating oils, hydraulic oils, machining oils, and machining fluids;

(9) Filling drums, pails or other packaging containers with lubricating oils, waxes, and greases;

(10) Cleaners and solvents with a combined use less than or equal to 145 gallons per 12 months characterized having a vapor pressure equal to or less than 2 kPa, 15 mm Hg, or 0.3 psi measured at 38°C (100°F); or having a vapor pressure equal to or less than 0.7 kPa, 5 mm Hg, or 0.1 psi measured at 20°C (68°F);

(11) Closed loop heating and cooling systems;

(12) Activities associated with the transportation and treatment of sanitary sewage, provided discharge to the treatment plant is under the control of the owner/operator, that is, an on-site sewage treatment facility;

(13) Any operation using aqueous solutions containing less than 1% by weight of VOCs excluding HAPs;

(14) Water based adhesives that are less than or equal to 5% by volume of VOCs excluding HAPs;

(15) Noncontact cooling tower systems that are forced and induced draft cooling tower systems not regulated under a NESHAP;

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

(17) Heat exchanger cleaning and repair;

(18) Process vessel degassing and cleaning to prepare for internal repairs;

(19) Stockpiled soils from soil remediation activities that are covered and waiting transport for disposal;

(20) Paved and unpaved roads and parking lots with public access;

(21) Covered conveyors for coal or coke conveying of less than or equal to 360 tons per day;

(22) Coal bunker and coal scale exhausts and associated dust collector vents;

(23) Asbestos abatement projects regulated by 326 IAC 14-10;

(24) Purging of gas lines and vessels that is related to routine maintenance and repair of buildings, structures, or vehicles at the source where air emissions from those activities would not be associated with any production process;

(25) Equipment used to collect any material that might be released during a malfunction, process upset, or spill cleanup including catch tanks, temporary liquid separators, tanks and fluid handling equipment;

(26) Blowdown from sight glasses; boilers; compressors; pumps; and cooling towers;

(27) On-site fire and emergency response training approved by the department;

(28) Emergency generators including gasoline generators not exceeding 110 horsepower, diesel generators not exceeding 1,600 horsepower; and natural gas turbines or reciprocating engines not exceeding 16,000 horsepower;

(29) Stationary fire pumps;

(30) Purge double block and bleed valves;

(31) Filter or coalescer media changeout;

(32) Vents from ash transport systems not operated at positive pressure;

(33) A laboratory as defined in 326 IAC 2-7-1(21)(D); and

(34) Farm operations.

(35) Other activities below insignificant threshold levels:

(A) BuildingC86 10,000-gallon storage tank or other portable container(s) for storing hexane used for fire training with emissions less than 5 pounds per day or 1 ton per year of a single HAP.

(B) Tanks C9TK01, TK02, TK03, TK04 TK6A TK09, TK10 TK11, TK12, TK13, TK14, TK15, TK16, TK17, TK19 and TK20 may be used for insignificant activities.

(C) Waste water treatment system with VOC emissions less than three (3) pounds per hour or fifteen (15) pounds per day.

A.4 Part 70 Permit Applicability [326 IAC 2-7-2]

This stationary source is required to have a Part 70 permit by 326 IAC 2-7-2 (Applicability) because:

(a) It is a major source, as defined in 326 IAC 2-7-1(22);

(b) It is a source in a source category designated by the United States Environmental Protection Agency (U.S. EPA) under 40 CFR 70.3 (Part 70 - Applicability).

SECTION B GENERAL CONDITIONS

B.1 Definitions [326 IAC 2-7-1]

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

B.2 Permit Term [326 IAC 2-7-5(2)][326 IAC 2-1.1-9.5][326 IAC 2-7-4(a)(1)(D)][IC 13-15-3-6(a)]

(a) This permit, T165-27293-00009, is issued for a fixed term of five (5) years from the issuance date of this permit, as determined in accordance with IC 4-21.5-3-5(f) and IC 13-15-5-3. Subsequent revisions, modifications, or amendments of this permit do not affect the expiration date of this permit or of permits issued pursuant to Title IV of the Clean Air Act and 326 IAC 21 (Acid Deposition Control).

(b) If IDEM, OAQ, upon receiving a timely and complete renewal permit application, fails to issue or deny the permit renewal prior to the expiration date of this permit, this existing permit shall not expire and all terms and conditions shall continue in effect, including any permit shield provided in 326 IAC 2-7-15, until the renewal permit has been issued or denied.

B.2.1 Term of Conditions [326 IAC 2-1.1-9.5]

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

(a) the condition is modified in a subsequent permit action; or

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

B.3 Enforceability [326 IAC 2-7-7] [IC 13-17-12]

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.4 Termination of Right to Operate [326 IAC 2-7-10][326 IAC 2-7-4(a)]

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 2-7-3 and 326 IAC 2-7-4(a).

B.5 Severability [326 IAC 2-7-5(5)]

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.6 Property Rights or Exclusive Privilege [326 IAC 2-7-5(6)(D)]

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

B.7 Duty to Provide Information [326 IAC 2-7-5(6)(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 "responsible official" as defined by 326 IAC 2-7-1(34). 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.8 Certification [326 IAC 2-7-4(f)][326 IAC 2-7-6(1)][326 IAC 2-7-5(3)(C)]

(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 the "responsible official" of truth, accuracy, and completeness. This certification shall state that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete.

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

(c) A "responsible official" is defined at 326 IAC 2-7-1(34).

B.9 Annual Compliance Certification [326 IAC 2-7-6(5)]

(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. All certifications shall cover the time period from January 1 to December 31 of the previous year, and shall be submitted no later than July 1 of each year to:

Indiana Department of Environmental Management
Compliance and Enforcement Branch, Office of Air Quality
100 North Senate Avenue
MC 61-53 IGCN 1003
Indianapolis, Indiana 46204-2251

and

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

(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 2-7-5(3); and

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

The submittal by the Permittee does require the certification by the "responsible official" as defined by 326 IAC 2-7-1(34).

B.10 Preventive Maintenance Plan [326 IAC 2-7-5(1),(3) and (13)][326 IAC 2-7-6(1) and (6)][326 IAC 1-6-3]

(a) If required by specific condition(s) in Section D of this permit, the Permittee shall maintain Preventive Maintenance Plans (PMPs) 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.

(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 PMPs do not require the certification by the "responsible official" as defined by 326 IAC 2-7-1(34).

(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.11 Emergency Provisions [326 IAC 2-7-16]

(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.

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

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

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

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

(4) For each emergency lasting one (1) hour or more, the Permittee notified IDEM, OAQ, within four (4) daytime business hours after the beginning of the

emergency, or after the emergency was discovered or reasonably should have been discovered;

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

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

Indiana Department of Environmental Management
Compliance and Enforcement Branch, Office of Air Quality
100 North Senate Avenue
MC 61-53 IGCN 1003
Indianapolis, Indiana 46204-2251

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

The notice fulfills the requirement of 326 IAC 2-7-5(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 "responsible official" as defined by 326 IAC 2-7-1(34).

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

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

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

(e) The Permittee seeking to establish the occurrence of an emergency shall make records available upon request to ensure that failure to implement a PMP did not cause or contribute to an exceedance of any limitations on emissions. However, IDEM, OAQ may require that the Preventive Maintenance Plans required under 326 IAC 2-7-4(c)(9) 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 2-7 and any other applicable rules.

(g) 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.

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

B.12 Permit Shield [326 IAC 2-7-15][326 IAC 2-7-20][326 IAC 2-7-12]

(a) Pursuant to 326 IAC 2-7-15, the Permittee has been granted a permit shield. The permit shield provides that compliance with the conditions of this permit shall be deemed compliance with any applicable requirements as of the date of permit issuance, provided that either the applicable requirements are included and specifically identified in this permit or the permit contains an explicit determination or concise summary of a determination that other specifically identified requirements are not applicable. The Indiana statutes from IC 13 and rules from 326 IAC, referenced 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 Part 70 permit under 326 IAC 2-7 or for applicable requirements for which a permit shield has been granted.

This permit shield does not extend to applicable requirements which are promulgated after the date of issuance of this permit unless this permit has been modified to reflect such new requirements.

(b) In addition to the nonapplicability determinations set forth in Section D of this permit, the IDEM, OAQ has made the following determination regarding this source.

(1) **40 CFR Part 60, Subpart D – Fossil-fuel fired steam generating units:** This source is not subject to 40 CFR Part 60, Subpart D because none of the boilers at the plant site exceed 250 MMBtu/hr in heat input capacity. [40 CFR 60.40(a)(1)].

(2) **40 CFR Part 60, Subpart Db – Industrial-Commercial-Institutional steam generating units:** This source is not subject to 40 CFR Part 60, Subpart Db because commencement of constructed, modification, or reconstructed of the boilers at plant site with a maximum design heat input capacity of greater than 100 million MMBtu/hr, all occurred before June 1, 1984.

(3) **40 CFR Part 60, Subpart Dc – Small Industrial-Commercial-Institutional steam generating units:** This source is not subject to 40 CFR Part 60, Subpart Dc because commencement of constructed, modification, or reconstructed of the boilers at plant site with a maximum design heat input capacity of greater than 100 million MMBtu/hr or less, but greater than or equal to 10 MMBtu/hr, all occurred before June 9, 1989.

(4) **40 CFR Part 63, Subpart Q – Industrial Process Cooling Towers:** This source is not subject to 40 CFR Part 63, Subpart Q and 326 IAC 20-4 because the source does not utilize chromium based water treatment compounds in its cooling towers. [40 CFR 63.400].

(5) **40 CFR Part 63, Subpart T – Halogenated Solvent Cleaning:** This source is not subject to 40 CFR Part 63, Subpart T and 326 IAC 20-6 because the source does not use halogenated solvents in any solvent cleaning machines. [40 CFR 63.460].

(6) **40 CFR Part 63, Subpart MMM – Pesticide Active Ingredient Production:**

This source is not subject to 40 CFR Part 63, Subpart MMM and 326 IAC 20-45 because the source does not contain any pesticide active ingredient process units or associated equipment as described in 40 CFR 63.1360. [40 CFR 63.1360].

(7) **40 CFR Part 63, Subpart GGGGG – Site Remediation:** This source is not subject to 40 CFR Part 63, Subpart GGGGG because the site is not performing any remediation activities as defined in this rule.

(8) **326 IAC 6-5 – Fugitive Particulate Matter Emission Limitations:** This source does not have potential fugitive dust emissions greater than 25 tons per year, and is therefore, not subject to the requirements of this rule.

(9) **326 IAC 8-4 – Petroleum Sources:** This source does not operate any facilities subject to the requirements of 326 IAC 8-4. 326 IAC 8-4-6 is not applicable to this source because the source does not accept deliveries of gasoline by transports, as defined by 326 IAC 1-2-84.

(10) **40 CFR Part 60, Subpart K - Storage Vessels for Petroleum Liquids:** This source is not subject to 40 CFR 60, Subpart K because none of the storage tanks at the source constructed between June 11, 1973 and May 19, 1978 store petroleum liquids, as defined in 40 CFR 60.111.

(11) **40 CFR Part 60, Subpart Ka - Storage Vessels for Petroleum Liquids:** This source is not subject to 40 CFR 60, Subpart K because none of the storage tanks at the source constructed between June 11, 1973 and May 19, 1978 store petroleum liquids, as defined in 40 CFR 60.111.

(12) 40 CFR 63, Sections 63.50 through 63.56 - Section 112(j): This is not subject to 40 CFR Part 63, Section 63.50 through 63.56 because there are no affected sources within a source category or subcategory for which USEPA has failed to promulgate emission standards by the section 112 (j) deadlines.

(13) **326 IAC 8-6 – Organic Solvent Emissions Limitations**: The provisions of 326 IAC 8-6 are not applicable to this source because the source uses exempt solvent pursuant to 326 IAC 8-6-2(a)(4).

(14) **326 IAC 10 – Nitrogen Oxide Rules:** This source does not contain any emission units identified in 326 IAC 10-4. Therefore, the source is not subject to the NO_X emission control requirements of that rule.

(15) **326 IAC 15 – Lead Rules:** This source does not contain any emission units described in 326 IAC 15. Therefore, the source is not subject to the requirements of those rules.

(16) **326 IAC 21 – Acid Deposition:** This source does not contain any emission units described in 326 IAC 21. Therefore, the source is not subject to the requirements of those rules.

(c) If, after issuance of this permit, it is determined that the permit is in nonconformance with an applicable requirement that applied to the source on the date of permit issuance, IDEM, OAQ, shall immediately take steps to reopen and revise this permit and issue a compliance order to the Permittee to ensure expeditious compliance with the applicable requirement until the permit is reissued. The permit shield shall continue in effect so long as the Permittee is in compliance with the compliance order.

(d) No permit shield shall apply to any permit term or condition that is determined after issuance of this permit to have been based on erroneous information supplied in the permit application. Erroneous information means information that the Permittee knew to be false, or in the exercise of reasonable care should have been known to be false, at the time the information was submitted.

(e) Nothing in 326 IAC 2-7-15 or in this permit shall alter or affect the following:

(1) The provisions of Section 303 of the Clean Air Act (emergency orders), including the authority of the U.S. EPA under Section 303 of the Clean Air Act;

(2) The liability of the Permittee for any violation of applicable requirements prior to or at the time of this permit's issuance;

(3) The applicable requirements of the acid rain program, consistent with Section 408(a) of the Clean Air Act; and

(4) The ability of U.S. EPA to obtain information from the Permittee under Section 114 of the Clean Air Act.

(f) This permit shield is not applicable to any change made under 326 IAC 2-7-20(b)(2) (Sections 502(b)(10) of the Clean Air Act changes) and 326 IAC 2-7-20(c)(2) (trading based on State Implementation Plan (SIP) provisions).

(g) This permit shield is not applicable to modifications eligible for group processing until after IDEM, OAQ, has issued the modifications. [326 IAC 2-7-12(c)(7)]

(h) This permit shield is not applicable to minor Part 70 permit modifications until after IDEM, OAQ, has issued the modification. [326 IAC 2-7-12(b)(8)]

B.13 Prior Permits Superseded [326 IAC 2-1.1-9.5][326 IAC 2-7-10.5]

(a) All terms and conditions of permits established prior to T165-27293-00009 and issued pursuant to permitting programs approved into the state implementation plan have been either:

(1) incorporated as originally stated,

(2) revised under 326 IAC 2-7-10.5, or

(3) deleted under 326 IAC 2-7-10.5.

(b) Provided that all terms and conditions are accurately reflected in this combined permit, all previous registrations and permits are superseded by this combined new source review and part 70 operating permit, except for permits issued pursuant to Title IV of the Clean Air Act and 326 IAC 21 (Acid Deposition Control)

B.14 Deviations from Permit Requirements and Conditions [326 IAC 2-7-5(3)(C)(ii)]

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

Indiana Department of Environmental Management
Compliance and Enforcement Branch, Office of Air Quality
100 North Senate Avenue

MC 61-53 IGCN 1003
Indianapolis, Indiana 46204-2251

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

The Quarterly Deviation and Compliance Monitoring Report does require the certification by the "responsible official" as defined by 326 IAC 2-7-1(34).

(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 2-7-5(6)(C)] [326 IAC 2-7-8(a)][326 IAC 2-7-9]

(a) This permit may be modified, reopened, revoked and reissued, or terminated for cause. The filing of a request by the Permittee for a Part 70 Operating Permit modification, revocation and reissuance, or termination, or of a notification of planned changes or anticipated noncompliance does not stay any condition of this permit. [326 IAC 2-7-5(6)(C)] The notification by the Permittee does require the certification by the "responsible official" as defined by 326 IAC 2-7-1(34).

(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 2-7-9(a)(3)]

(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 2-7-9(b)]

(d) The reopening and revision of this permit, under 326 IAC 2-7-9(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 2-7-9(c)]

B.16 Permit Renewal [326 IAC 2-7-3][326 IAC 2-7-4][326 IAC 2-7-8(e)]

(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 2-7-4. 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 "responsible official" as defined by 326 IAC 2-7-1(34).

Request for renewal shall be submitted to:

Indiana Department of Environmental Management
Permit Administration and Support Section, Office of Air Quality
100 North Senate Avenue
MC 61-53 IGCN 1003
Indianapolis, Indiana 46204-2251

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

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

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

(c) If the Permittee submits a timely and complete application for renewal of this permit, the source's failure to have a permit is not a violation of 326 IAC 2-7 until IDEM, OAQ takes final action on the renewal application, except that this protection shall cease to apply if, subsequent to the completeness determination, the Permittee fails to submit by the deadline specified in writing by IDEM, OAQ any additional information identified as being needed to process the application.

B.17 Permit Amendment or Modification [326 IAC 2-7-11][326 IAC 2-7-12] [40 CFR 72]

(a) Permit amendments and modifications are governed by the requirements of 326 IAC 2-7-11 or 326 IAC 2-7-12 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
Permit Administration and Support Section, Office of Air Quality
100 North Senate Avenue
MC 61-53 IGCN 1003
Indianapolis, Indiana 46204-2251

Any such application shall be certified by the "responsible official" as defined by 326 IAC 2-7-1(34).

(c) The Permittee may implement administrative amendment changes addressed in the request for an administrative amendment immediately upon submittal of the request. [326 IAC 2-7-11(c)(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 Permit Revision Under Economic Incentives and Other Programs [326 IAC 2-7-5(8)] [326 IAC 2-7-12(b)(2)]

(a) No Part 70 permit revision shall be required under any approved economic incentives, marketable Part 70 permits, emissions trading, and other similar programs or processes for changes that are provided for in a Part 70 permit.

(b) Notwithstanding 326 IAC 2-7-12(b)(1) and 326 IAC 2-7-12(c)(1), minor Part 70 permit modification procedures may be used for Part 70 modifications involving the use of economic incentives, marketable Part 70 permits, emissions trading, and other similar

approaches to the extent that such minor Part 70 permit modification procedures are explicitly provided for in the applicable State Implementation Plan (SIP) or in applicable requirements promulgated or approved by the U.S. EPA.

B.19 Operational Flexibility [326 IAC 2-7-20][326 IAC 2-7-10.5]

(a) The Permittee may make any change or changes at the source that are described in 326 IAC 2-7-20(b),(c), or (e) without a prior permit revision, if each of the following conditions is met:

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

(2) Any preconstruction approval required by 326 IAC 2-7-10.5 has been obtained;

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

(4) The Permittee notifies the:

Indiana Department of Environmental Management
Permit Administration and Support Section, Office of Air Quality
100 North Senate Avenue
MC 61-53 IGCN 1003
Indianapolis, Indiana 46204-2251

and

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

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

(5) The Permittee maintains records on-site, on a rolling five (5) year basis, which document all such changes and emission trades that are subject to 326 IAC 2-7-20(b),(c), or (e). The Permittee shall make such records available, upon reasonable request, for public review.

Such records shall consist of all information required to be submitted to IDEM, OAQ in the notices specified in 326 IAC 2-7-20(b)(1), (c)(1), and (e)(2).

(b) The Permittee may make Section 502(b)(10) of the Clean Air Act changes (this term is defined at 326 IAC 2-7-1(36)) without a permit revision, subject to the constraint of 326 IAC 2-7-20(a). For each such Section 502(b)(10) of the Clean Air Act change, the required written notification shall include the following:

(1) A brief description of the change within the source;

(2) The date on which the change will occur;

(3) Any change in emissions; and

(4) Any permit term or condition that is no longer applicable as a result of the change.

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

(c) Emission Trades [326 IAC 2-7-20(c)]
The Permittee may trade emissions increases and decreases at the source, where the applicable SIP provides for such emission trades without requiring a permit revision, subject to the constraints of Section (a) of this condition and those in 326 IAC 2-7-20(c).

(d) Alternative Operating Scenarios [326 IAC 2-7-20(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 2-7-5(9). No prior notification of IDEM, OAQ, or U.S. EPA is required.

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

B.20 Source Modification Requirement [326 IAC 2-7-10.5]

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

B.21 Inspection and Entry [326 IAC 2-7-6][IC 13-14-2-2][IC 13-30-3-1][IC 13-17-3-2]

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 Part 70 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 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 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 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.22 Transfer of Ownership or Operational Control [326 IAC 2-7-11]

(a) The Permittee must comply with the requirements of 326 IAC 2-7-11 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
Permit Administration and Support Section, Office of Air Quality
100 North Senate Avenue
MC 61-53 IGCN 1003
Indianapolis, Indiana 46204-2251

The application which shall be submitted by the Permittee does require the certification by the "responsible official" as defined by 326 IAC 2-7-1(34).

(c) The Permittee may implement administrative amendment changes addressed in the request for an administrative amendment immediately upon submittal of the request. [326 IAC 2-7-11(c)(3)]

B.23 Annual Fee Payment [326 IAC 2-7-19] [326 IAC 2-7-5(7)][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) Except as provided in 326 IAC 2-7-19(e), failure to pay may result in administrative enforcement action or revocation of this permit.

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

B.24 Advanced Source Modification Approval [326 IAC 2-7-5(16)] [326 IAC 2-7-10.5]

(a) The requirements to obtain a source modification approval under 326 IAC 2-7-10.5 or a permit modification under 326 IAC 2-7-12 are satisfied by this permit for the proposed emission units, control equipment or insignificant activities in Sections A.2 and A.3.

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

B.25 Credible Evidence [326 IAC 2-7-5(3)][326 IAC 2-7-6][62 FR 8314] [326 IAC 1-1-6]

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

SECTION C SOURCE OPERATION CONDITIONS

Entire Source

Emission Limitations and Standards [326 IAC 2-7-5(1)]

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

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

C.2 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]

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

C.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). 326 IAC 6-4-2(4) is not federally enforceable.

C.6 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. The provisions of 326 IAC 1-7-1(3), 326 IAC 1-7-2, 326 IAC 1-7-3(c) and (d), 326 IAC 1-7-4, and 326 IAC 1-7-5(a), (b), and (d) are not federally enforceable.

C.7 Asbestos Abatement Projects [326 IAC 14-10] [326 IAC 18] [40 CFR 61, Subpart M]

The Permittee shall comply with the applicable requirements of 326 IAC 14-10, 326 IAC 18, and 40 CFR 61.140. The requirement in 326 IAC 14-10-1(a) that the owner or operator shall use an Indiana Accredited Asbestos Inspector and all the requirements in 326 IAC 18 related to licensing requirements for asbestos inspectors are not federally enforceable.

Testing Requirements [326 IAC 2-7-6(1)]

C.8 Performance Testing [326 IAC 3-6]

(a) Compliance testing on new emissions units shall be conducted within 60 days after achieving maximum production rate, but no later than 180 days after initial start-up, if specified in Section D of this approval. All testing shall be performed according to the provisions of 326 IAC 3-6 (Source Sampling Procedures), except as provided elsewhere in this permit, utilizing any applicable procedures and analysis methods specified in 40 CFR 51, 40 CFR 60, 40 CFR 61, 40 CFR 63, 40 CFR 75, or other procedures approved by IDEM, OAQ.

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

Indiana Department of Environmental Management
Compliance and Enforcement Branch, Office of Air Quality
100 North Senate Avenue
MC 61-53 IGCN 1003
Indianapolis, Indiana 46204-2251

no later than thirty-five (35) days prior to the intended test date. The protocol submitted by the Permittee does not require certification by the "responsible official" as defined by 326 IAC 2-7-1(34).

(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 "responsible official" as defined by 326 IAC 2-7-1(34).

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

Compliance Requirements [326 IAC 2-1.1-11]

C.9 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 2-7-5(1)][326 IAC 2-7-6(1)]

C.10 Compliance Monitoring [326 IAC 2-7-5(3)][326 IAC 2-7-6(1)] [326 IAC 3-5]

(a) This section applies to the operation and maintenance of equipment and devices specified in Section D of this permit to determine or monitor compliance, except that it does not apply to continuous emissions monitoring systems or continuous opacity monitoring systems described in Section D. Conditions C.11 (Maintenance of Continuous Emission Monitoring Equipment) and C.12 (Maintenance of Continuous Opacity Monitoring Equipment) establish the general operation and maintenance requirements for continuous emission monitoring systems and continuous opacity monitoring systems, respectively.

(b) Unless otherwise specified in this permit, all monitoring and record keeping requirements not already legally required shall be implemented within ninety (90) days of permit issuance. If required by Section D, the Permittee shall be responsible for installing any necessary equipment and initiating any required monitoring related to that equipment. If

due to circumstances beyond its control, that equipment cannot be installed and operated within ninety (90) days, the Permittee may extend the compliance schedule related to the equipment for an additional ninety (90) days provided the Permittee notifies:

Indiana Department of Environmental Management
Compliance and Enforcement Branch, Office of Air Quality
100 North Senate Avenue
MC 61-53 IGCN 1003
Indianapolis, Indiana 46204-2251

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

The notification which shall be submitted by the Permittee does require the certification by the "responsible official" as defined by 326 IAC 2-7-1(34).

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

(d) The Permittee shall keep records of monitoring system operation that include the following:

(1) All maintenance logs, calibration checks, and other required quality assurance activities.

(2) All records of corrective and preventive action.

(3) A log of monitoring system downtime, including the following:

(A) Date of monitoring system downtime.

(B) Time of commencement and completion of each downtime.

(C) Reason for each downtime.

(e) The Permittee shall submit a report of monitoring system downtime as specified in Section D. The report shall include the following:

(1) Date of monitoring system downtime.

(2) Time of commencement.

(3) Duration of each downtime.

(4) Reasons for each downtime.

(5) Nature of system repairs and adjustments.

(f) Except where permit conditions streamline similar applicable requirements pursuant to 326 IAC 2-7-24, nothing in this permit nor in 326 IAC 3-5 supersedes the monitoring provisions in 40 CFR Part 60 or 40 CFR Part 63.

C.11 Maintenance of Continuous Emission Monitoring Equipment [326 IAC 2-7-5(3)(A)(iii)] [326 IAC 2-1.1-11] [326 IAC 3-5]

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

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

Indiana Department of Environmental Management
Compliance and Enforcement Branch, Office of Air Quality
100 North Senate Avenue
MC 61-53 IGCN 1003
Indianapolis, Indiana 46204-2251

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

The notification, which shall be submitted by the Permittee, does require the certification by the "responsible official" as defined by 326 IAC 2-7-1(34).

(b) The Permittee shall install, calibrate, maintain, and operate all necessary continuous emission monitoring systems (CEMS) and related equipment in accordance with applicable federal regulations and 326 IAC 3-5.

(c) This provision applies only to CEMS operated solely for monitoring compliance with BACT limitations. The CEMS shall be operated at all times as specified in Section D, except during CEMS malfunctions, reasonable periods of necessary CEMS calibration or CEMS maintenance activities. CEMS calibration and maintenance activities shall be properly documented and shall be conducted pursuant to the standard operating procedures under 326 IAC 3-5-4(a).

(d) The Permittee shall keep records in accordance with 326 IAC 3-5-6(b) that includes the following:

(1) All documentation relating to:

(A) design, installation, and testing of all elements of the monitoring system; and

(B) required corrective action or compliance plan activities.

(2) All maintenance logs, calibration checks, and other required quality assurance activities.

(3) All records of corrective and preventive action.

(4) A log of plant operations, including the following:

(A) Date of facility downtime.

(B) Time of commencement and completion of each downtime.

(C) Reason for each downtime.

(e) In accordance with 326 IAC 3-5-7(5), the Permittee shall submit reports of continuous monitoring system instrument downtime, except for zero (0) and span checks, which shall be reported separately. The reports shall include the following:

(1) Date of downtime.

(2) Time of commencement.

(3) Duration of each downtime.

(4) Reasons for each downtime.

(5) Nature of system repairs and adjustments.

(f) Except where permit conditions streamline similar applicable requirements pursuant to 326 IAC 2-7-24, nothing in this permit nor in 326 IAC 3-5 supersedes the monitoring provisions in 40 CFR Part 60 or 40 CFR Part 63.

(g) The Permittee shall prepare and submit to IDEM, OAQ a written report of the results of the quarterly cylinder gas audits and annual relative accuracy test audits within thirty (30) days after the end of each calender quarter. The report must contain the information required by 326 IAC 3-5-5(e)(2) is not federally enforceable.

(h) If the Permittee is required by 326 3-5-4(a) and section D to prepare and implement a written standard operating procedure (SOP) for CEMS, it must be submitted to IDEM, OAQ within ninety (90) days after monitor installation. If revisions are made to the SOP, updates shall be submitted to IDEM, OAQ biennially. 326 IAC 3-5-4(a) is not federally enforceable.

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

(a) As specified in Section D.1 of this permit, the Permittee shall install, calibrate, maintain, and operate the necessary continuous opacity monitoring system (COMS) and related equipment. For the boiler, the COMS shall be in operation at all times that coal is being combusted in the boiler, except during COMS malfunctions and reasonable periods of necessary COMS calibrations, audits, maintenance, or repair activities.

(b) The continuous opacity monitoring systems shall meet the performance specifications of 40 CFR, Appendix B Performance Specification No.1, and are subject to monitor system certification requirements pursuant to 326 IAC 3-5.

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

(d) Whenever a continuous opacity monitoring system (COMS) is malfunctioning or will be down for calibration, maintenance or repairs for a period of twenty-four (24) hours or more and a backup COMS is not online within twenty-four (24) hours of shutdown or malfunction of the primary COMS, the Permittee shall provide a certified opacity reader(s), who may be an employees of the Permittee or an independent contractors, to self-monitor the emissions from the emission unit stack.

(1) Visible emission readings shall be performed in accordance with 40 CFR 60, Appendix A, Method 9, for a minimum of five (5) consecutive six (6) minute averaging periods beginning not more than twenty-four (24) hours after the start of the shutdown or malfunction.

(2) Method 9 opacity readings shall be repeated for a minimum of five (5) consecutive six (6) minute averaging periods at least twice per day during daylight operations, until such time that COMS is online.

(3) Method 9 readings may be discontinued once a COMS is online.

(4) Any opacity exceedances determined by Method 9 readings shall be reported with the Quarterly Deviation and COMS Excess Emissions Reports.

(e) Nothing in this permit shall excuse the Permittee from complying with the requirements to operate a continuous opacity monitoring system pursuant to 326 IAC 3-5, (and 40 CFR 60 and/or 40 CFR 63).

Corrective Actions and Response Steps [326 IAC 2-7-5][326 IAC 2-7-6]

C.13 Emergency Reduction Plans [326 IAC 1-5-2] [326 IAC 1-5-3]

Pursuant to 326 IAC 1-5-2 (Emergency Reduction Plans; Submission):

(a) The Permittee shall maintain the most recently submitted written emergency reduction plans (ERPs) consistent with safe operating procedures.

(b) Upon direct notification by IDEM, OAQ that a specific air pollution episode level is in effect, the Permittee shall immediately put into effect the actions stipulated in the approved ERP for the appropriate episode level. [326 IAC 1-5-3]

C.14 Risk Management Plan [326 IAC 2-7-5(12)] [40 CFR 68]

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

C.15 Response to Abnormal or Out-of-Range Compliance Monitoring Measurements [326 IAC 2-7-5] [326 IAC 2-7-6]

(a) Upon detecting a measurement required by a compliance monitoring condition of this permit that is outside the normal or usual range of values for the monitoring parameter, the Permittee shall restore operation of the emissions unit (including any control device and associated capture system) to its normal or usual manner of operation as expeditiously as practicable in accordance with good air pollution control practices for minimizing emissions.

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

(1) initial inspection and evaluation;

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

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

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

(1) monitoring results;

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

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

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

C.16 Actions Related to Noncompliance Demonstrated by a Stack Test [326 IAC 2-7-5][326 IAC 2-7-6]

(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 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 "responsible official" as defined by 326 IAC 2-7-1(34).

Record Keeping and Reporting Requirements [326 IAC 2-7-5(3)] [326 IAC 2-7-19]

C.17 Emission Statement [326 IAC 2-7-5(3)(C)(iii)][326 IAC 2-7-5(7)][326 IAC 2-7-19(c)][326 IAC 2-6]

(a) Pursuant to 326 IAC 2-6-3(a)(1), the Permittee shall submit by July 1 of each year an emission statement covering the previous calendar year. The emission statement shall contain, at a minimum, the information specified in 326 IAC 2-6-4(c) and shall meet the following requirements:

(1) Indicate estimated actual emissions of all pollutants listed in 326 IAC 2-6-4(a);

(2) Indicate estimated actual emissions of regulated pollutants as defined by 326 IAC 2-7-1(32) (“Regulated pollutant, which is used only for purposes of Section 19 of this rule”) from the source, for purpose of fee assessment.

The statement must be submitted to:

Indiana Department of Environmental Management
Technical Support and Modeling Section, Office of Air Quality
100 North Senate Avenue
MC 61-50 IGCN 1003
Indianapolis, Indiana 46204-2251

The emission statement does require the certification by the “responsible official” as defined by 326 IAC 2-7-1(34).

(b) The emission statement 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.18 General Record Keeping Requirements [326 IAC 2-7-5(3)] [326 IAC 2-7-6] [326 IAC 2-2][326 IAC 2-3]

(a) Records of all required monitoring data, reports and support information required by this permit or Title V Operational Permit T165-6462-00009, third significant permit modification No. 165-26307-00009 shall be retained for a period of at least five (5) years from the date of monitoring sample, measurement, report, or application. These records shall be physically present or electronically accessible at the source location for a minimum of three (3) years. The records may be stored elsewhere for the remaining two (2) years as long as they are available upon request. If the Commissioner makes a request for records to the Permittee, the Permittee shall furnish the records to the Commissioner within a reasonable time.

(b) Unless otherwise specified in this permit, all record keeping requirements not already legally required shall be implemented within ninety (90) days of permit issuance or ninety (90) days of initial start-up, whichever is later.

(c) If there is a reasonable possibility (as defined in 40 CFR 51.165(a)(6)(vi)(A), 40 CFR 51.165(a)(6)(vi)(B), 40 CFR 51.166(r)(6)(vi)(a), and/or 40 CFR 51.166(r)(6)(vi)(b)) that a "project" (as defined in 326 IAC 2-2-1(qq) and/or 326 IAC 2-3-1(ll)) at an existing emissions unit, other than projects at a source with a Plantwide Applicability Limitation (PAL), which is not part of a "major modification" (as defined in 326 IAC 2-2-1(ee) and/or 326 IAC 2-3-1(z)) may result in significant emissions increase and the Permittee elects to utilize the "projected actual emissions" (as defined in 326 IAC 2-2-1(rr) and/or 326 IAC 2-3-1(mm)), the Permittee shall comply with following:

(1) Before beginning actual construction of the "project" (as defined in 326 IAC 2-2-1(qq) and/or 326 IAC 2-3-1(ll)) at an existing emissions unit, document and maintain the following records:

(A) A description of the project.

(B) Identification of any emissions unit whose emissions of a regulated new source review pollutant could be affected by the project.

(C) A description of the applicability test used to determine that the project is not a major modification for any regulated NSR pollutant, including:

(i) Baseline actual emissions;

(ii) Projected actual emissions;

(iii) Amount of emissions excluded under section 326 IAC 2-2-1(rr)(2)(A)(iii) and/or 326 IAC 2-3-1 (mm)(2)(A)(iii); and

(iv) An explanation for why the amount was excluded, and any netting calculations, if applicable.

(d) If there is a reasonable possibility (as defined in 40 CFR 51.165(a)(6)(vi)(A) and/or 40 CFR 51.166(r)(6)(vi)(a)) that a "project" (as defined in 326 IAC 2-2-1(qq) and/or 326 IAC 2-3-1(ll)) at an existing emissions unit, other than projects at a source with a Plantwide Applicability Limitation (PAL), which is not part of a "major modification" (as

defined in 326 IAC 2-2-1(ee) and/or 326 IAC 2-3-1(z)) may result in significant emissions increase and the Permittee elects to utilize the “projected actual emissions” (as defined in 326 IAC 2-2-1(rr) and/or 326 IAC 2-3-1(mm)), the Permittee shall comply with following:

(1) Monitor the emissions of any regulated NSR pollutant that could increase as a result of the project and that is emitted by any existing emissions unit identified in (1)(B) above; and

(2) Calculate and maintain a record of the annual emissions, in tons per year on a calendar year basis, for a period of five (5) years following resumption of regular operations after the change, or for a period of ten (10) years following resumption of regular operations after the change if the project increases the design capacity of or the potential to emit that regulated NSR pollutant at the emissions unit.

C.19 General Reporting Requirements [326 IAC 2-7-5(3)(C)] [326 IAC 2-1.1-11] [326 IAC 2-2]

(a) The Permittee shall submit the attached Quarterly Deviation and Compliance Monitoring Report or its equivalent. Any deviation from permit requirements, the date(s) of each deviation, the cause of the deviation, and the response steps taken must be reported. This report shall be submitted within thirty (30) days of the end of the reporting period. The Quarterly Deviation and Compliance Monitoring Report shall include the certification by the "responsible official" as defined by 326 IAC 2-7-1(34).

(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 and Enforcement Branch, Office of Air Quality
100 North Senate Avenue
MC 61-53 IGCN 1003
Indianapolis, Indiana 46204-2251

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

(d) Unless otherwise specified in this permit, all reports required in Section D of this permit shall be submitted within thirty (30) days of the end of the reporting period. All reports do require the certification by the "responsible official" as defined by 326 IAC 2-7-1(34).

(e) Reporting periods are based on calendar years, unless otherwise specified in this permit. For the purpose of this permit “calendar year” means the twelve (12) month period from January 1 to December 31 inclusive.

(f) If the Permittee is required to comply with the recordkeeping provisions of (d) in Section C - General Record Keeping Requirements for any “project” (as defined in 326 IAC 2-2-1 (qq) and/or 326 IAC 2-3-1 (ll)) at an existing emissions unit, and the project meets the following criteria, then the Permittee shall submit a report to IDEM, OAQ:

(1) The annual emissions, in tons per year, from the project identified in (c)(1) in Section C- General Record Keeping Requirements exceed the baseline actual emissions, as documented and maintained under Section C- General Record Keeping Requirements (c)(1)(C)(i), by a significant amount, as defined in 326 IAC 2-2-1 (xx) and/or 326 IAC 2-3-1 (qq), for that regulated NSR pollutant, and

(2) The emissions differ from the preconstruction projection as documented and maintained under Section C - General Record Keeping Requirements (c)(1)(C)(ii).

(g) The report for project at an existing emissions unit shall be submitted within sixty (60) days after the end of the year and contain the following:

(1) The name, address, and telephone number of the major stationary source.

(2) The annual emissions calculated in accordance with (d)(1) and (2) in Section C - General Record Keeping Requirements.

(3) The emissions calculated under the actual-to-projected actual test stated in 326 IAC 2-2-2(d)(3) and/or 326 IAC 2-3-2(c)(3).

(4) Any other information that the Permittee deems fit to include in this report.

Reports required in this part shall be submitted to:

Indiana Department of Environmental Management
Compliance and Enforcement Branch, Office of Air Quality
100 North Senate Avenue
MC 61-53 IGCN 1003
Indianapolis, Indiana 46204-2251

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

Stratospheric Ozone Protection

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

The Permittee shall comply with all the applicable provisions of 40 CFR Part 82, wherever applicable to activities at the source.

SECTION D.1 EMISSIONS UNIT OPERATION CONDITIONS

Emissions Unit Description: Utilities Operations

(a) The following emissions units are subject to applicable requirements described in this D section.

Bldg.	Unit ID*	Unit Description	Stack/Vent ID	Control Devices**	Capacity	Units
C31	Ash Tank	Ash Tank for C31 Coal Fired Boiler	PVC31ASH TK TRNSFR	Baghouse**	6,361	Cubic Feet
C31	BLR01	Coal Fired Boiler	C31IDF130	Baghouse**	243	MMBTU/hr
C21	BLR01	Natural Gas/#2 Oil Fired Boiler	PVC21BLR1		79.5	MMBTU/hr
C21	BLR02	Natural Gas/#2 Oil Fired Boiler	PVC21BLR2		79.5	MMBTU/hr
C21	BLR03	Natural Gas/#2 Oil Fired Boiler	PVC21BLR3		79.5	MMBTU/hr
C21	BLR04	Natural Gas/#2 Oil Fired Boiler	PVC21BLR4		140.6	MMBTU/hr

* Emissions units marked with a single asterisk are insignificant activities as defined in 326 IAC 2-7-1(21).
** Control devices marked with a double asterisk are required to meet an applicable limitation.

(b) The following emissions units are not subject to applicable requirements described in this D section, and are listed only for informational purposes.

Bldg.	Unit ID*	Unit Description	Stack/Vent ID	Control Devices**	Capacity	Units
C31	TK600*	Powdered Activated Carbon Silo	FLT630		2,294	Cubic Feet
C24	DFP01*	Diesel Fire Pump	PVC24DFP1		2.15	MMBTU/hr
C24	DFP02*	Diesel Fire Pump	PVC24DFP2		2.15	MMBTU/hr
C44	GEN01*	Emergency Diesel Generator	PVC44GEN1		3.99	MMBTU/hr
C55	GEN01*	Emergency Diesel Generator	PVC55GEN1		1.3	MMBTU/hr
C79	GEN01*	Back-Up Fire Pump Generator	PVC79GEN1		4.86	MMBTU/hr
C23	TK01*	#2 Fuel Oil Storage Tank	PVC23TK1		238,000	Gallons
C24	TK01*	#2 Fuel Oil Storage Tank	PVC24TK1		275	Gallons
C79	TK01*	#2 Fuel Oil Storage Tank	PVC79TK1		500	Gallons
C24	TK02*	#2 Fuel Oil Storage Tank	PVC24TK2		275	Gallons

* Emissions units marked with a single asterisk are insignificant activities as defined in 326 IAC 2-7-1(21).
** Control devices marked with a double asterisk are required to meet an applicable limitation.

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

Emission Limitations and Standards [326 IAC 2-7-5(1)]

D.1.1 Particulate Matter [326 IAC 6-2] [326 IAC 6-3]

(a) Pursuant to 326 IAC 6-2-3 (Particulate Matter Emission Limitations for Sources of Indirect Heating), the particulate matter emissions from the coal-fired boiler (C31 BLR01) shall not exceed 0.34 pound per million Btu heat input.

(b) Pursuant to 326 IAC 6-2-3 (Particulate Matter Emission Limitations for Sources of Indirect Heating), the particulate matter emissions from each of the natural gas/fuel oil-fired boilers (C21 BLR01, BLR02, BLR03 and BLR04) shall not exceed 0.19 pound per million Btu heat input.

(c) Pursuant to 326 IAC 6-3-2 (Particulate Matter Emission Limitations for Manufacturing Processes), particulate matter emissions from the C31 ash tank shall not exceed 2.86 pounds per hour based on a maximum throughput of 0.585 tons per hour.

D.1.2 Sulfur Dioxide (SO_2) [326 IAC 7-4-8]

(a) Pursuant to 326 IAC 7-4-8 (SO_2 Emission Limitations), the SO_2 emissions from the coal-fired boiler (C31 BLR01) shall not exceed 4.72 pounds per million Btu heat input.

(b) Pursuant to 326 IAC 7-4-8 (SO_2 Emission Limitations), the SO_2 emissions from each of the natural gas/fuel oil-fired boilers (C21 BLR01, BLR02, BLR03 and BLR04) shall not exceed 0.36 pound per million Btu heat input.

D.1.3 Temporary Alternative Opacity Limitations [326 IAC 5-1-3]

Pursuant to 326 IAC 5-1-3 (Temporary Alternative Opacity Limitations), the following conditions apply as an alternative to the opacity limitations in Section C, Condition C.2 - Opacity:

(a) When building a new fire in a boiler, or shutting down a boiler, opacity may exceed the applicable limit established in 326 IAC 5-1-2 and stated in Section C, Condition C.2 - Opacity. However, opacity levels shall not exceed sixty percent (60%) for any six (6)-minute averaging period. Opacity in excess of the applicable limit established in 326 IAC 5-1-2 shall not continue for more than two (2) six (6)-minute averaging periods in any twenty-four (24) hour period.

(b) When removing ashes from the fuel bed or furnace in a boiler or blowing tubes, opacity may exceed the applicable limit established in 326 IAC 5-1-2 and stated in Section C, Condition C.2 - Opacity. However, opacity levels shall not exceed sixty percent (60%) for any six (6)-minute averaging period and opacity in excess of the applicable limit shall not continue for more than one (1) six (6)-minute averaging periods in any sixty (60) minute period. The averaging periods shall not be permitted for more than three (3) six (6)-minute averaging periods in a twelve (12) hour period.

D.1.4 Preventive Maintenance Plan [326 IAC 2-7-5(13)]

A Preventive Maintenance Plan is required for the coal-fired boiler and associated control devices. The requirements for a Preventive Maintenance Plan are described in Section B, Condition B.10 – Preventive Maintenance Plan.

Compliance Determination Requirements

D.1.4.1 Particulate Matter Control

In order to comply with Condition D.1.1(a), the baghouse for particulate matter control shall be in operation and control emissions from the coal-fired boiler C31 at all times that this boiler is in operation and combusting coal as the fuel.

D.1.5 Testing Requirements [326 IAC 2-7-6(1) and (6)]

(a) In order to determine compliance with Condition D.1.1, the Permittee shall perform particulate matter performance tests for the coal-fired boiler (C31 BLR01) by August 2010 utilizing Methods 5 or 17 (40 CFR Part 60, Appendix A) for PM or other methods as approved by the Commissioner. These tests shall be repeated every third calendar year from the calendar year of the most recently completed stack test. The requirements for

conducting performance tests are described in Section C, Condition C.8 – Performance Testing.

(b) No emissions testing is required for the boilers to assess compliance with the sulfur dioxide emissions limits established in Condition D.1.2(b) at this time, but IDEM may require performance testing when necessary. The requirements for conducting performance tests are described in Section C, Condition C.8 – Performance Testing.

D.1.6 Coal Sampling and Analysis for SO_2 [326 IAC 3-7] [326 IAC 7-2]

The Permittee shall collect coal sampling and analysis data on a calendar month basis in accordance with one of the following methods specified in 326 IAC 3-7 for the coal-fired boiler (C31 BLR01):

(a) Coal sampling and analysis performed using one of the following procedures:

(1) Sampling and analyzing the coal according to the Permittee's Coal Sampling and Assay Plan, submitted pursuant to 326 IAC 3-7-5(a). The following minimum sampling and analysis requirements shall be met:

(A) The coal sample acquisition point shall be at a location where representative samples of the total coal flow to be combusted by the facility or facilities may be obtained. A single as-bunkered or as-burned sampling station may be used to represent the coal to be combusted by multiple facilities using the same stockpile feed system;

(B) Coal shall be sampled at least two (2) times per day and at least one (1) time per twelve (12) hour period unless no coal is bunkered during the preceding twelve (12) hour period. This permit condition satisfies the requirements of 326 IAC 3-7-2(b)(3)(B).

(C) Minimum sample size shall be five hundred (500) grams;

(D) Samples shall be composited and analyzed at the end of each calendar month;

(E) Preparation of the coal sample, heat content analysis, and sulfur content analysis shall be determined pursuant to 326 IAC 3-7-2(c), (d), (e); or

(2) Sampling and analyzing the coal pursuant to 326 IAC 3-7-2(a).

(b) Upon written notification to IDEM by the Permittee, continuous emission monitoring data collected and reported pursuant to 326 IAC 3-5-1 may be used as the means for determining compliance with the emission limitations in 326 IAC 7-1.1-2. Upon such notification, the other requirements of 326 IAC 7-2 shall not apply. [326 IAC 7-2-1(g)]

D.1.7 Fuel Oil Sampling and Analysis for SO_2 [326 IAC 7-2] [326 IAC 3-7]

The Permittee shall utilize one of the following methods for the natural gas/fuel oil-fired boilers when burning fuel oil:

(a) Provide vendor analysis of quantity, heat content and sulfur content of fuel delivered, if accompanied by a certification; or

(b) Analyze the oil sample to determine the sulfur content of the oil via the procedures in 326 IAC 3-7-4.

(1) Oil samples may be collected from the fuel tank immediately after the fuel tank is filled and before any oil is combusted; and

(2) If a partially empty fuel tank is refilled, a new sample and analysis would be required upon filling.

(c) Conduct a stack test for sulfur dioxide emissions from the boiler, using 40 CFR Part 60, Appendix A, Method 6 in accordance with the procedures in 326 IAC 3-6, which is conducted with such frequency as to generate the amount of information required by (a) or (b) above. [326 IAC 7-2-1(d)].

Compliance Monitoring Requirements [326 IAC 2-7-6(1)] [326 IAC 2-7-5(1)

D.1.8 Continuous Opacity Monitoring [326 IAC 3-5]

Pursuant to 326 IAC 3-5-1 (Continuous Monitoring of Emissions), a continuous monitoring system shall be calibrated, maintained, and operated for measuring opacity from the coal-fired boiler (C31 BLR01).

(a) The Permittee shall comply with the applicable performance and operating specifications of 326 IAC 3-5-2.

(b) The Permittee shall comply with the applicable monitor system certification requirements of 326 IAC 3-5-3.

(c) The Permittee shall comply with the applicable quality assurance and quality control (QA/QC) requirements of 326 IAC 3-5-5.

D.1.9 Opacity Readings [326 IAC 2-7-6(1)][326 IAC 2-7-5(1)]

When the coal-fired boiler (C31 BLR01) is in operation and combusting coal as a fuel:

(a) Appropriate response steps shall be taken in accordance with Section C - Response to abnormal or out-of-range Compliance Monitoring Measurements whenever the opacity from stack C31IDF130 exceeds fifteen percent (15%) for three (3) consecutive six (6) minute averaging periods. This requirement shall not apply when the Continuous Opacity Monitoring System records opacity levels greater than 15% due to COMS calibration, maintenance, or other quality assurance activities.

(b) Opacity readings in excess of fifteen percent (15%) but not exceeding the opacity limit for the unit are not a deviation from this permit. Failure to take response steps in accordance with Section C - Response to abnormal or out-of-range Compliance Monitoring Measurements shall be considered a deviation from this permit.

(c) The Permittee may request that the IDEM, OAQ approve a different opacity trigger level than the one specified in (a) and (b) of this condition, provided the Permittee can demonstrate, through stack testing or other appropriate means, that a different opacity trigger level is appropriate for monitoring compliance with the applicable particulate matter mass emission limits.

Record Keeping and Reporting Requirements [326 IAC 2-7-5(3)]

D.1.10 Coal Characteristics and Consumption Records

The Permittee shall record the information described in items (a) through (d) below on a calendar month basis for the coal-fired boiler (C31 BLR01).

(a) The total amount (expressed in tons) of coal combusted;

(b) The average sulfur content (expressed in percentage by weight) of the coal combusted;

(c) The average heat content (expressed in Btu per pound) of the coal combusted; and

(d) The average sulfur dioxide emission rate (expressed in pounds per million Btu) for the coal-fired boiler (C31 BLR01).

D.1.11 Fuel Oil Characteristics and Consumption Records

The Permittee shall record the information described in items (a) through (e) below. The records shall be compiled on a calendar month basis.

(a) The total amount of fuel oil combusted (expressed in pounds) for each of the natural gas/fuel oil-fired boilers.

(b) The average sulfur content (expressed in percentage by weight) of the fuel oil combusted;

(c) The average heat content (expressed in Btu per pound) of the fuel oil combusted;

(d) The average sulfur dioxide emission rate (expressed in pounds per million Btu) for the natural gas/fuel oil-fired boilers (C21 BLR01, BLR02, BLR03 and BLR04) during periods of fuel oil combustion; and

(e) Vendor analysis of the quantity, heat content and sulfur content of the fuel delivered, including a supplier certification.

D.1.12 Continuous Opacity Monitoring

The Permittee shall maintain records of the continuous opacity monitor readings of the coal-fired boiler (C31 BLR01).

D.1.13 [Reserved]

D.1.14 Standard Operating Procedures

(a) Pursuant to 326 IAC 3-5-4, the Permittee shall maintain a complete, written continuous monitoring standard operating procedure (SOP) for the continuous opacity monitor (COM). If revisions are made to the SOP, updates shall be submitted to the department biennially. The COM SOP should contain, at a minimum, the items described in 326 IAC 3-5-4(a).

(b) Pursuant to 326 IAC 3-7-5(a), the Permittee shall maintain a standard operating procedure (SOP) to be followed for sampling, handling, analysis, quality control, quality assurance, and data reporting of the information collected pursuant to 326 IAC 3-7-2 through 326 IAC 3-7-4. 326 IAC 3-7-4 is not applicable to this source because 326 IAC 3-7-5(a) references only coal-fired facilities. In addition, any revision to the SOP shall be submitted to IDEM, OAQ.

D.1.15 Reporting Requirements

(a) A quarterly summary of the information shall be submitted using the reporting form located at the end of this permit, or its equivalent. At a minimum, the report shall contain the information specified in Condition D.1.10.

(b) The Permittee shall prepare and submit a written report of the results of the continuous opacity monitor calibration error audit for each calendar quarter. The report must contain the information required by 326 IAC 3-5-5(e)(2).

(c) The Permittee shall prepare and submit a written report of excess opacity of the continuous opacity monitor each calendar quarter. The report must contain the information required by 326 IAC 3-5-7(4).

(d) The Permittee shall prepare and submit a written report of continuous opacity monitor downtime each calendar quarter. The report must contain the information required by 326 IAC 3-5-7(5).

Modifications and Construction Requirements [326 IAC 2-7-10.5, 326 IAC 2-12 and 326 IAC 2-2]

D.1.16 Modifications and Construction: Advance Approval of Permit Conditions

The emission units described in this section D are not subject to the advance approval permit conditions.

SECTION D.2 EMISSIONS UNIT OPERATION CONDITIONS

Emissions Unit Description: AHM - Fermentation Operations

(a) The following Unit IDs have applicable conditions in this D Section:

Bldg.	Unit ID*	Narasin Emission Unit***	Unit Description	Stack/Vent ID	Control**	Capacity	Units
C41	TKF01	3	Fermenter	PVC41F01	Cyclone F1VLS	50,000	Gallons
C41	TKF02	3	Fermenter	PVC41F02	Cyclone F2VLS	50,000	Gallons
C41	TKF03	3	Fermenter	PVC41F03	Cyclone F3VLS	50,000	Gallons
C41	TKF04	3	Fermenter	PVC41F04	Cyclone F4VLS	50,000	Gallons
C41	TKF05	3	Fermenter	PVC41F05	Cyclone F5VLS	50,000	Gallons
C41	TKF06	3	Fermenter	PVC41F06	Cyclone F6VLS	50,000	Gallons
C41	TKF07	3	Fermenter	PVC41F07	Cyclone F7VLS	50,000	Gallons
C41	TKF08	3	Fermenter	PVC41F08	Cyclone F8VLS	50,000	Gallons
C41	TKF09	3	Fermenter	PVC41F09	Cyclone F9VLS	50,000	Gallons
C41	TKF10	3	Fermenter	PVC41F10	Cyclone F10VLS	50,000	Gallons
C41	TKF11	3	Fermenter	PVC41F11	Cyclone F11VLS	50,000	Gallons
C41	TKF12	3	Fermenter	PVC41F12	Cyclone F12VLS	50,000	Gallons
C41	TKF13	3	Fermenter	PVC41F13	Cyclone F13VLS	50,000	Gallons
C41	TKF14	3	Fermenter	PVC41F14	Cyclone F14VLS	50,000	Gallons
C41	TKF15	3	Fermenter	PVC41F16	Cyclone F15VLS	50,000	Gallons
C41	TKF16	3	Fermenter	PVC41F16	Cyclone F16VLS	50,000	Gallons
C41A	TKF17	No	Fermenter	PVC41AF17	Cyclone F17VLS	50,000	Gallons
C41A	TKF18	No	Fermenter	PVC41AF18	Cyclone F18VLS	50,000	Gallons
C41A	TKF19	No	Fermenter	PVC41AF19	Cyclone F19VLS	50,000	Gallons
C41A	TKF20	No	Fermenter	PVC41AF20	Cyclone F20VLS	50,000	Gallons
C41A	TKF21	No	Fermenter	PVC41AF21	Cyclone F21VLS	50,000	Gallons
C41A	TKF22	No	Fermenter	PVC41AF22	Cyclone F22VLS	50,000	Gallons
C41A	TKF23	No	Fermenter	PVC41AF23	Cyclone F23VLS	50,000	Gallons
C41A	TKF24	No	Fermenter	PVC41AF24	Cyclone F24VLS	50,000	Gallons
C41A	TKF25	No	Fermenter	PVC41AF25	Cyclone F25VLS	50,000	Gallons
C41A	TKF26	No	Fermenter	PVC41AF26	Cyclone F26VLS	50,000	Gallons
C41A	TKF27	No	Fermenter	PVC41AF27	Cyclone F27VLS	50,000	Gallons

C41A	TKF28	No	Fermenter	PVC41AF28	Cyclone F28VLS	50,000	Gallons
C41A	TKF29	No	Fermenter	PVC41AF29	Cyclone F29VLS	50,000	Gallons
C41A	TKF30	No	Fermenter	PVC41AF30	Cyclone F30VLS	50,000	Gallons
C41A	TKF31	No	Fermenter	PVC41AF31	Cyclone F31VLS	50,000	Gallons
C41A	TKF32	No	Fermenter	PVC41AF32	Cyclone F32VLS	50,000	Gallons
C44A	TK047	5	Vibrating Bin	PVC44AC047	Baghouse VS047**	42,000	Kg
C44A	TK048	5	Vibrating Bin	PVC44AC048	Baghouse VS048**	43,680	Kg
C44A	TK049	5	Vibrating Bin	PVC44AC049	Baghouse VS049**	43,680	Kg
C44A	TK050	5	Vibrating Bin	PVC44AC050	Baghouse VS050**	42,000	Kg
C44A	TK051	5	Vibrating Bin	PVC44AC047	Baghouse VS047**	42,000	Kg
C44A	TK052	5	Vibrating Bin	PVC44AC052	Baghouse VS052**	37,408	Kg
C44A	TK053	5	Vibrating Bin	PVC44AC052	Baghouse VS052**	37,408	Kg
C44A	TK054	5	Vibrating Bin	PVC44AC050	Baghouse VS050**	42,000	Kg
C44A	TK055	5	Vibrating Bin	PVC44AC055	Baghouse VS055**	43,680	Kg
C44A	TK056	5	Vibrating Bin	PVC44AC055	Baghouse VS055**	43,680	Kg
C44A	TK057	5	Vibrating Bin	PVC44AC055	Baghouse VS055**	43,680	Kg
C44A	TK058	5	Vibrating Bin	PVC44AC055	Baghouse VS055**	43,680	Kg
C43A	TK301	1	Batch Fermenter Tank	PVC43AAC301	Filter FLT301**, Baghouse VS311	7,500	Gallons
C43A	TK302	1	Batch Fermenter Tank	PVC43AAC301	Filter FLT302**, Baghouse VS311	7,500	Gallons

*Emissions units marked with a single asterisk are insignificant activities as defined in 326 IAC 2-7-1(21).
** Control devices marked with a double asterisk are required to meet an applicable limitation.
*** A number indicates the Narasin Emission Unit that the equipment is associated with. A “NO” indicates that the equipment is not associated with the Narasin Process.

(b) The following Unit IDs are not subject to applicable requirements, and are listed only for informational purposes

Bldg.	Unit ID*	*Narasin Emission Units****	Unit Description	Stack/Vent ID	Control**	Capacity	Units
C41	TKB01*	2	Bump Tank	PVC41B01	Cyclone B1VLS	7,000	Gallons
C41	TKB02*	2	Bump Tank	PVC41B02	Cyclone B2VLS	7,000	Gallons
C41	TKB03*	2	Bump Tank	PVC41B03	Cyclone B3VLS	7,000	Gallons
C41	TKB04*	2	Bump Tank	PVC41B04	Cyclone B4VLS	7,000	Gallons
C41	TKB05*	2	Bump Tank	PVC41B05	Cyclone B5VLS	7,000	Gallons
C41	TKB06*	2	Bump Tank	PVC41B06	Cyclone B6VLS	7,000	Gallons
C41	TKB07*	2	Bump Tank	PVC41B07	Cyclone B7VLS	7,000	Gallons
C41	TKB08*	2	Bump Tank	PVC41B08	Cyclone B8VLS	7,000	Gallons
C41	TKB09*	2	Bump Tank	PVC41B09	Cyclone B9VLS	7,000	Gallons
C41	TKB10*	2	Bump Tank	PVC41B10	Cyclone B10VLS	7,000	Gallons

C41	TKB11*	2	Bump Tank	PVC41B11	Cyclone B11VLS	7,000	Gallons
C41	TKB12*	2	Bump Tank	PVC41B12	Cyclone B12VLS	7,000	Gallons
C41	TKB13*	2	Bump Tank	PVC41B13	Cyclone B13VLS	7,000	Gallons
C41	TKB14*	2	Bump Tank	PVC41B14	Cyclone B14VLS	7,000	Gallons
C41	TKB15*	2	Bump Tank	PVC41B15	Cyclone B15VLS	7,000	Gallons
C41	TKB16*	2	Bump Tank	PVC41B16	Cyclone B16VLS	7,000	Gallons
C41A	TKB22*	No	Bump Tank	PVC41AB22	Cyclone B22VLS	7,000	Gallons
C41A	TKB24*	No	Bump Tank	PVC41AB24	Cyclone B24VLS	7,000	Gallons
C41A	TKB26*	No	Bump Tank	PVC41AB26	Cyclone B26VLS	7,000	Gallons
C41A	TKB28*	No	Bump Tank	PVC41AB28	Cyclone B28VLS	7,000	Gallons
C43A	SM311*	1	Screw Mixer	PVC43AAC304	Baghouse VS311	N/A	N/A
C43A	TK305*	No	Mineral Pot	PVC43AAC305	Filter FLT305	80	Gallons
C41	TKH01*	No	Hold Tank	PVC41TKH01		20,000	Gallons
C41	TKH02*	4	Hold Tank	PVC41TKH02		20,000	Gallons
C41	TKH03*	No	Hold Tank	PVC41TKH03		50,000	Gallons
C41	TKH04*	No	Hold Tank	PVC41TKH04		50,000	Gallons
C41	TKH05*	4	Hold Tank	PVC41TKH05		50,000	Gallons
C41	TKA01*	No	Additive Tank	PVC41TKA01	Cyclone VLS01	8,000	Gallons
C41	TKA02*	No	Additive Tank	PVC41TKA02	Cyclone VLS01	8,000	Gallons
C41	TKA03*	3	Additive Tank	PVC41TKA03	Cyclone VLS03	8,000	Gallons
C41	TKA04*	3	Additive Tank	PVC41TKA04	Cyclone VLS05	8,000	Gallons
C41	TKA05*	3	Additive Tank	PVC41TKA05	Cyclone VLS05	8,000	Gallons
C41	TKA06*	3	Additive Tank	PVC41TKA06	Cyclone VLS05	8,000	Gallons
C41A	TKA08*	3	Additive Tank	PVC41ATKA08	Cyclone VLS08	8,000	Gallons
C41A	TKA09*	No	Additive Tank	PVC41ATKA09	Cyclone VLS09	8,000	Gallons
C98	TK001*	No	Land Application Tank	PVC98TK001		10,000	Gallons
C98	TK002*	No	Land Application Tank	PVC98TK002		600	Gallons
C98	TK003*	No	Land Application Tank	PVC98TK003		15,000	Gallons
C25	TK2*	No	Land Application Tank	PVC25TK2		500,000	Gallons
C25	TK3*	No	Land Application Tank	PVC25TK3		1,000,000	Gallons
C41A	TK001*	No	Condensate Tank	PVC41TK001		N/AV	N/AV
C41	TK002*	No	Condensate Tank	PVC41TK002		N/AV	N/AV
C41	TK003*	No	Condensate Tank	PVC41TK003		N/AV	N/AV
C44	TKL21*	6	Liquid Bulk Tank	PVC44TKL21		20,000	Gallons
C44	TKL22*	6	Liquid Bulk Tank	PVC44TKL22		20,000	Gallons
C44	TKL31*	6	Liquid Bulk Tank	PVC44TKL31		30,000	Gallons
C44	TKL32*	6	Liquid Bulk Tank	PVC44TKL32		30,000	Gallons
C44	TKL33*	6	Liquid Bulk Tank	PVC44TKL33		30,000	Gallons
C44	TKL34*	6	Liquid Bulk Tank	PVC44TKL34		30,000	Gallons
C44	TKL35*	6	Liquid Bulk Tank	PVC44TKL35		30,000	Gallons

C44	TKL36*	6	Liquid Bulk Tank	PVC44TKL36		30,000	Gallons
C44	TKL37*	6	Liquid Bulk Tank	PVC44TKL37		30,000	Gallons
C44	TKL51*	6	Liquid Bulk Tank	PVC44TKL51		50,000	Gallons
C44	TKL52*	6	Liquid Bulk Tank	PVC44TKL52		50,000	Gallons
C44	TKL53*	6	Liquid Bulk Tank	PVC44TKL53		50,000	Gallons
C44	TKL54*	6	Liquid Bulk Tank	PVC44TKL54		50,000	Gallons
C44A	AC410*	7	Vacuum Cleaning System	PVC44AACHOUSEVAC	Cyclone VS410B, Baghouse VS410A	N/A	N/A
C44	WH059*	5	Weigh Hopper	PVC44VS059	Baghouse VSWH059	8,000	Kg
C44	WH060*	5	Weigh Hopper	PVC44VS060	Baghouse VSWH060	8,000	Kg
C44	WH061*	5	Weigh Hopper	PVC44VS061	Baghouse VSWH061	8,000	Kg
C43A	WI003 *	1	Weigh Indicator	ACC43AW001		N/AV	N/AV

*Emissions units marked with a single asterisk are insignificant activities as defined in 326 IAC 2-7-1(21).
** Control devices marked with a double asterisk are required to meet an applicable limitation.
*** A number indicates the Narasin Emission Unit that the equipment is associated with. A "NO" indicates that the equipment is not associated with the Narasin Process.

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

Emission Limitations and Standards [326 IAC 2-7-5(1)]

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

(a) Pursuant to 326 IAC 6-3-2, particulate matter (PM) emissions from each fermenter (TKF01 through TKF32) shall not exceed 18.2 pounds per hour based on a maximum throughput of 9.256 tons per hour.

(b) Pursuant to 326 IAC 6-3-2, particulate matter (PM) emissions from the vibrating bin TK047 (baghouse VS047) shall not exceed 1.4 pounds per hour based on a maximum throughput of 0.207 tons per hour.

(c) Pursuant to 326 IAC 6-3-2, particulate matter (PM) emissions from the vibrating bin TK048 (baghouse VS048) shall not exceed 1.2 pounds per hour based on a maximum throughput of 0.148 tons per hour.

(d) Pursuant to 326 IAC 6-3-2, particulate matter (PM) emissions from the vibrating bin TK049 (baghouse VS049) shall not exceed 1.2 pounds per hour based on a maximum throughput of 0.148 tons per hour.

(e) Pursuant to 326 IAC 6-3-2, particulate matter (PM) emissions from the vibrating bin TK050 (baghouse VS050) shall not exceed 1.8 pounds per hour based on a maximum throughput of 0.284 tons per hour.

(f) Pursuant to 326 IAC 6-3-2, particulate matter (PM) emissions from the vibrating bin TK051 (baghouse VS047) shall not exceed 1.4 pounds per hour based on a maximum throughput of 0.207 tons per hour.

(g) Pursuant to 326 IAC 6-3-2, particulate matter (PM) emissions from the vibrating bin TK052 (baghouse VS052) shall not exceed 0.9 pounds per hour based on a maximum throughput of 0.105 tons per hour.

(h) Pursuant to 326 IAC 6-3-2, particulate matter (PM) emissions from the vibrating bin TK053 (baghouse VS052) shall not exceed 0.9 pounds per hour based on a maximum throughput of 0.105 tons per hour.

(i) Pursuant to 326 IAC 6-3-2, particulate matter (PM) emissions from the vibrating bin TK054 (baghouse VS050) shall not exceed 1.8 pounds per hour based on a maximum throughput of 0.284 tons per hour.

(j) Pursuant to 326 IAC 6-3-2, particulate matter (PM) emissions from the vibrating bin TK055 (baghouse VS055) shall not exceed 1.2 pounds per hour based on a maximum throughput of 0.148 tons per hour.

(k) Pursuant to 326 IAC 6-3-2, particulate matter (PM) emissions from the vibrating bin TK056 (baghouse VS055) shall not exceed 1.2 pounds per hour based on a maximum throughput of 0.148 tons per hour.

(l) Pursuant to 326 IAC 6-3-2, particulate matter (PM) emissions from the vibrating bin TK057 (baghouse VS055) shall not exceed 1.2 pounds per hour based on a maximum throughput of 0.148 tons per hour.

(m) Pursuant to 326 IAC 6-3-2, particulate matter (PM) emissions from the vibrating bin TK058 (baghouse VS055) shall not exceed 1.2 pounds per hour based on a maximum throughput of 0.148 tons per hour.

(n) Pursuant to 326 IAC 6-3-2, particulate matter (PM) emissions from the batch fermenter tank TK301 (filter FLT301 and baghouse VS311) shall not exceed 2.1 pounds per hour based on a maximum throughput of 0.372 tons per hour.

(o) Pursuant to 326 IAC 6-3-2, particulate matter (PM) emissions from the batch fermenter tank TK302 (filter FLT302 and baghouse VS311) shall not exceed 2.1 pounds per hour based on a maximum throughput of 0.372 tons per hour.

D.2.2 NESHAP for Pharmaceuticals Production Non-Applicability Determination [40 CFR Part 63, Subpart GGG]

As stated in the Permittee's Notification of Compliance Status Report (NOCSR), submitted on March 20, 2003, which was submitted to satisfy the requirements of 40 CFR 63.1260(f), the fermentation processes are not subject to any of the emission reduction requirements in 40 CFR 63.1253 through 63.1256. Any modification made to these processes that changes the information submitted in the Permittee's NOCSR must be reported to IDEM as required by Condition F.1.12. If a new process operating scenario will trigger applicable requirements not described in this permit or compliance with applicable requirements shall be demonstrated by methodologies not described in this permit, this permit must be revised pursuant to 326 IAC 2-7-12.

D.2.3 Volatile Organic Compounds (VOCs) [326 IAC 2-2-3]

The VOC emissions from the fermenter emission unit, identified as EU-3 operating under the flexible permit conditions in Section F.2 shall not exceed one hundred (100) tons per twelve (12) month period, rolled on a calendar month basis.

During the first calendar year after permit issuance; VOC emissions from the fermenter emission unit (EU-3) operating under the flexible permit conditions shall not exceed eight and one third (8.33) tons multiplied by the number of calendar months the permit has been in effect.

D.2.4 Preventive Maintenance Plan [326 IAC 2-7-5(13)]

A Preventive Maintenance Plan (PMP) is required for the required facilities and control devices (marked with a double asterisk in the above table), that are used for compliance with an applicable limitation or standard. The requirements for a Preventive Maintenance Plan are described in Section B, Condition B.10 – Preventive Maintenance Plan.

Testing and Monitoring Requirements [326 IAC 2-7-6(1)] [326 IAC 2-7-5(1)]

D.2.5 Testing Requirements [326 IAC 2-7-6(1) and (6)]

No emissions testing is required for the emission units described in this Section, at this time, but IDEM may require testing at any specific time when necessary to determine if the facility is in compliance. The requirements for conducting performance tests that may be required by IDEM in the future are described in Section C, Condition C.8 – Performance Testing.

Record Keeping and Reporting Requirements [326 IAC 2-7-5(3)]

D.2.6 Record Keeping Requirements

The Permittee shall maintain records of the Notification of Compliance Status Report (NOCSR), submitted to IDEM on March 20, 2003.

Modifications and Construction Requirements [326 IAC 2-7-10.5, 326 IAC 2-12 and 326 IAC 2-2]

D.2.7 Modifications and Construction: Advanced Approval of Permit Conditions

(a) The Non Narasin emission units described in this D.2 Section are not subject to the advance approval permit conditions.

(b) The Permittee may modify Narasin emission units listed in this section of the permit without obtaining a source modification approval (otherwise required by 326 IAC 2-7-10.5), a Title V permit modification (otherwise required by 326 IAC 2-7-12), or a Prevention of Significant Deterioration permit (otherwise required by 326 IAC 2-2), provided the modified emission units are subject to the same applicable requirements listed in this D section, and the Permittee shall comply with the Change Management and Flexible Permit provisions in Section F.2 of this permit.

(c) The Permittee may construct and install Narasin emission units of the types described in this D.2 section without obtaining a source modification approval (otherwise required by 326 IAC 2-7-10.5), a Title V permit modification (otherwise required by 326 IAC 2-7-12), or a Prevention of Significant Deterioration permit (otherwise required by 326 IAC 2-2), provided the new emission units are subject to the same applicable requirements listed in this D section, and the Permittee shall comply with the Change Management and Flexible Permit provisions in Section F.2 of this permit.

D.2.8 Leak Detection and Repair

Leak Detection and Repair requirements associated with Narasin emission limits listed in this Section D.2 are specified in section E.3.

SECTION D.3 EMISSIONS UNIT OPERATION CONDITIONS

Emissions Unit Description: AHM - Product Recovery Operations

(a) The following Unit IDs have applicable conditions in this D Section:

Bldg.	Unit ID*	Narasin Emission Unit***	Unit Description	Stack/Vent ID	Control**	Capacity	Units
C45A	BL410	8	RECYCLE BLENDER	PVC45AAC460	Carbon Adsorber CA460**	N/A	N/A
C45A	CENT401 B*	8	CENTRIFUGE	PVC45AAC460	Carbon Adsorber CA460**	N/A	N/A
C45A	CENT401 C*	8	CENTRIFUGE	PVC45AAC460	Carbon Adsorber CA460**	N/A	N/A
C45A	COS401 D	8	SCREW CONVEYOR	PVC45AAC460	Carbon Adsorber CA460**	N/A	N/A
C45A	COS420A	8	SCREW CONVEYOR	PVC45AAC460	Carbon Adsorber CA460**	N/A	N/A
C45A	COS420L	8	SCREW CONVEYOR	PVC45AAC460	Carbon Adsorber CA460**	N/A	N/A
C45A	COS421A *	8	SCREW CONVEYOR	PVC45AAC460	Carbon Adsorber CA460**	N/A	N/A
C45A	COS421L *	8	SCREW CONVEYOR	PVC45AAC460	Carbon Adsorber CA460**	N/A	N/A
C45A	D420	8	DRYER	PVC45AAC460	Carbon Adsorber CA460**	N/A	N/A
C45A	D421	8	DRYER	PVC45AAC460	Carbon Adsorber CA460**	N/A	N/A
C45A	EV450*	8	EVAPORATOR	PVC45AAC460	Vent Condenser HE450E, Carbon Adsorber CA460**	180	Gallons
C45A	SM410A	8	SCREW CONVEYOR MIXER	PVC45AAC460	Carbon Adsorber CA460**	N/A	N/A
C45	TK370A*	9	NEW AMYL TANK	PVC45TK370A		38,265	Gallons
C45	TK370B*	9	NEW AMYL TANK	PVC45TK370B		20,834	Gallons
C45A	TK401*	8	WASH ALCOHOL HOLDING TANK	PVC45AAC460	Carbon Adsorber CA460**	3,620	Gallons

C45A	TK401G*	8	STORAGE TANK	PVC45AAC460	Carbon Adsorber CA460**	1,342	Gallons
C45A	TK450N*	8	STORAGE TANK	PVC45AAC460	Carbon Adsorber CA460**	36	Gallons
C45	VS156	No	TRANSFER BAGHOUSE	PVC45AC156A		N/A	N/A
C45	VS173	No	TRANSFER BAGHOUSE	PVC45AC173		N/A	N/A
C45	VS174	No	TRANSFER BAGHOUSE	PVCAC174A/174B		N/A	N/A
C45A	VS400*	5	TRANSFER BAGHOUSE	PVC45AAC400A		N/A	N/A
C45A	VS420B*	8	TRANSFER BAGHOUSE	PVC45AAC460	Carbon Adsorber CA460**	N/A	N/A
C45A	VS421B*	8	TRANSFER BAGHOUSE	PVC45AAC460	Carbon Adsorber CA460**	N/A	N/A
C45A	VS480A*	8	TRANSFER BAGHOUSE	PVC45AAC460	Carbon Adsorber CA460**	N/A	N/A
C45A	VS480B*	8	TRANSFER BAGHOUSE	PVC45AAC460	Carbon Adsorber CA460**	N/A	N/A
C45	EV101	8	EVAPORATOR	PVC45AAC460	Carbon Adsorber CA460**	9,000	Gallons
C45	TK350C*	8	RECYCLED AMYL TANK	PVC45TK350C		20,834	Gallons
C45	TK350D*	8	RECYCLED AMYL TANK	PVC45TK350D		20,834	Gallons
C45	TK360C*	No	RECYCLED AMYL TANK	PVC45TK360C		20,834	Gallons
C45	TK361C*	No	RECYCLED AMYL TANK	PVC45TK361C		20,834	Gallons

*Emissions units marked with a single asterisk are insignificant activities as defined in 326 IAC 2-7-1(21).
** Control devices marked with a double asterisk are required to meet an applicable limitation.
*** A number indicates the Narasin Emission Unit that the equipment is associated with. A “NO” indicates that the equipment is not associated with the Narasin Process.

(b) The following Unit IDs are not subject to applicable requirements, and are listed only for informational purposes

Bldg.	Unit ID*	Narasin Emission Unit***	Unit Description	Stack/Vent ID	Control**	Capacity	Units
C45	EV002	No	EVAPORATOR	PVC45EV002		9,000	Gallons
C45	TK407*	No	CONTENTS EVAPS CLEANING	PVC45AAC407		15,000	Gallons
C45	TK408*	8	CONTENTS EVAPS CLEANING	PVC45AAC408		15,000	Gallons
C45	C24*	No	CENTRIFUGE	N/A		N/A	N/A
C45	CENT114*	No	CENTRIFUGE	N/A		N/A	N/A

C45	CENT115*	No	CENTRIFUGE	N/A		N/A	N/A
C45	CENT116*	No	CENTRIFUGE	N/A		N/A	N/A
C45	CENT117*	No	CENTRIFUGE	N/A		N/A	N/A
C45	COL201*	No	DISTILLATION COLUMN	PVC45TK201		2,100	Gallons
C45	COL204*	8	DISTILLATION COLUMN	PVC45TK204		3,800	Gallons
C45	COL219*	No	DISTILLATION COLUMN	PVC45TK219		3,800	Gallons
C45	COS109A	No	SCREW CONVEYOR	PVC45AC140A	Carbon Adsorber CA140	N/A	N/A
C45	COS109B*	No	SCREW CONVEYOR	N/A		N/A	N/A
C45	COS109D*	No	SCREW CONVEYOR	N/A		N/A	N/A
C45	COS109G*	No	SCREW CONVEYOR	N/A		N/A	N/A
C45	COS153*	8	SCREW CONVEYOR	PVC45COS153	Vent Sock VS153B	N/A	N/A
C45	COS160A*	No	SCREW CONVEYOR	N/A		N/A	N/A
C45	COS160B*	No	SCREW CONVEYOR	N/A		N/A	N/A
C45	COS260*	No	SCREW CONVEYOR	N/A		N/A	N/A
C45	D160/VLS160	No	DRYER/VAPOR-LIQUID SEPARATOR	PVC45CA140A	Carbon Adsorber CA140	N/A	N/A
C45	D260/VLS260	No	DRYER/VAPOR-LIQUID SEPARATOR	PVC45CA140A	Carbon Adsorber CA140	N/A	N/A
C45	D16/VS16*	No	DRYER/TRANSFER BAGHOUSE	PVC45AC016A		N/A	N/A
C45	DP17*	No	DRUM PACKER	PVC45AC18	Baghouse VS18	N/A	N/A
C45	EV108*	No	EVAPORATOR	PVC45EV108		1,000	Gallons
C45	EV202*	No	EVAPORATOR	PVC45EV202		937	Gallons
C45	FIL109	No	FILTER BELT	PVC45AC140A	Carbon Adsorber CA140	N/A	N/A
C45	VF109*	No	VIBRATORY FEEDER	PVC45AC18	Baghouse VS18	N/A	N/A
C45	H107*	No	HOPPER	PVC45AC18	Baghouse VS18	N/A	N/A
C45	SCF160*	No	SCREW CONV. FEEDER	N/A		N/A	N/A
C45	SCF260*	No	SCREW CONV. FEEDER	N/A		N/A	N/A
C45	SCR17*	No	SCREENER	PVC45AC18	Baghouse VS18	N/A	N/A
C45	SM109*	No	SCREW CONV. MIXER	PVC45AC140A	Carbon Adsorber CA140	N/A	N/A
C45	SM153	No	SCREW CONVEYOR MIXER	PVC45SM153	Vent Sock VS153	N/A	N/A

C45	TK2A*	No	AMYL & WATER TK	N/A		50	Gallons
C45	TK8A*	No	PRODUCTION TK EV 202	PVC45ATK008A		3,000	Gallons
C45	TK8B*	No	PRODUCTION TK EV 202	PVC45ATK008B		3,000	Gallons
C45	TK8C*	No	RINSE WATER TANK	PVC45ATK008C		3,000	Gallons
C45	TK8D*	No	RINSE WATER TANK	PVC45ATK008D		3,000	Gallons
C45	TK8E*	No	RINSE WATER TANK	PVC45ATK008E		3,000	Gallons
C45	TK8F*	No	CLEANING SOLUTION	PVC45ATK008F		100	Gallons
C45	TK14A*	No	PROCESS TANK	PVC45TK14A		1,000	Gallons
C45	TK14B*	No	EVAP. TANK FOR COL 202	PVC45TK14B		1,000	Gallons
C45	TK14C*	No	PROCESS TANK	N/A		1,000	Gallons
C45	TK14D*	No	PROCESS TANK	PVC45TK14D		1,000	Gallons
C45	TK18A*	No	PRODUCTION TANK	PVC45TK18A		1,300	Gallons
C45	TK20*	No	PRODUCTION TANK	PVC45TK020		300	Gallons
C45	TK21*	No	SODIUM SLURRY TANK	PVC45AC140A	Carbon Adsorber CA140	1,100	Gallons
C45	TK22*	No	SODIUM SLURRY TANK	PVC45AC140A	Carbon Adsorber CA140	1,100	Gallons
C45	TK25*	No	CRYSTALS	PVC45AC140A	Carbon Adsorber CA140	500	Gallons
C45	TK107*	No	SOLVENT STORAGE TK	N/A		400	Gallons
C45	TK108B*	No	EVAP. TANK FOR EV 108	N/A		68	Gallons
C45	TK109A*	No	AMYL & WATER	N/A		300	Gallons
C45	TK109C*	No	PRODUCTION TANK	PVC45HE109C		432	Gallons
C45	TK114A*	No	CENTRIFUGE TANK	PVC45AC140A	Carbon Adsorber CA140	470	Gallons
C45	TK114B*	No	CENTRIFUGE TANK	PVC45AC140A	Carbon Adsorber CA140	470	Gallons
C45A	TK147/VS147*	10	STORAGE TANK	PVC45AAC147		50	tons
C45A	TK148/VS148*	10	STORAGE TANK	PVC45AAC148		50	tons
C45	TK149/VS150C*	5	STORAGE TANK	PVC45AAC149		16,638	kg
C45	TK151	No	STORAGE TANK	PVC45TK151	Vent Sock VS151A	N/A	N/A
C45	TK152*	8	MATERIAL HANDLING	PVC45TK152	Vent Sock VS152	N/AV	N/AV

C45	TK153*	8	MATERIAL HANDLING	PVC45TK153	Vent Sock VS153A	N/AV	N/AV
C45	TK201*	No	DECANTER FOR COL201	PVC45TK201		3,000	Gallons
C45	TK202C*	No	PROD. TK FOR EV202	N/A		450	Gallons
C45	TK204*	8	DECANTER FOR COL204	PVC45TK204		N/A	N/A
C45	TK219*	No	DECANTER FOR COL219	PVC45TK219		N/A	N/A
C45	TK350B*	8	STRIPPER FEED TANK	PVC45TK350B		20,834	Gallons
C45	TK360B*	No	STRIPPER FEED TANK	PVC45TK360B		20,834	Gallons
C45	TK361B*	No	STRIPPER FEED TANK	PVC45TK361B		20,834	Gallons
C45	TK350A*	8	DECANTER	PVC45TK350A		20,834	Gallons
C45	TK360A*	No	DECANTER	PVC45TK360A		38,265	Gallons
C45	TK361A*	No	DECANTER	PVC45TK361A		38,265	Gallons
C45	TK380*	No	CLEANING SOLUTION TANK	PVC45TK380		15,000	Gallons
C45	TK381*	No	CLEANING SOLUTION TANK	PVC45TK381		15,000	Gallons
C45A	TK490A*	No	WASTE TANK	PVC45ATK490A		3,500	Gallons
C45A	TK490B*	No	WASTE TANK	PVC45ATK490B		450	Gallons
C45	VS17*	No	VACUUM CLEANING BAGHOUSE	PVC45AC17		N/A	N/A
C45	VS172*	No	TRANSFER BAGHOUSE	PVC45AC172		N/A	N/A
C45	VS107A*	No	TRANSFER BAGHOUSE	PVC45AC107		N/A	N/A
C45	HE204C*	8	Heat Exchanger	N/A		N/A	N/A
C45	HE204B*	8	Heat Exchanger	N/A		N/A	N/A
C45	HE204A*	8	Heat Exchanger	N/A		N/A	N/A
C45	HE204D*	8	Heat Exchanger	N/A		N/A	N/A
C45	HE101H*	8	Heat Exchanger	N/A		N/A	N/A
C45	HE101G*	8	Heat Exchanger	N/A		N/A	N/A
C45	HE101B*	8	Heat Exchanger	N/A		N/A	N/A
C45	HE101A*	8	Heat Exchanger	N/A		N/A	N/A
C45	TK101A*	8	Tank	N/A		N/A	N/A
C45A	TK450A*	8	Tank	N/A		N/A	N/A
C45A	cos410B*	8	Coneyor	N/A		N/A	N/A
C45A	VF400*	8	Feeder	N/A		N/A	N/A
C45A	TK400C*	8	Hopper	N/A		N/A	N/A
C45A	TK450F*	8	Tank	N/A		N/A	N/A
C45A	HE450L*	8	Heat Exchanger	N/A		N/A	N/A
C45A	HE450P*	8	Heat Exchanger	N/A		N/A	N/A
C45A	HE420C*	8	Heat Exchanger	N/A		N/A	N/A
C45A	HE420J*	8	Heat Exchanger	N/A		N/A	N/A

C45A	HE421C*	8	Heat Exchanger	N/A		N/A	N/A
C45A	HE421J*	8	Heat Exchanger	N/A		N/A	N/A
C45A	VLS420C*	8	Condensor/Sep/Receive	N/A		N/A	N/A
C45A	VLS421C*	8	Condensor/Sep/Receive	N/A		N/A	N/A
C45A	FLT480A*	8	Filter	N/A		N/A	N/A
C45A	FLT480B*	8	Filter	N/A		N/A	N/A
C45	TK460*	8	Tank	N/A		N/A	N/A
C45	HE460B*	8	condensor	N/A		N/A	N/A
C45	FLT460*	8	Filter	N/A		N/A	N/A

*Emissions units marked with a single asterisk are insignificant activities as defined in 326 IAC 2-7-1(21).
** Control devices marked with a double asterisk are required to meet an applicable limitation.
*** A number indicates the Narasin Emission Unit that the equipment is associated with. A "NO" indicates that the equipment is not associated with the Narasin Process.

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

Emission Limitations and Standards [326 IAC 2-7-5(1)]

D.3.1 Particulate Matter (PM) [326 IAC 6-3-2]

(a) Pursuant to 326 IAC 6-3-2, particulate matter (PM) emissions from the transfer baghouse VS156 shall not exceed 7.86 pounds per hour based on a maximum throughput of 2.64 tons per hour.

(b) Pursuant to 326 IAC 6-3-2, particulate matter (PM) emissions from the transfer baghouse VS173 shall not exceed 7.86 pounds per hour based on a maximum throughput of 2.64 tons per hour.

(c) Pursuant to 326 IAC 6-3-2, particulate matter (PM) emissions from the transfer baghouse VS174 shall not exceed 9.85 pounds per hour based on a maximum throughput of 3.70 tons per hour.

D.3.2 Volatile Organic Compounds (VOCs) [326 IAC 8-1-6] [326 IAC 2-2-3]

(a) VOC emissions from the equipment routed to stack PVC45AAC460, shall be controlled by carbon adsorber CA460.

(b) The carbon adsorber CA460 shall be operating at all times that the associated equipment is being operated. However, if there is a malfunction of the carbon adsorber CA460, the Permittee may finish processing any material that has entered equipment listed in this Section.

(c) Carbon adsorber CA460 shall reduce VOC emissions by ninety-eight percent (98%), as measured by a comparison of the inlet and outlet concentrations to the carbon adsorber, unless outlet concentrations from the carbon adsorber are equal to or less than 30 parts per million (ppmv). These limitations shall be based on a 24-hour block average when the equipment ducted to CA460 is in operation.

D.3.3 [Reserved]

D.3.4 Preventive Maintenance Plan [326 IAC 2-7-5(13)]

A Preventive Maintenance Plan (PMP) is required for the CA460 carbon adsorber, which is used for compliance with an applicable limitation or standard. The requirements for a Preventive Maintenance Plan are described in Section B, Condition B.10 – Preventive Maintenance Plan.

Leak Detection and Repair Requirements

D.3.5 [Reserved]

Testing and Monitoring Requirements [326 IAC 2-7-6(1)] [326 IAC 2-7-5(1)]

D.3.6 Testing Requirements [326 IAC 2-7-6(1) and (6)]

No emissions testing is required for the emission units described in this Section, at this time, but IDEM may require testing at any specific time when necessary to determine if the facility is in compliance. The requirements for conducting performance tests that may be required by IDEM in the future, are described in Section C, Condition C.8 – Performance Testing.

D.3.7 Continuous Emissions Monitoring [326 IAC 2-1.1-11][326 IAC 3-5]

The Permittee shall continuously monitor the inlet and outlet VOC concentrations for carbon adsorber CA460. Continuous monitoring operation is defined as the collection of at least one measurement for each 15-minute block period while the equipment ducted to CA460 is in operation.

Record Keeping and Reporting Requirements [326 IAC 2-7-5(3)]

D.3.8 Record Keeping Requirements

(a) The Permitte shall maintain records of the continuous monitoring required by Condition D.3.7. The records shall include data required by 326 IAC 3-5-6.

(b) Pursuant to 326 IAC 3-5-4, the Permittee shall maintain a complete, written continuous monitoring standard operating procedure (SOP) for the continuous emissions monitors. The CEMS SOP should contain, at a minimum, the items described in 326 IAC 3-5-4(a).

D.3.9 [Reserved]

Modifications and Construction Requirements [326 IAC 2-7-10.5, 326 IAC 2-12 and 326 IAC 2-2]

D.3.10 Modifications and Construction: Advanced Approval of Permit Conditions

(a) The Non Narasin emission units described in this D.3 Section are not subject to the advance approval permit conditions.

(b) The Permittee may modify Narasin emission unit equipment listed in this section of the permit without obtaining a source modification approval (otherwise required by 326 IAC 2-7-10.5), a Title V permit modification (otherwise required by 326 IAC 2-7-12), or a Prevention of Significant Deterioration permit (otherwise required by 326 IAC 2-2), provided the modified emission units are subject to the same applicable requirements listed in this D section, and the Permittee shall comply with the Change Management and Flexible Permit provisions in Section F.2 of this permit.

(c) The Permittee may construct and install new Narasin emission units of the types described in this D.3 section without obtaining a source modification approval (otherwise required by 326 IAC 2-7-10.5), a Title V permit modification (otherwise required by 326 IAC 2-7-12), or a Prevention of Significant Deterioration permit (otherwise required by 326 IAC 2-2), provided the new emission units are subject to the same applicable requirements listed in this D section, and the Permittee shall comply with the Change Management and Flexible Permit provisions in Section F.2 of this permit.

D.3.11 Leak Detection and Repair

Leak Detection and Repair requirements associated with Emission units listed in this Section D.3 are specified in section E.3

D.3.12 Control Strategy for Volatile Organic Compounds (VOCs) [36 IAC 2-2-3]

To satisfy the BACT requirements for the Narasin process, the Permittee shall apply the control standards, monitoring, and recordkeeping required by D.3.2, D.3.7, D.3.8 no later than April 30, 2010 for the following:

(a) EV101 connection to carbon adsorber CA460;

(b) Any required modifications to CA460 and associated Continuous Emission Monitoring Systems.

Following April 30, 2010, all Narasin Emission Units will satisfy the BACT requirements.

SECTION D.4 EMISSIONS UNIT OPERATION CONDITIONS

Emissions Unit Description: AHM - Product Finishing Operations

(a) The following Unit IDs have applicable conditions in this D Section:

Bldg.	Unit ID*	Narasin Emission Unit***	Unit Description	Stack/Vent ID	Control**	Capacity	Units
C47	BAG185*	11	BAGGER	PVC58AC190	Baghouse VS183, Carbon Adsorber CA190**	N/A	N/A
C47E	BAG813*	No	BAGGER	PVC59AC520	Baghouse VS815B, Carbon Adsorber CA520**	N/A	N/A
C47E	BL808A*	No	BLENDER	PVC59AC520	Baghouse VS815A, Carbon Adsorber CA520**	1,000	Cubic Ft.
C47E	BL808B*	No	BLENDER	PVC59AC520	Baghouse VS815A, Carbon Adsorber CA520**	1,000	Cubic Ft.
C47E	BL809A*	No	BLENDER	PVC59AC520	Baghouse VS815A, Carbon Adsorber CA520**	1,000	Cubic Ft.
C47E	BL809B*	No	BLENDER	PVC59AC520	Baghouse VS815A, Carbon Adsorber CA520**	1,000	Cubic Ft.
C47E	BL811A*	No	BLENDER MIXER	PVC59AC520	Baghouse VS815B, Carbon Adsorber CA520**	1,000	Cubic Ft.
C47E	BL811B*	No	BLENDER MIXER	PVC59AC520	Baghouse VS815B, Carbon Adsorber CA520**	1,000	Cubic Ft.
C47E	BS812*	No	BAG SLITTER	PVC59AC520	Baghouse VS815C, Carbon Adsorber CA520**	N/A	N/A
C47E	BS812A*	No	MANUAL REFEED HOPPER	PVC59AC520	Baghouse VS815C, Carbon Adsorber CA520**	N/AV	N/AV
C47B	COD480*	No	DRAG CONVEYOR	PVC59AC520	Baghouse VS480, Carbon Adsorber CA520**	N/A	N/A
C47B	COD481*	No	DRAG CONVEYOR	PVC59AC520	Baghouse VS480, Carbon Adsorber CA520**	N/A	N/A
C47B	COD490*	No	DRAG CONVEYOR	PVC59AC520	Baghouse VS480, Carbon Adsorber CA520**	N/A	N/A
C47B	COD491*	No	DRAG CONVEYOR	PVC59AC520	Baghouse VS480, Carbon Adsorber CA520**	N/A	N/A
C47	COE185*	11	BUCKET ELEVATOR	PVC58AC190	Baghouse VS183, Carbon Adsorber CA190**	N/A	N/A

C47B	COE440*	No	BUCKET ELEVATOR	PVC59AC520	Baghouse VS470, Carbon Adsorber CA520**	13,200	lb/hr
C47B	COE440A*	No	BUCKET ELEVATOR	PVC59AC520	Baghouse VS460, Carbon Adsorber CA520**	N/A	N/A
C47B	COE450*	No	BUCKET ELEVATOR	PVC59AC520	Baghouse VS460, Carbon Adsorber CA520**	N/A	N/A
C47B	COE451*	No	BUCKET ELEVATOR	PVC59AC520	Baghouse VS460, Carbon Adsorber CA520**	N/A	N/A
C47E	COE805*	No	BUCKET ELEVATOR	PVC59AC520	Baghouse VS815A, Carbon Adsorber CA520**	N/A	N/A
C47E	COE807*	No	BUCKET ELEVATOR	PVC59AC520	Baghouse VS815A, Carbon Adsorber CA520**	N/A	N/A
C47	COS185*	11	SCREW CONVEYOR	PVC58AC190	Baghouse VS183, Carbon Adsorber CA190**	N/A	N/A
C47E	COS458*	No	SCREW CONVEYOR	PVC59AC520	Baghouse VS815A, Carbon Adsorber CA520**	N/A	N/A
C47E	COS805A*	No	SCREW CONVEYOR	PVC59AC520	Baghouse VS815A, Carbon Adsorber CA520**	N/A	N/A
C47E	COS805B*	No	SCREW CONVEYOR	PVC59AC520	Baghouse VS815A, Carbon Adsorber CA520**	N/A	N/A
C47E	COS805C*	No	SCREW CONVEYOR	PVC59AC520	Baghouse VS815A, Carbon Adsorber CA520**	N/A	N/A
C47E	COS805D*	No	SCREW CONVEYOR	PVC59AC520	Baghouse VS815A, Carbon Adsorber CA520**	N/A	N/A
C47E	COS806A*	No	SCREW CONVEYOR	PVC59AC520	Baghouse VS815A, Carbon Adsorber CA520**	N/A	N/A
C47E	COS806B*	No	SCREW CONVEYOR	PVC59AC520	Baghouse VS815A, Carbon Adsorber CA520**	N/A	N/A
C47E	COS806C*	No	SCREW CONVEYOR	PVC59AC520	Baghouse VS815A, Carbon Adsorber CA520**	N/A	N/A
C47E	COS806D*	No	SCREW CONVEYOR	PVC59AC520	Baghouse VS815A, Carbon Adsorber CA520**	N/A	N/A
C47E	COS807*	No	SCREW CONVEYOR	PVC59AC520	Baghouse VS815A, Carbon Adsorber CA520**	N/A	N/A
C47E	COS807A*	No	SCREW CONVEYOR	PVC59AC520	Baghouse VS815A, Carbon Adsorber CA520**	N/A	N/A

C47E	COS808*	No	SCREW CONVEYOR	PVC59AC520	Baghouse VS815A, Carbon Adsorber CA520**	N/A	N/A
C47E	COS809*	No	SCREW CONVEYOR	PVC59AC520	Baghouse VS815A, Carbon Adsorber CA520**	N/A	N/A
C47E	COS810A*	No	SCREW CONVEYOR	PVC59AC520	Baghouse VS815C, Carbon Adsorber CA520**	N/A	N/A
C47E	COS810B*	No	SCREW CONVEYOR	PVC59AC520	Baghouse VS815C, Carbon Adsorber CA520**	N/A	N/A
C47E	COS810C*	No	SCREW CONVEYOR	PVC59AC520	Baghouse VS815C, Carbon Adsorber CA520**	N/A	N/A
C47E	COS810D*	No	SCREW CONVEYOR	PVC59AC520	Baghouse VS815C, Carbon Adsorber CA520**	N/A	N/A
C47E	COS810E*	No	SCREW CONVEYOR	PVC59AC520	Baghouse VS815C, Carbon Adsorber CA520**	N/A	N/A
C47E	COS811A*	No	SCREW CONVEYOR	PVC59AC520	Baghouse VS815B, Carbon Adsorber CA520**	N/A	N/A
C47E	COS811B*	No	SCREW CONVEYOR	PVC59AC520	Baghouse VS815B, Carbon Adsorber CA520**	N/A	N/A
C47E	COS811C*	No	SCREW CONVEYOR	PVC59AC520	Baghouse VS815B, Carbon Adsorber CA520**	N/A	N/A
C47E	COS812A*	No	SCREW CONVEYOR	PVC59AC520	Baghouse VS815C, Carbon Adsorber CA520**	N/A	N/A
C47E	COS812B*	No	SCREW CONVEYOR	PVC59AC520	Baghouse VS815C, Carbon Adsorber CA520**	N/A	N/A
C47E	COS813*	No	SCREW CONVEYOR	PVC59AC520	Baghouse VS815B, Carbon Adsorber CA520**	N/A	N/A
C47	CY006*	11	CYCLONE SEPARATOR	PVC58AC190	Baghouse VS18, Carbon Adsorber CA190**	N/A	N/A
C47	CY008*	11	CYCLONE SEPARATOR	PVC58AC190	Baghouse VS17, Carbon Adsorber CA190**	N/A	N/A
C47B	CY461*	No	CYCLONE SEPARATOR	PVC59AC520	Baghouse VS460, Carbon Adsorber CA520**	N/A	N/A
C47B	CY462*	No	CYCLONE SEPARATOR	PVC59AC520	Baghouse VS460, Carbon Adsorber CA520**	N/A	N/A
C47B	CY471*	No	CYCLONE SEPARATOR	PVC59AC520	Baghouse VS470, Carbon Adsorber CA520**	660	lb/hr

C47	DS101*	5 No	TOTE BAG UNLOAD STATION	PVC47AC285	Baghouse VS285	6.5	Min/Tote
C47B	DS470*	No	TOTE BAG DRUM STATION	PVC59AC520	Baghouse VS480, Carbon Adsorber CA520**	N/A	N/A
C47E	DS811*	No	TOTE BAG DRUM STATION	PVC59AC520	Baghouse VS815B, Carbon Adsorber CA520**	N/A	N/A
C47E	H101	11	HOPPER	PVC47EH101	Vent Sock H101SOCK	N/A	N/A
C47E	H102	No	HOPPER	PVC47EH102	Vent Sock H102SOCK	N/A	N/A
C47E	H103	No	HOPPER	PVC47EH103	Vent Sock H103SOCK	N/A	N/A
C47	H180	11	HOPPER	PVC47H180	Vent Sock H180SOCK	N/A	N/A
C47B	H410*	No	HOPPER	PVC59AC520	Vent Sock H410SOCK	N/A	N/A
C47B	H431*	No	HOPPER	PVC59AC520		N/A	N/A
C47E	H807*	No	HOPPER	PVC59AC520		N/A	N/A
C47E	H807A*	No	HOPPER	PVC59AC520	Baghouse VS815A, Carbon Adsorber CA520**	N/A	N/A
C47E	H812*	No	HOPPER	PVC59AC520	Baghouse VS815C, Carbon Adsorber CA520**	60	Cubic Ft.
C47E	H813C*	No	HOPPER	PVC59AC520	Baghouse VS815B, Carbon Adsorber CA520**	N/A	N/A
C47	PC006*	11	PELLET COOLER	PVC58AC190	Baghouse VS7, Carbon Adsorber CA190**	N/A	N/A
C47B	PC430*	No	PELLET COOLER	PVC59AC520	Baghouse VS430A, Carbon Adsorber CA520**	N/A	N/A
C47	PEL006*	11	PELLET MILL	PVC58AC190		N/A	N/A
C47B	PEL430*	No	PELLET MILL	PVC59AC520	Baghouse VS430A, Carbon Adsorber CA520**	N/A	N/A
C47B	RM440*	No	ROLLER MILL	PVC59AC520	Baghouse VS470, Carbon Adsorber CA520**	N/A	N/A
C47B	RM440A*	No	ROLLER MILL	PVC59AC520	Baghouse VS470, Carbon Adsorber CA520**	N/A	N/A
C47B	RM480*	No	ROLLER MILL	PVC59AC520	Baghouse VS480, Carbon Adsorber CA520**	N/A	N/A
C47B	RM481*	No	ROLLER MILL	PVC59AC520	Baghouse VS480, Carbon Adsorber CA520**	N/A	N/A
C47B	SCR450*	No	SCREENER	PVC59AC520	Baghouse VS460, Carbon Adsorber CA520**	N/A	N/A

C47B	SCR451*	No	SCREENER	PVC59AC520	Baghouse VS460, Carbon Adsorber CA520**	N/A	N/A
C47E	SCR813*	No	SCREENER	PVC59AC520	Baghouse VS815B, Carbon Adsorber CA520**	N/A	N/A
C47B	SCR490*	No	SCREENER	PVC59AC520	Baghouse VS480, Carbon Adsorber CA520**	N/A	N/A
C47B	SCR491*	No	SCREENER	PVC59AC520	Baghouse VS480, Carbon Adsorber CA520**	N/A	N/A
C47	SM182*	11	RIBBON MIXER	PVC58AC190	Baghouse VS183, Carbon Adsorber CA190**	1,000	Cubic Ft.
C47	SM280	No	SCREW MIXER	PVC47SM280	Vent Sock SM280SOCK	N/A	N/A
C47	TB185*	11	TOTE BAGGER	PVC58AC190	Baghouse VS183, Carbon Adsorber CA190**	N/A	N/A
C47E	TB813*	No	TOTE BAG FILLER	PVC59AC520	Baghouse VS815B, Carbon Adsorber CA520**	N/A	N/A
C47E	TK101A	11	STORAGE TANK	PVC47ETK101A		1,900	Cubic Ft.
C47E	TK101B	No	STORAGE TANK	PVC47ETK101B		1,900	Cubic Ft.
C47E	TK102A	No	STORAGE TANK	PVC47ETK102A		N/A	N/A
C47E	TK102B	No	STORAGE TANK	PVC47ETK102B		N/A	N/A
C47E	TK103	No	STORAGE TANK	PVC47EVS103A	Baghouse VS103**	1,900	Cubic Ft.
C47	TK11A*	5	STORAGE TANK	PVC47TK11A	Vent Sock TK11ASOCK**	2,000	Cubic Ft.
C47	TK11B*	5	STORAGE TANK	PVC47TK11B	Vent Sock TK11BSOCK**	2,000	Cubic Ft.
C47	TK132*	No	MINERAL OIL TANK	PVC47TK132		31,087	Gallons
C47	TK181	11	STORAGE TANK	PVC47TK181	Vent Sock TK181SOCK	1,897	Cubic Ft.
C47	TK201A	No	SILO	PVC47AC201	Vent Sock TK201ASOCK**	1,900	Cubic Ft.
C47	TK201B	No	SILO	PVC47AC201		1,900	Cubic Ft.
C47	TK270	No	SILO	PVC47TK270		N/AV	N/AV
C47B	TK420	No	STORAGE TANK	PVC47BVS420		1,900	Cubic Ft.
C47E	TK806A*	No	STORAGE TANK	PVC59AC520	Baghouse VS815A, Carbon Adsorber CA520**	2,000	Cubic Ft.
C47E	TK806B*	No	STORAGE TANK	PVC59AC520	Baghouse VS815A, Carbon Adsorber CA520**	2,000	Cubic Ft.

C47E	TK806C*	No	STORAGE TANK	PVC59AC520	Baghouse VS815A, Carbon Adsorber CA520**	2,000	Cubic Ft.
C47E	TK806D*	No	STORAGE TANK	PVC59AC520	Baghouse VS815A, Carbon Adsorber CA520**	2,000	Cubic Ft.
C47	VS001	11	TRANSFER BAGHOUSE	PVC58AC190	Carbon Adsorber CA190**	N/A	N/A
C47	VS010	11	TRANSFER BAGHOUSE	PVC58AC190	Carbon Adsorber CA190**	N/A	N/A
C47	VS017	11	TRANSFER BAGHOUSE	PVC58AC190	Carbon Adsorber CA190**	N/A	N/A
C47	VS018	11	TRANSFER BAGHOUSE	PVC58AC190	Carbon Adsorber CA190**	N/A	N/A
C47	VS180	11	TRANSFER BAGHOUSE	PVC58AC190	Carbon Adsorber CA190**	N/A	N/A
C47	VS182	11	TRANSFER BAGHOUSE	PVC58AC190	Carbon Adsorber CA190**	N/A	N/A
C47	VS183	11	TRANSFER BAGHOUSE	PVC58AC190	Carbon Adsorber CA190**	N/A	N/A
C47	VS201*	No	TRANSFER BAGHOUSE	PVC47AC201		N/A	N/A
C47	VS210*	No	TRANSFER BAGHOUSE	PVC47AC210		N/A	N/A
C47	VS004	11	TRANSFER BAGHOUSE	PVC58AC190	Carbon Adsorber CA190**	N/A	N/A
C47	VS400	No	TRANSFER BAGHOUSE	PVC59AC520	Carbon Adsorber CA520**	N/A	N/A
C47B	VS410	No	TRANSFER BAGHOUSE	PVC59AC520	Carbon Adsorber CA520**	N/A	N/A
C47B	VS430	No	TRANSFER BAGHOUSE	PVC59AC520	Carbon Adsorber CA520**	N/A	N/A
C47B	VS430A	No	TRANSFER BAGHOUSE	PVC59AC520	Carbon Adsorber CA520**	N/A	N/A
C47B	VS431	No	TRANSFER BAGHOUSE	PVC59AC520	Carbon Adsorber CA520**	N/A	N/A
C47B	VS460	No	TRANSFER BAGHOUSE	PVC59AC520	Carbon Adsorber CA520**	N/A	N/A
C47B	VS470	No	TRANSFER BAGHOUSE	PVC59AC520	Carbon Adsorber CA520**	N/A	N/A
C47B	VS480	No	TRANSFER BAGHOUSE	PVC59AC520	Carbon Adsorber CA520**	N/A	N/A
C47	VS007	11	TRANSFER BAGHOUSE	PVC58AC190	Carbon Adsorber CA190**	N/A	N/A
C47E	VS810A*	No	TRANSFER BAGHOUSE	PVC59AC520	Baghouse VS815C, Carbon Adsorber CA520**	N/A	N/A
C47E	VS810B*	No	TRANSFER BAGHOUSE	PVC59AC520	Baghouse VS815C, Carbon Adsorber CA520**	N/A	N/A
C47E	VS810C*	No	TRANSFER BAGHOUSE	PVC59AC520	Baghouse VS815C, Carbon Adsorber CA520**	N/A	N/A

C47E	VS812*	No	TRANSFER BAGHOUSE	PVC59AC520	Baghouse VS815C, Carbon Adsorber CA520**	N/A	N/A
C47E	VS815A	No	TRANSFER BAGHOUSE	PVC59AC520	Carbon Adsorber CA520**	N/A	N/A
C47E	VS815B	No	TRANSFER BAGHOUSE	PVC59AC520	Carbon Adsorber CA520**	N/A	N/A
C47E	VS815C	No	TRANSFER BAGHOUSE	PVC59AC520	Carbon Adsorber CA520**	N/A	N/A
C47E	WB805	No	WEIGH BELT	PVC59AC520	Baghouse VS815A, Carbon Adsorber CA520**	N/A	N/A
C47E	WH810A*	No	WEIGH HOPPER	PVC59AC520	Baghouse VS815C, Carbon Adsorber CA520**	500	Cubic Ft.
C47E	WH810B*	No	WEIGH HOPPER	PVC59AC520	Baghouse VS815C, Carbon Adsorber CA520**	250	Cubic Ft.
C47E	WH810C*	No	WEIGH HOPPER	PVC59AC520	Baghouse VS815C, Carbon Adsorber CA520**	500	Cubic Ft.
C47C	VS601	11	TRANSFER BAGHOUSE (Transfer Cycle)	PVC58AC190	Carbon Adsorber CA190**	37	kg/min
C47C	VS602	11	TRANSFER BAGHOUSE (Transfer Cycle)	PVC58AC190	Carbon Adsorber CA190**	159	kg/min
			TRANSFER BAGHOUSE (Mix Cycle)			159	
C47C	VS603	11	TRANSFER BAGHOUSE	PVC58AC190	Carbon Adsorber CA190**	159	kg/min
C47C	BS612	11	BAG SLITTER	PVC58AC190	Carbon Adsorber CA190**	131	kg/min
C47C	FD603	11	FEEDER	PVC58AC190	Baghouse VS609**, Carbon Adsorber CA190**	119	kg/min
C47C	FD605	11	FEEDER	PVC58AC190	Baghouse VS609**, Carbon Adsorber CA190**	12	kg/min
C47C	TK610	11	TANK	PVC58AC190	Baghouse VS609**, Carbon Adsorber CA190**	205.5	kg/min
C47C	TK612	11	TANK	PVC58AC190	Baghouse VS609**, Carbon Adsorber CA190**	262	kg/min
C47C	BAG612	11	BAGGER	PVC58AC190	Baghouse VS609**, Carbon Adsorber CA190**	131	kg/min
C47C	FD604	11	FEEDER	PVC58AC190	Baghouse VS609**	38	kg/min
C47C	FD606*	11	FEEDER	PVC58AC190	Baghouse VS609**	35.2	kg/min

* Emission units marked with a single asterisk are insignificant activities as defined in 326 IAC 2-7-1(21).

** Control devices marked with a double asterisk are required to meet an applicable limitation.
***A number indicates the Narasin Emission Unit that the equipment is associated with. A "NO" indicates that the equipment is not associated with the Narasin Process.

(b) The following Unit IDs are not subject to applicable requirements, and are listed only for informational purposes

Bldg.	Unit ID*	Emission Unit	Unit Description	Stack/Vent ID	Control**	Capacity	Units
C47	COS001*	11	SCREW CONVEYOR	N/A		N/A	N/A
C47E	COS101*	5	SCREW CONVEYOR	N/A		N/A	N/A
C47E	COS101A*	No	SCREW CONVEYOR	N/A		N/A	N/A
C47E	COS101B*	No	SCREW CONVEYOR	N/A		N/A	N/A
C47E	COS102*	No	SCREW CONVEYOR	N/A		N/A	N/A
C47E	COS102A*	No	SCREW CONVEYOR	N/A		N/A	N/A
C47E	COS102B*	No	SCREW CONVEYOR	N/A		N/A	N/A
C47E	COS103*	No	SCREW CONVEYOR	N/A		N/A	N/A
C47	COS250A*	No	SCREW CONVEYOR	PVC47AC005B	Baghouse VS005B	N/A	N/A
C47	D250*	No	FLUIDIZED BED DRY	PVC47AC005B	Baghouse VS005B	N/A	N/A
C47	H012*	5	HOPPER	N/A		N/A	N/A
C47	H002*	11	HOPPER	N/A		N/A	N/A
C47	H201*	No	HOPPER	N/A		N/A	N/A
C47	H208*	No	HOPPER	PVC47AC005B	Baghouse VS005B	N/A	N/A
C47	H270*	No	HOPPER	N/A		N/A	N/A
C47	H003*	11	HOPPER	N/A		N/A	N/A
C47	HM006*	11	HAMMER MILL	N/A	Vent Sock HM6SOCK	N/A	N/A
C47	HM008*	11	HAMMER MILL	N/A	Vent Sock HM6SOCK	N/A	N/A
C47	HM250*	No	HAMMER MILL	PVC47AC005B		N/A	N/A
C47	SCR006*	11	SCREENER	N/A		N/A	N/A
C47	SM210A*	No	RIBBON MIXER	PVC47AC005B	Baghouse VS005B	N/A	N/A
C47	SM210B*	No	RIBBON MIXER	PVC47AC005B	Baghouse VS005B	N/A	N/A
C47	SCR250*	No	SCREENERS	PVC47AC005B		N/A	N/A
C47	SUMP003*	No	WASTE SUMP	N/A		4,283	Gallons
C47	TK001A*	11	STORAGE TANK	PVC47TK1A	Vent Sock TK1ASOCK	2,009	Cubic Ft.
C47	TK001B*	11	STORAGE TANK	PVC47TK1B	Vent Sock TK1BSOCK	1,850	Cubic Ft.
C47	TK002*	No	STORAGE TANK	N/A		80	Tons
C47	TK180*	11	STORAGE TANK	N/A		N/A	N/A
C47	TK310*	No	TANK	PVC47TK310		500	Gallons
C47E	TK320*	No	LIQUID WASTE TANK	PVC47TK320		2,400	Gallons
C47	TK320A*	No	TYLOSIN WASTEWATER TANK	PVC47TK320A		175	Gallons
C47	TK330*	No	JACKETED TANK	PVC47 TK330		22,000	Gallons

C47	TK340*	No	TYLOSIN HOT WATER TANK	PVC47TK340		200	Gallons
C47B	TK410A*	No	STORAGE TANK	N/A		36	Tons
C47B	TK410B*	No	STORAGE TANK	N/A		36	Tons
C47B	TK453*	No	WASTE SUMP, PROC. WATER	PVC47TK453		1,000	Gallons
C47	TK006*	11	TRANSFER TANK	N/A		N/A	N/A
C47E	TK803*	No	VEGETABLE OIL TANK	N/A		8,000	Gallons
C47E	TK803A*	No	VEGETABLE OIL TANK	PVC47ETK803A		125	Gallons
C47E	TK804A*	No	MINERAL OIL TANK	PVC47ETK804A		125	Gallons
C47	VS005B*	No	TRANSFER BAGHOUSE	PVC47AC005B		N/A	N/A
C47	VS011*	5	TRANSFER BAGHOUSE	PVC47AC11		N/A	N/A
C47E	VS101*	5	TRANSFER BAGHOUSE	PVC47EAC101A		N/A	N/A
C47E	VS102*	No	TRANSFER BAGHOUSE	PVC47EAC102A		N/A	N/A
C47	VS013*	No	VACUUM CLEANING BAGHOUSE	PVC47AC13		N/A	N/A
C47	VS170A*	No	VACUUM CLEANING BAGHOUSE	PVC47AC170A		N/A	N/A
C47	VS220*	No	TRANSFER BAGHOUSE	PVC47AC220		N/A	N/A
C47	VS270*	No	TRANSFER BAGHOUSE	PVC47AC270		N/A	N/A
C47	VS280*	No	TRANSFER BAGHOUSE	PVC47AC280		N/A	N/A
C47	VS285*	No	TRANSFER BAGHOUSE	PVC47AC285		N/A	N/A
C47B	VS510*	No	VACUUM CLEANING BAGHOUSE	PVC47BAC510		N/A	N/A
C47E	VS815D*	No	VACUUM CLEANING BAGHOUSE	PVC47EAC815D		N/A	N/A
C47C	VS617*	No	VACUUM CLEANING BAGHOUSE	PVC47CAC617		NA	NA
C47C	BL601A*	11	BLENDING SILO (Transfer Cycle)	PVC47CBL601A		37	kg/min
C47C	BL601B*	11	BLENDING SILO (Transfer Cycle)	PVC47CBL601B		37	kg/min
C47C	BL602A*	11	BLENDING SILO (Transfer Cycle) / BLENDING SILO (Mix Cycle)	PVC47CBL602A	(Transfer Cycle) 159 / (Mix Cycle) 159		kg/min
C47C	BL602B*	11	BLENDING SILO (Transfer Cycle) / BLENDING SILO (Mix Cycle)	PVC47CBL602B	(Transfer Cycle) 159 / (Mix Cycle) 159		kg/min
C47C	VS604*	11	TRANSFER BAGHOUSE	PVC47CC604		50	kg/min
C47C	BS606	11	BAG SLITTER	PVC47CBS606		47	kg/min

C47	TK005	11	Tank	N/A		N/A	N/A
C47	H182	11	Hopper	N/A		N/A	N/A
C47	SCR185A	11	Screener	N/A		N/A	N/A
C47	TK185A	11	Tank	N/A		N/A	N/A
C47	BS140	11	Bag Slitter	N/A		N/A	N/A
C47	COE140	11	Conveyor	N/A		N/A	N/A
C47C	HS612	11	Heat Selaer	N/A		N/A	N/A
C47C	NS612	11	Neck Stretcher	N/A		N/A	N/A
C47C	COE605	11	Conveyor	N/A		N/A	N/A
C47C	COE612	11	Conveyor	N/A		N/A	N/A
C47C	TK608	11	Tank	N/A		N/A	N/A
C47C	SCR611	11	Screener	N/A		N/A	N/A
C47C	MX610	11	Mixer	N/A		N/A	N/A
C47C	COE606	11	Conveyor	N/A		N/A	N/A
C47C	TK606	11	Tank	N/A		N/A	N/A
C47C	DS607	11	Dump Station	N/A		N/A	N/A
C47C	COE607	11	Coneyor	N/A		N/A	N/A
C47C	H140	11	Hopper	N/A		N/A	N/A
C47C	FD607	11	Feeder	N/A		N/A	N/A

* Emission units marked with a single asterisk are insignificant activities as defined in 326 IAC 2-7-1(21).
** Control devices marked with a double asterisk are required to meet an applicable limitation.
***A number indicates the Narasin Emission Unit that the equipment is associated with. A “NO” indicates that the equipment is not associated with the Narasin Process.

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

Emission Limitations and Standards [326 IAC 2-7-5(1)]

D.4.1 Particulate Matter (PM) [326 IAC 6-3-2]

Pursuant to 326 IAC 6-3-2, C47 finishing process equipment shall be limited as follows:

Condition Subpart	Unit ID	Stack/Vent ID	Maximum Process Weight Rate (tons/hr)	Emissions Limitation (lb/hr)
a.	H101	PVC47EH101	12.0	21.7
b.	H102	PVC47EH102	9.60	18.7
c.	H103	PVC47EH103	24.0	34.5
d.	SM280	PVC47SM280	0.66	3.11
e.	TK101A	PVC47ETK101A	6.00	13.6
f.	TK101B	PVC47ETK101B	6.00	13.6
g.	TK102A	PVC47ETK102A	4.80	11.7
h.	TK102B	PVC47ETK102B	4.80	11.7
i.	TK103	PVC47EVS103A	24.0	34.5
j.	TK11A	PVC47TK11A	0.06	0.59
k.	TK11B	PVC47TK11B	0.06	0.59
l.	TK181	PVC47TK181	0.79	3.49
m.	TK201A	PVC47AC201	0.47	2.45
n.	TK201B	PVC47AC201	0.47	2.45
o.	TK270	PVC47TK270	0.66	3.11
p.	TK420	PVC47BVS420	0.03	0.36
q.	VS201	PVC47AC201	0.47	2.45
r.	VS210	PVC47AC210	0.47	2.45
s.	H180	PVC47H180	1.57	5.55
t.	FD603	PVC58AC190	7.85	16.31
u.	FD605	PVC58AC190	0.79	3.51
v.	TK610	PVC58AC190	13.56	23.52
w.	TK612	PVC58AC190	17.29	27.68
x.	BAG612	PVC58AC190	8.65	17.40
y.	FD604	PVC58AC190	2.51	7.59
z.	FD606	PVC58AC190	2.32	7.21
aa	DS101	PV47AC285	4.78	11.7

D.4.2 Best Available Control Technology (BACT) [326 IAC 2-2-3] [326 IAC 8-1-6] [SSM 165-12309] [SSM 165-25636-00009]

(a) VOC emissions from the equipment routed to stack PVC59AC520, shall be controlled by carbon adsorber CA520.

(b) The carbon adsorber CA520 shall be operating at all times that the associated equipment is being operated. However, if there is a malfunction of the carbon adsorber CA520, the Permittee may finish processing any material that has entered the pellet mill PEL430.

(c) Carbon adsorber CA520 shall reduce VOC emissions by ninety-five percent (95%), as measured by a comparison of the inlet and outlet concentrations to the carbon adsorber, unless outlet concentrations from the carbon adsorber are equal to or less than 10 parts per million (ppm). These limitations shall be based on a 3-hour block average.

(d) VOC emissions from the equipment routed to stack PVC58AC190, as described in the facility description above, shall be controlled by carbon adsorber CA190.

(e) The carbon adsorber CA190 shall be operating at all times that the associated equipment is being operated. However, if there is a malfunction of the carbon adsorber CA190, the Permittee may finish processing any material that has entered the pellet mill PEL006.

(f) Carbon adsorber CA190 shall reduce VOC emissions by ninety-eight percent (98%), as measured by a comparison of the inlet and outlet concentrations to the carbon adsorber, unless outlet concentrations from the carbon adsorber are equal to or less than 10 parts per million (ppmv). These limitations shall be based on a 24-hour block average when the equipment vented to CA190 is in operation.

D.4.2.1 PM and PM10 Control Requirements

(a) The PM and PM10 emissions from feeders FD603, FD604, FD605, and FD606; tanks TK610 and TK612; waste drum; and bagger BAG612 shall be controlled by baghouse VS609.

(b) Baghouse VS609 shall be operated at all times that the equipment specified in Condition D.4.2.1(a) is being operated. However, if there is a malfunction of Baghouse VS609, the Permittee may finish processing any material that has entered the pellet mill PEL006.

(c) Baghouse VS609 shall reduce particulate matter emissions by 99.9%. This limitation shall be based on a 1-hour block average. Compliance with this condition shall limit the total PM and PM10 emissions to less than 25 and 15 tons/year, respectively, for the emission units described in the modification permitted under SSM 165-25636-00009, and will render 326 IAC 2-2 not applicable to the modification permitted under SSM 165-25636-00009.

D.4.3 Preventive Maintenance Plan [326 IAC 2-7-5(13)]

A Preventive Maintenance Plan is required for the carbon adsorbers CA190 and CA520 and Baghouse VS609. The requirements for a Preventive Maintenance Plan are described in Section B, Condition B.10 – Preventive Maintenance Plan.

D.4.4 [Reserved]

Testing and Monitoring Requirements [326 IAC 2-7-6(1)] [326 IAC 2-7-5(1)]

D.4.5 Testing Requirements [326 IAC 2-7-6(1) and (6)]

No emissions testing is required for the emission units described in this Section, at this time, but IDEM may require testing at any specific time when necessary to determine if the facility is in compliance. The requirements for conducting performance tests that may be required by IDEM in the future, are described in Section C, Condition C.8 – Performance Testing.

D.4.6 Continuous Emissions Monitoring [326 IAC 2-1.1-11] [326 IAC 3-5]

The Permittee shall continuously monitor the inlet and outlet VOC concentrations for carbon adsorbers CA520 and CA190. Continuous monitoring operation is defined as the collection of at least one measurement for each successive 15-minute period.

D.4.7 Visible Emissions Observations [326 IAC 2-1.1-11]

The Permittee shall visually observe the emissions from TK103 exhaust while it is operating at least once per day. TK103 is considered to be operating only when raw materials are being unloaded into the tank. If abnormal emissions are observed, the Permittee shall follow Response to Abnormal or Out-of-Range Compliance Monitoring Measurements in Section C.

Record Keeping and Reporting Requirements [326 IAC 2-7-5(3)]

D.4.8 Record Keeping Requirements

(a) The Permittee shall maintain records of the continuous monitoring required by Condition D.4.6. The records shall include the data required by 326 IAC 3-5-6.

(b) The Permittee shall maintain records of the visible emissions observations required by Condition D.4.7.

(c) Pursuant to 326 IAC 3-5-4, the Permittee shall maintain a complete, written continuous monitoring standard operating procedure (SOP) for the continuous emissions monitors. The CEMS SOP should contain, at a minimum, the items described in 326 IAC 3-5-4(a).

(d) Reserved

D.4.9 Reporting Requirements

(a) Reserved

(b) The Permittee shall prepare and submit a written report of excess emissions of the continuous emissions monitors each calendar quarter. The report must contain the information required by 326 IAC 3-5-7(4).

D.4.10 Reserved

Modifications and Construction Requirements [326 IAC 2-7-10.5, 326 IAC 2-12 and 326 IAC 2-2]

D.4.11 Modifications and Construction: Advanced Approval of Permit Conditions

(a) The Non Narasin emission units described in this D.4 Section are not subject to the advance approval permit conditions.

(b) The Permittee may modify Narasin emission units listed in this section D.4 of the permit without obtaining a source modification approval (otherwise required by 326 IAC 2-7-10.5), a Title V permit modification (otherwise required by 326 IAC 2-7-12), or a Prevention of Significant Deterioration permit (otherwise required by 326 IAC 2-2), provided the modified emission units are subject to the same applicable requirements listed in this D section, and the Permittee shall comply with the Change Management and Flexible Permit provisions in Section F.2 of this permit.

(c) The Permittee may construct and install new Narasin emission units of the types described in this D.4 section without obtaining a source modification approval (otherwise required by 326 IAC 2-7-10.5), a Title V permit modification (otherwise required by 326 IAC 2-7-12), or a Prevention of Significant Deterioration permit (otherwise required by 326 IAC 2-2), provided the new emission units are subject to the same applicable requirements listed in this D section, and the Permittee shall comply with the Change Management and Flexible Permit provisions in Section F.2 of this permit.

D.4.12 Leak Detector and Repair

Leak Detection and Repair requirements associated with Narasin Emission units listed in D.4 are specified in section E.3

D.4.13 Control Strategy for Volatile Organic Compounds (VOCs) 326 IAC 2-2-3]

To satisfy the BACT requirements for the Narasin process, the Permittee shall apply the control standards, monitoring, and recordkeeping required by D.4.2, D.4.6, D.4.8 no later than April 30, 2010 for the following:

(a) Any required modifications to CA190 and associated Continuous Emission Monitoring Systems.

Following April 30, 2010, all Narasin Emission Units will satisfy the BACT requirements.

SECTION D.5 [Reserved]

Emissions Unit Description:

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

Emission Limitations and Standards [326 IAC 2-7-5(1)]

D.5.1 through D.5.5 [Reserved]

Testing and Monitoring Requirements

D.5.6 [Reserved]

Record Keeping and Reporting Requirements [326 IAC 2-7-5(3)] [326 IAC 2-7-19]

D.5.7 [Reserved]

SECTION D.6 [Reserved]

Emissions Unit Description:

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

Emission Limitations and Standards [326 IAC 2-7-5(1)]

D.6.1 through D.6.5 [Reserved]

Testing and Monitoring Requirements

D.6.6 [Reserved]

Record Keeping Requirements [326 IAC 2-7-5(3)] [326 IAC 2-7-19]

D.6.7 [Reserved]

SECTION D.7 [Reserved]

Emissions Unit Description:

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

Emission Limitations and Standards [326 IAC 2-7-5(1)]

D.7.1 through D.7.4 [Reserved]

Testing and Monitoring Requirements

D.7.5 [Reserved]

Record Keeping and Reporting Requirements [326 IAC 2-7-5(3)] [326 IAC 2-7-19]

D.7.6 [Reserved]

SECTION D.8 [Reserved]

Emissions Unit Description:

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

Emission Limitations and Standards [326 IAC 2-7-5(1)]

D.8.1 [Reserved]

D.8.2 [Reserved]

D.8.3 [Reserved]

D.8.4 [Reserved]

Testing and Monitoring Requirements

D.8.5 [Reserved]

Record Keeping and Reporting Requirements [326 IAC 2-7-5(3)] [326 IAC 2-7-19]

D.8.6 [Reserved]

Modifications and Construction Requirements [326 IAC 2-7-10.5, 326 IAC 2-12 and 326 IAC 2-2]

D.8.7 [Reserved]

SECTION D.9 [Reserved]

Emissions Unit Description:

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

Emission Limitations and Standards [326 IAC 2-7-5(1)]

D.9.1 [Reserved]

D.9.2 [Reserved]

Record Keeping and Reporting Requirements [326 IAC 2-7-5(3)] [326 IAC 2-7-19]

D.9.3 [Reserved]

Modifications and Construction Requirements [326 IAC 2-7-10.5, 326 IAC 2-12 and 326 IAC 2-2]

D.9.4 [Reserved]

SECTION D.10 [Reserved]

Emissions Unit Description:

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

Emission Limitations and Standards [326 IAC 2-7-5(1)]

D.10.1 through D.10.2 [Reserved]

Testing and Monitoring Requirements

D.10.3 [Reserved]

Record Keeping and Reporting Requirements [326 IAC 2-7-5(3)] [326 IAC 2-7-19]

D.10.4 [Reserved]

SECTION D.11 [Reserved]

Emissions Unit Description:

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

Emission Limitations and Standards [326 IAC 2-7-5(1)]

D.11.1 [Reserved]

D.11.2 [Reserved]

D.11.3 [Reserved]

Testing and Monitoring Requirements

D.11.4 [Reserved]

D.11.5 [Reserved]

D.11.6 [Reserved]

D.11.7 [Reserved]

D.11.8 [Reserved]

Record Keeping and Reporting Requirements [326 IAC 2-7-5(3)] [326 IAC 2-7-19]

D.11.9 [Reserved]

Modifications and Construction Requirements [326 IAC 2-7-10.5, 326 IAC 2-12 and 326 IAC 2-2]

D.11.10 [Reserved]

SECTION D.12 [Reserved]

Emissions Unit Description:

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

Emission Limitations and Standards [326 IAC 2-7-5(1)]

D.12.1 [Reserved]

D.12.2 [Reserved]

D.12.3 [Reserved]

D.12.4 [Reserved]

D.12.5 [Reserved]

D.12.6 [Reserved]

D.12.7 [Reserved]

D.12.8 [Reserved]

D.12.9 [Reserved]

D.12.10 [Reserved]

D.12.11 [Reserved]

D.12.12 [Reserved]

Simultaneous Operation of T03/T04 Liquid Waste Incinerators

D.12.13 [Reserved]

Testing and Monitoring Requirements

D.12.14 [Reserved]

D.12.15 [Reserved]

D.12.16 [Reserved]

D.12.17 [Reserved]

Record Keeping and Reporting Requirements [326 IAC 2-7-5(3)] [326 IAC 2-7-19]

D.12.18 [Reserved]

D.12.19 [Reserved]

Modifications and Construction Requirements [326 IAC 2-7-10.5, 326 IAC 2-12 and 326 IAC 2-2]

D.12.20 [Reserved]

SECTION D.13 [Reserved]

Emissions Unit Description:

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

Emission Limitations and Standards [326 IAC 2-7-5(1)]

D.13.1 through D.10.7 [Reserved]

Testing and Monitoring Requirements

D.13.8 through D.13.12 [Reserved]

Record Keeping and Reporting Requirements [326 IAC 2-7-5(3)] [326 IAC 2-7-19]

D.13.13 [Reserved]

SECTION D.14 [Reserved]

Emissions Unit Description:

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

Emission Limitations and Standards [326 IAC 2-7-5(1)]

D.14.1 [Reserved]

D.14.2 [Reserved]

D.14.3 [Reserved]

D.14.4 [Reserved]

Testing and Monitoring Requirements

D.15.5 [Reserved]

Record Keeping and Reporting Requirements [326 IAC 2-7-5(3)] [326 IAC 2-7-19]

D.14.6 [Reserved]

Modifications and Construction Requirements [326 IAC 2-7-10.5, 326 IAC 2-12 and 326 IAC 2-2]

D.14.7 [Reserved]

SECTION D.15 [Reserved]

Emissions Unit Description:

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

Emission Limitations and Standards [326 IAC 2-7-5(1)]

D.15.1 [Reserved]

D.15.2 [Reserved]

Record Keeping and Reporting Requirements [326 IAC 2-7-5(3)] [326 IAC 2-7-19]

D.15.3 [Reserved]

Modifications and Construction Requirements [326 IAC 2-7-10.5, 326 IAC 2-12 and 326 IAC 2-2]

D.15.4 [Reserved]

SECTION D.16 EMISSIONS UNIT OPERATION CONDITIONS

Emissions Unit Description: Insignificant Activities

(a) Cold-cleaning organic solvent degreasing operations that do not exceed 145 gallons of solvent usage per 12 months, except if subject to 326 IAC 20-6.

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

Emission Limitations and Standards [326 IAC 2-7-5(1)]

D.16.1 Cold-Cleaner Degreasers Constructed between January 1, 1980 and July 1, 1990 [326 IAC 8-3-2]

For each cold-cleaner degreaser constructed between January 1, 1980 and July 1, 1990, the Permittee shall:

(1) Equip the cleaner with a cover;

(2) Equip the cleaner with a facility for draining cleaned parts;

(3) Close the degreaser cover whenever parts are not being handled in the cleaner;

(4) Drain cleaned parts for at least fifteen (15) seconds or until dripping ceases;

(5) Provide a permanent, conspicuous label summarizing the operating requirements;

(6) Store waste solvent only in covered containers and not dispose of waste solvent or transfer it to another party, in such a manner that greater than twenty percent (20%) of the waste solvent (by weight) can evaporate into the atmosphere.

D.16.2 Cold-Cleaner Degreasers Constructed after July 1, 1990 [326 IAC 8-3-5]

For each cold-cleaner degreaser constructed after July 1, 1990, the Permittee shall ensure that the following control equipment requirements are met:

(1) Equip the degreaser with a cover. The cover must be designed so that it can be easily operated with one (1) hand if:

(A) The solvent volatility is greater than 2 kPa (15 mm Hg or 0.3 psi) measured at 38°C (100°F);

(B) The solvent is agitated; or

(C) The solvent is heated.

(2) Equip the degreaser with a facility for draining cleaned articles. If the solvent volatility is greater than 4.3 kPa (32 mm Hg or 0.6 psi) measured at 38°C (100°F), then the drainage facility must be internal such that articles are enclosed under the cover while draining. The drainage facility may be external for applications where an internal type cannot fit into the cleaning system.

(3) Provide a permanent, conspicuous label which lists the operating requirements outlined in Condition D.16.2(6).

(4) The solvent spray, if used, must be a solid, fluid stream and shall be applied at a pressure which does not cause excessive splashing.

(5) Equip the degreaser with one of the following control devices if the solvent volatility is greater than 4.3 kPa (32 mm Hg or 0.6 psi) measured at 38°C (100°F), or if the solvent is heated to a temperature greater than 48.9°C (120°F):

(A) A freeboard that attains a freeboard ratio of 0.75 or greater.

(B) A water cover when solvent used is insoluble in, and heavier than, water.

(C) Other systems of demonstrated equivalent control such as a refrigerated chiller or carbon adsorption. Such systems shall be submitted to the U.S. EPA as a SIP revision.

(6) The owner or operator of a cold cleaning facility shall ensure that the following operating requirements are met:

(A) Close the cover whenever articles are not being handled in the degreaser.

(B) Drain cleaned articles for at least fifteen (15) seconds or until dripping ceases.

(C) Store waste solvent only in covered containers and not dispose of waste solvent or transfer it to another party, in such a manner that greater than twenty percent (20%) of the waste solvent (by weight) can evaporate into the atmosphere.

Modifications and Construction Requirements [326 IAC 2-7-10.5, 326 IAC 2-7-12 and 326 IAC 2-2]

D.16.3 Modifications and Construction: Advance Approval of Permit Conditions

The emission units described in this D section are not subject to the advance approval permit conditions

SECTION E.1 LEAK DETECTION AND REPAIR (LDAR) CONDITIONS FOR BPM PROCESS SYSTEM COMPONENTS (RESERVED)

Emissions Unit Description:

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

Emission Limitations and Standards [326 IAC 2-7-5(1)]

E.1.1 and E1.2 [Reserved]

E.1.3 [Reserved]

SECTION E.2 LEAK DETECTION AND REPAIR (LDAR) CONDITIONS FOR WASTE SYSTEM COMPONENTS (RESERVED)

Emissions Unit Description:

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

Emission Limitations and Standards [326 IAC 2-7-5(1)]

E.2.1 [Reserved]

E.2.2 [Reserved]

Record Keeping and Reporting Requirements [326 IAC 2-7-5(3)] [326 IAC 2-7-19]

E.2.3 [Reserved]

Modifications and Construction Requirements [326 IAC 2-7-10.5, 326 IAC 2-7-12 and 326 IAC 2-2]

E.2.4 [Reserved]

SECTION E.3 EMISSIONS UNIT OPERATION CONDITIONS

Emissions Unit Description:

The Narasin production areas:

- Fermentation Batch Make-up (EU-1)
- Fermentation Bump Tanks (EU-2)
- Fermenters (EU-3)
- Fermentation Harvest Tanks (EU-4)
- Dry Raw Materials Unloading and Storage (EU-5)
- Liquid Raw Materials Unloading and Storage (EU-6)
- Fermentation Vacuum Cleaning (EU-7)
- Recovery Process (EU-8)
- New Amyl Alcohol Unloading and Storage (EU-9)
- New Clay Unloading and Storage (EU-10)
- Finishing Process (EU-11)

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

Emission Limitations and Standards [326 IAC 2-7-5(1)]

Section E.3.1 LEAK DETECTION AND REPAIR (LDAR) FOR NARASIN PROCESS EQUIPMENT EMISSION UNITS 1 – 11

(a) Applicability: The provisions of this section apply to pumps, agitators, valves, and connectors that are intended to operate in volatile organic compound (VOC) service 300 hours or more during the calendar year within the Narasin facility. Each piece of equipment that can reasonably be expected to be in VOC service is presumed to be in VOC service unless the Permittee demonstrates that the piece of equipment is not in VOC service. 40 CFR 63.180(d) shall apply.

(1) Lines and equipment not containing process fluids are not subject to the provisions of this section. Utilities, and other nonprocess lines, such as heating and cooling systems which do not combine their materials with those in the processes they serve, are considered to not contain process fluids.

(2) Equipment that is in vacuum service is excluded from the requirements of this section.

(3) Equipment that is in VOC service, but which is in such service less than 300 hours per calendar year, is excluded from the requirements of this section if it is identified as exempt.

(4) In VOC service as defined in E.3.1(c)(1) applies.

(b) Compliance schedule: for equipment which is in operation with LDAR requirements on or before the issuance of this permit, compliance is required as of the date of permit issuance. For equipment which does not have LDAR requirements at the issuance of this permit, compliance is required within 60 days of permit issuance or April 30, 2010; whichever is later.

(c) Definitions: Except as itemized below, the definitions found at 40 CFR Part 63, Subpart GGG shall apply.

(1) In Volatile Organic Compound (VOC) service: means that a piece of equipment either contains or contacts a fluid (liquid or gas) that is at least 5 percent by weight of one or a combination of volatile organic compounds as determined according to the provisions of 40 CFR 63.180(d).

(2) Repaired: means that equipment

(A) Is adjusted, or otherwise altered to eliminate a leak as defined in this section, and

(B) Is visually inspected to confirm that the repair has abated the leak, or

(C) If the leak was confirmed by monitoring per Test Method 21, the equipment has been monitored using M21 to verify that emissions are below the applicable leak definition.

(D) M21 monitoring, verifying that emissions are below the leak applicable definition in (e)(1)(A)-(D), may be used to confirm repair of leaks identified by visual, audible, olfactory or other means.

(3) First attempt at repair: means the initial action(s) taken for the purpose of stopping or reducing leakage of VOC to the atmosphere. It does not include visual inspections or instrumental monitoring to confirm whether the attempt was successful.

(4) Method 21: The test method and specifications which appears at 40 CFR 63.180(b) and (c), which incorporates by reference 40 CFR Part 60, Appendix A, Test Method 21 as well as containing additional requirements.

(d) Equipment Identification: Equipment which is subject to the requirements of this section shall be identified such that it can be distinguished from equipment which is not subject. Identification may be done in the field, or by drawings or other means. Components are not required to be individually identified, and no list of component identification numbers is required to be kept.

(e) Leak Identification and Repair

(1) When evidence of a potential leak to the atmosphere is found by visual, audible, olfactory, or any other detection method; pumps, valves, agitators, and connectors, in heavy liquid service may be monitored within 5 calendar days using Method 21 to detect a leak. If Method 21 monitoring is used to detect a leak, the following leak definitions apply:

(A) Valves: 500 ppmv

(B) Pumps: 2000 ppmv

(C) Agitators: 10,000 ppmv

(D) Connectors: 500 ppmv

(2) If Method 21 monitoring is not done, a leak is detected on the date when the evidence of the leak was initially observed.

(3) When each leak is detected by visual, audible, or olfactory means, or by monitoring via Method 21, the following identification requirements apply:

(A) A readily visible marker, containing sufficient information to clearly designate which item of equipment is leaking, shall be attached, to the leaking equipment, or as near as is practicable and safe.

(B) The marker shall also indicate the date the leak was identified, and the individual who identified the leak. If an observation of visual, audible, or olfactory indications of a leak is confirmed as a leak via M21 monitoring, the date of the monitoring is the date the leak was identified, and the individual performing the monitoring is the individual who identified the leak. When a leak is identified by visual, audible, or olfactory observation, and M21 confirmation is not done, the individual who observed the indications of a leak is the individual who identified the leak, and the date of identification is the date the evidence of a leak was first observed.

(C) The identification may be removed after the equipment has been repaired.

(1) When each leak is detected,

(A) The leak shall be repaired as soon as practicable.

(B) A first attempt at repair shall be made not later than 5 calendar days after the leak is detected.

(C) The leak shall be repaired not later than 15 calendar days after the leak is detected.

(5) It is a violation of this section to fail to take action to repair a leak within the specified time. If action is taken to repair the leak within the specified time, failure of that action to successfully repair the leak is not a violation of this section. However, if the repairs are unsuccessful, a leak is detected and the permittee shall take further action as specified in (e)(3) above.

(6) Delay of Repair of equipment for which a leak has been detected is allowed if one of the conditions in (6)(A), (6)(B) or (6)(D) applies:

(A) The repair is technically infeasible without a process shutdown. The physical work to repair this equipment shall occur by the end of the next scheduled process shutdown.

(B) The owner or operator determines that repair personnel would be exposed to an immediate danger if attempting to repair without a process shutdown. The physical work to repair this equipment shall occur by the end of the next scheduled process shutdown.

(C) Repair, as defined in this section (i.e., including inspection or monitoring to confirm success), shall be completed either on the date of equipment restart, or within 15 VOC service days, where the equipment has been in VOC service at any point during the calendar day, after the leak was identified, whichever is later.

(D) The provisions for delay of repair at 40 CFR 63.171(b)-(e) shall also apply.

(f) Recordkeeping

(1) A record explaining how equipment subject to this section is identified such that it can be distinguished from equipment not subject to this section.

(2) For each leak detected:

(A) The date the leak was detected.

(B) Whether the leak was detected using M21 or by visual, audible, olfactory or other evidence.

(C) If the leak was detected using M21, the M21 reading that confirmed the leak.

(D) The individual who detected the leak.

(E) The date of the first attempt to repair the leak.

(F) The date the leak was repaired (whether this was successful or not). This will be the date of the visual, audible, olfactory or other inspection confirming repair of the leak, or the M21 test results confirming repair of the leak.

(G) The result of the visual, audible, olfactory or other inspection confirming repair of the leak, or the M21 test results confirming repair of the leak.

(H) “Repair delayed” and the reason for the delay if a leak is not repaired within 15 calendar days after discovery of the leak. The delay of repair conditions at 40 CFR 63.1255(g)(4)(v)(A) and (B) shall also apply.

(I) If repairs were delayed, dates when the equipment was not in VOC service during the delay of repair period.

(J) If repairs were delayed, dates of process shutdowns that occurred while the equipment was unrepaired.

(3) Records of exempt components: Information identifying equipment which is exempt from this section because is it in VOC service less than 300 hours per calendar year.

SECTION F.1 [Reserved]

Emissions Unit Description:

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

Emission Limitations and Standards [326 IAC 2-7-5(1)]

F.1.1 [Reserved]

F.1.2 [Reserved]

F.1.3 [Reserved]

F.1.4 [Reserved]

F.1.5 [Reserved]

F.1.6 [Reserved]

F.1.7 [Reserved]

Record Keeping and Reporting Requirements [326 IAC 2-7-5(3)] [326 IAC 2-7-19]

F.1.8 [Reserved]

F.1.9 [Reserved]

F.1.10 [Reserved]

F.1.11 [Reserved]

F.1.12 [Reserved]

F.1.13 [Reserved]

Other Flexible Permit Requirements

F.1.14 [Reserved]

F.1.15 [Reserved]

SECTION F.2 EMISSIONS UNIT OPERATION CONDITIONS CHANGE MANAGEMENT AND FLEXIBLE PERMIT CONDITIONS FOR THE NARASIN PROCESS EQUIPMENT

Emissions Unit Description:

The information described in the following paragraphs is descriptive information and does not constitute enforceable conditions:

Section F.2 is applicable to process equipment directly associated with the Narasin production. Some of the equipment associated with Narasin production may be used to make other products (herein referred to as Non Narasin Process) when it is not making Narasin.

The Narasin production equipment that IS affected by the proposed modifications include:

- Fermentation Batch Make-up (Emission Unit: EU-1)
- Fermentation Bump Tanks (EU-2)
- Fermenters (EU-3)
- Fermentation Harvest Tanks (EU-4)
- Dry Raw Materials Unloading and Storage (EU-5)
- Liquid Raw Materials Unloading and Storage (EU-6)
- Fermentation Vacuum Cleaning (EU-7)
- Recovery Process (EU-8)
- New Amyl Alcohol Unloading and Storage (EU-9)
- New Clay Unloading and Storage (EU-10)
- Finishing Process (EU-11)

The areas and manufacturing processes that ARE NOT affected by the proposed modifications include:

- Non-Narasin Fermentation Operations
- Non-Narasin Recovery Operations
- Non-Narasin Finishing Operations Analytical Support Laboratories
- Boilers for steam production
- Utilities operations
- Waste Water Treatment Facilities.

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

Emission Limitations and Standards [326 IAC 2-7-5(1)]

F.2.1 Emission Limits [326 IAC 2-2]

VOC emissions from the facilities operating under the flexible permit conditions shall not exceed three hundred (300) tons per 12-month period, rolled on a calendar month basis.

During the first calendar year after permit issuance; VOC emissions from the facilities operating under the flexible permit conditions shall not exceed twenty five (25) tons multiplied by the number of calendar months the permit has been in effect.

VOC emissions limits from the fermenter emission unit (EU-3) are included in Section D.2.3.

F.2.2 Site Modifications and Advance Approval of Modifications [326 IAC 2-7-5(9)] [326 IAC 2-7-5(16)]

The Permittee may make modifications described in subsection (a) below to the operations described in Section F.2 of this permit. If actual emissions do not exceed the limits in

Section F.2.1, and the Permittee complies with the other provisions of this section, then the Permittee is not required to obtain a source modification approval (otherwise required by 326 IAC 2-7-10.5), a Title V permit modification (otherwise required by 326 IAC 2-7-12), or a Prevention of Significant Deterioration permit (otherwise required by 326 IAC 2-2).

(a) Permitted Modifications
The Permittee may implement changes, including but not limited to, the following modifications in the Narasin Process Equipment (Emission Units 1 - 11) without triggering the administrative review processes described above:

(1) Process changes to the Narasin process, including but not limited to, raw material storage/utilization, process operating conditions, process operating steps, product specifications, final products manufactured;

(2) Changes to existing equipment in the Narasin process, including but not limited to, a physical change to existing equipment, reconstruction, or replacement of existing equipment. Equipment includes but is not limited to: Storage tanks/bins/silos, process tanks/bins/hoppers, cyclones, material transfer equipment/piping/ducting, evaporators, heat exchangers, condensers, columns, mills, coolers, screeners, mixers, feeders, baggers, heat exchangers, decanters, dryers, baghouses;

(3) Addition of new equipment to the Narasin process, including but not limited to, Storage tanks/bins/silos, process tanks/bins/hoppers, cyclones, material transfer equipment/piping/ducting, evaporators, heat exchangers, condensers, columns, mills, coolers, screeners, mixers, feeders, baggers, heat exchangers, decanters, dryers, baghouses;

(4) Reconstruction or replacement of existing production buildings.

(5) Each type of change included in Sections F.2.2(a)(1), F.2.2(a)(2), F.2.2(a)(3), and F.2.2(a)(4) could occur by itself, or in combination with one or more of the other types of changes.

(b) Advance Approval and Applicable Requirements

In addition to the emission limits identified in Condition F.2.1 of this permit, the emission limits and standards, testing and monitoring requirements, record keeping requirements, reporting requirements, and other permit conditions applicable to the type of equipment or operation being modified, replaced, reconstructed or installed are described in Sections D.2, D.3, and D.4 of this permit. Each modification will be subject to the relevant provisions of those permit conditions. If a modification would cause an applicable requirement that is not described in this permit to apply, the Permittee shall obtain a source modification approval if otherwise required by 326 IAC 2-7-10.5 and a Title V permit modification pursuant to 326 IAC 2-7-12.

F.2.3 Volatile Organic Compound (VOC) Emission Limit Determination

The Permittee shall determine actual annual emissions, in tons, each quarter by employing the following techniques:

(a) The following requirements apply to the Carbon Adsorbers CA460 and CA190:
(1) VOC measurement: The requirements for measuring VOC concentrations in the exhaust gas are described in Sections D.3 and D.4.
(2) Gas flow rate measurement: The Permittee shall measure the actual gas flow rate at the carbon adsorbers with a flow monitoring system, or determine it with engineering calculations.

(3) Emission calculation: The Permittee shall calculate VOC emissions by using the VOC concentration data and gas flow rate.

(4) Data substitution:

(A) During periods of CEMS calibration, the Permittee shall substitute in one minute increments, the last valid VOC concentration measurement obtained prior to the calibration in lieu of actual readings from the VOC CEMS.

(B) During periods of flow meter calibration, the Permittee shall substitute in one minute increments, the last valid gas flow rate measurement obtained prior to the calibration in lieu of actual readings from the flow meter.

(C) During periods of CEMS maintenance, malfunction, or repair; other periods of invalid VOC data collection; or any periods when VOC CEMS may not be operating and its operation is not required for compliance the Permittee shall substitute the applicable concentration based limit in lieu of actual readings from the VOC CEMS

(D) During periods of flow meter maintenance, malfunction, or repair; other periods of invalid gas flow rate data collection; or any periods when flow meter may not be operating and its operation is not required for compliance, the Permittee shall substitute span value of the flowmeter or the highest expected flow based on historical operation.

(5) Minimum data collection requirements:
The requirements for monitoring and recording VOC concentrations are described in Section D.3 and D.4.

(b) Emissions not vented to the Carbon Adsorbers CA460/CA190:
The Permittee shall determine monthly point source VOC emissions from emission units not vented through the carbon adsorbers. The Permittee may use engineering calculation methods based on ideal gas law equations, stoichiometry, or mass balance to estimate these emissions.

(c) Emissions during Carbon Adsorber CA460/CA190 bypass periods:
The Permittee shall determine monthly VOC emissions during bypass periods. The Permittee may use engineering calculation methods based on ideal gas law equations, stoichiometry, or mass balance to estimate these emissions.

(d) Fugitive Emissions:

(1) The Permittee shall determine monthly fugitive VOC emissions. Emissions for all component types except connectors will be calculated using the "SOCMI Average Emission factors" found at Table 2-1 of the EPA document "Protocol for Equipment Leak Emission Estimates," EPA-453/R-95-017, November 1995. As this document does not provide for any adjustment in connector emissions for the connector's service conditions, the connector emission factors developed by the Texas Council on Environmental Quality (TCEQ) for that purpose will be used. These are found in the TCEQ document "Emissions Factors for Equipment Leak Fugitive Components" (Addendum to RG-360A, January 2008) The emission control factor for an audible/visible/olfactory leak repair program will also be taken from TCEQ, in this case from the TCEQ document "Air Permit Technical Guidance for Chemical Sources: Equipment Leak Fugitives" (October, 2000).

Record Keeping and Reporting [326 IAC 2-7-5(3)]

F.2.4 Records and Reporting of Emissions

(a) The Permittee shall record and maintain records of all information necessary for estimating emissions including all measurements and calculations described in Conditions F.2.2 and F.2.3.

(b) The Permittee shall submit a quarterly report of actual emissions of VOC, as determined in accordance with Sections F.2.2 and F.2.3.

F.2.5 Records and Reporting of Site Modifications [326 IAC 2-7-5(16)] [326 IAC 2-7-20(a)][40 CFR 63.1259] [40 CFR 63.1260]

(a) Changes made pursuant to advance approval provisions:

The Permittee shall record and maintain records of all modifications that would have otherwise required a revision to this permit pursuant to 326 IAC 2-7-12 or a source modification approval if the provisions of 326 IAC 2-7-10.5 were applicable.

F.2.6 Notifications for Site Modifications [326 IAC 2-1.1-12(c) to (f)]

(a) The Permittee shall submit a notification for any modification that would have otherwise required a source modification approval if the provisions of 326 IAC 2-7-10.5 were applicable, to the address listed in Section C, Condition C.19 – General Reporting Requirements, at least ten (10) days before implementing the modification.

(b) The notification shall include the following information:
(1) The company name and address and source and permit identification numbers;
(2) A description of the physical or operational change, including an estimate of the potential to emit of the emissions associated with the change;
(3) An identification of the emission unit or units being changed on the layout diagram of the source;
(4) The schedule for constructing each physical change and implementing each operational change;
(5) Identification of any applicable requirements that are applicable to the physical or operational change and include any monitoring, record keeping, or reporting requirements;
(6) A statement for all regulated pollutants, except the pollutant for which the emissions limit has been established, that demonstrates that the physical or operational change will not trigger any federal or state permitting requirement for any regulated pollutant; and
(7) A statement that the physical or operational change will not result in emissions greater than the emission limits.

(c) This notification does not require the certification by the “responsible official” as defined by 326 IAC 2-7-1(34).

Other Flexible Permit Requirements

F.2.7 Valid Period for Best Available Control Technology [326 IAC 2-2-3(4)]

The modifications that occur under this permit qualify as a single, ongoing phase of construction and modification to Clinton Laboratories. The BACT requirements established in Sections D.2, D.3, and D.4 shall remain valid over the entire period of this permit. If the time between consecutive modifications exceeds 18 months, the Permittee shall demonstrate that the initial BACT determination incorporated into the permit is still valid or propose new BACT requirements. Upon expiration of this permit, Major New Source Review (NSR) requirements (Prevention of

Significant Deterioration and Nonattainment NSR) shall apply.

F.2.8 NSPS and NESHAP Pre-Construction Notification and Reviews

The provisions of this permit do not relieve the Permittee of the notification and pre-construction approval requirements found in 40 CFR 60.7, 40 CFR 61.07, 40 CFR 61.08, and 40 CFR 63.5. If the Permittee constructs, reconstructs, or modifies an affected facility in a manner that requires notification or pre-construction approval under 40 CFR 60.7, 40 CFR 61.07, 40 CFR 61.08, or 40 CFR 63.5, the Permittee shall comply with those requirements.

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF AIR QUALITY
PART 70 OPERATING PERMIT
CERTIFICATION

Source Name: Eli Lilly and Company - Clinton Laboratories
Source Address: 10500 South Road 63, Clinton, Indiana 47842
Mailing Address: 10500 S SR 63, Clinton, IN 47842
Part 70 Permit No.: T165-27283-00009

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:
Phone:
Date:

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF AIR QUALITY

COMPLIANCE AND ENFORCEMENT BRANCH
100 North Senate Avenue
MC 61-53 IGCN 1003
Indianapolis, Indiana 46204-2251
Phone: (317) 233-0178
Fax: (317) 233-6865

PART 70 OPERATING PERMIT
EMERGENCY OCCURRENCE REPORT

Source Name: Eli Lilly and Company - Clinton Laboratories
Source Address: 10500 South Road 63, Clinton, Indiana 47842
Mailing Address: 10500 S SR 63, Clinton, IN 47842
Part 70 Permit No.: T165-27283-00009

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

□ This is an emergency as defined in 326 IAC 2-7-1(12)

- The Permittee must notify the Office of Air Quality (OAQ), within four (**4**) business hours (1-800-451-6027 or 317-233-0178, ask for Compliance Section); and
- The Permittee must submit notice in writing or by facsimile within two (**2**) working days (Facsimile Number: 317-233-6865), and follow the other requirements of 326 IAC 2-7-16.

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

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

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

Date/Time Emergency started:
Date/Time Emergency was corrected:
Was the facility being properly operated at the time of the emergency? Y N
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 AND ENFORCEMENT BRANCH
PART 70 OPERATING PERMIT
QUARTERLY DEVIATION AND COMPLIANCE MONITORING REPORT

Source Name: Eli Lilly and Company - Clinton Laboratories
Source Address: 10500 South Road 63, Clinton, Indiana 47842
Mailing Address: 10500 S SR 63, Clinton, IN 47842
Part 70 Permit No.: T165-27283-00009

Months: _____ to _ Year: _____

This report shall be submitted quarterly based on a calendar year. Any deviation from the requirements, the date(s) of each deviation, the probable cause of the deviation, and the response steps taken must be reported. A deviation required to be reported pursuant to an applicable requirement that exists independent of the permit, shall be reported according to the schedule stated in the applicable requirement and does not need to be included in this report. Additional pages may be attached if necessary. If no deviations occurred, please specify in the box marked "No deviations occurred this reporting period".

□ NO DEVIATIONS OCCURRED THIS REPORTING PERIOD.

□ THE FOLLOWING DEVIATIONS OCCURRED THIS REPORTING PERIOD

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

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

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

Form Completed by:_____

Title / Position: _____

Date:_____

Phone: _____

Attach a signed certification to complete this report.

Indiana Department of Environmental Management
Office of Air Quality

Addendum to the Technical Support Document (ATSD) for a Part 70 Operating Permit (TITLE V)

Source Background and Description

Source Name:	Eli Lilly and Company - Clinton Laboratories
Source Location:	10500 South State Road 63, Clinton, Indiana 47842
County:	Vermillion
SIC Code:	2833, 2834, 2879
Significant Source Modification No.:	165-27702-00009
Permit Renewal No.:	T165-27283-00009
Permit Reviewer:	Josiah Balogun

On August 28, 2009, the Office of Air Quality (OAQ) had a notice published in The Daily Clintonian, Vermillion, Indiana, stating that Eli Lilly and Company - Clinton Laboratories had applied for a Part 70 Operating Permit (TITLE V) to continue to operate a pharmaceutical manufacturing plant. The notice also stated that OAQ proposed to issue a Title V for this operation and provided information on how the public could review the proposed Title V 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 Title V should be issued as proposed.

On September 25, 2009, Donald G. Blair of Eli Lilly and Company - Clinton Laboratories submitted comments on the proposed Title V Operating Permit. The comments are summarized in the subsequent pages, with IDEM's corresponding responses.

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

The summary of the comments and IDEM, OAQ responses, including changes to the permit (language deleted is shown in ~~strikeout~~ and language added is shown in **bold**) are as follows:

Comment 1: D.1.16 - Construction is misspelled.

Response 1: The typo in Condition D.1.16 - Modifications and Construction has been corrected.

D.1.16 Modifications and **Construction** ~~Construciton~~: Advance Approval of Permit Conditions

The emission units described in this section D are not subject to the advance approval permit conditions.

Comment 2: E.3.1 (c)(2)(D) The following change: M21 monitoring, verifying that emissions are below the leak applicable definition in ~~(5)(a)(i)-(iv)~~ (e)(1)(A)-(D),

Response 2: The citation has been corrected in the permit as specified above.

Section E.3.1 LEAK DETECTION AND REPAIR (LDAR) FOR NARASIN PROCESS EQUIPMENT EMISSION UNITS 1 – 11

.....

(2) Repaired: means that equipment

.....

(D) M21 monitoring, verifying that emissions are below the leak applicable definition in ~~(5)(a)(i)-(iv)~~ (e)(1)(A)-(D), may be used to confirm repair of leaks identified by visual, audible, olfactory or other means.

Comments 3: F.2.3 (a)(4)(D) The following changes: " Permittee shall substitute the span value of the flowmeter ~~of~~ or the highest expected flow based on historical operation"

Response 3: The typo in Condition F.2.3 has been corrected.

F.2.3 Volatile Organic Compound (VOC) Emission Limit Determination

The Permittee shall determine actual annual emissions, in tons, each quarter by employing the following techniques:

(a) The following requirements apply to the Carbon Adsorbers CA460 and CA190:

.....

(4) Data substitution:

.....

(D) During periods of flow meter maintenance, malfunction, or repair; other periods of invalid gas flow rate data collection; or any periods when flow meter may not be operating and its operation is not required for compliance, the Permittee shall substitute span value of the flowmeter ~~of~~ **or** the highest expected flow based on historical operation.

Comments 4: D.3.12 - As section C already outlines the compliance schedules for new permit items, Lilly request the deletion of ONLY ONE PORTION of D.3.12. This line appears to be redundant and could become confusing. ~~All Narasin Emission units with the exception of those listed in D.3.12 (a) and D.3.12 (b) shall satisfy the BACT requirements when the permit becomes effective.~~ The remaining portions of D.3.12 should remain unchanged.

Response 4: The redundant portion of Condition D.3.12 has been deleted from the permit.

D.3.12 Control Strategy for Volatile Organic Compounds (VOCs) [36 IAC 2-2-3]

To satisfy the BACT requirements for the Narasin process, the Permittee shall apply the control standards, monitoring, and recordkeeping required by D.3.2, D.3.7, D.3.8 no later than April 30, 2010 for the following:

(a) EV101 connection to carbon adsorber CA460;

(b) Any required modifications to CA460 and associated Continuous Emission Monitoring Systems.

~~All Narasin Emission units with the exception of those listed in D.3.12 (a) and D.3.12 (b) shall satisfy the BACT requirements when the permit becomes effective~~.

Following April 30, 2010, all Narasin Emission Units will satisfy the BACT requirements.

Comments 5: D.4.13 - As section C already outlines the compliance schedules for new permit items, Lilly request the deletion of ONLY ONE PORTION of D.4.13. This line appears to be redundant and could become confusing. ~~All Narasin Emission units with the exception of~~

~~those listed in D.4.13(a) shall satisfy the BACT requirements when the permit becomes effective.~~ The remaining portions of D.4.13 should remain unchanged.

Response 5: The redundant portion of Condition D.4.13 has been deleted from the permit.

D.4.13 Control Strategy for Volatile Organic Compounds (VOCs) 326 IAC 2-2-3]

To satisfy the BACT requirements for the Narasin process, the Permittee shall apply the control standards, monitoring, and recordkeeping required by D.4.2, D.4.6, D.4.8 no later than April 30, 2010 for the following:

(a) Any required modifications to CA190 and associated Continuous Emission Monitoring Systems.

~~All Narasin Emission Units with the exception of those listed in D.4.13(a) shall satisfy the BACT requirements when the permit becomes effective~~.

Following April 30, 2010, all Narasin Emission Units will satisfy the BACT requirements.

Comments 6: In Section D.3 Table (b), EV101 was left there from the previous permit. It should be moved to Table (a) as it now has requirements per the BACT to be connected to the CA460. The information in the EV101 row has already been updated per the new permit requirements.

Response 6: EV101 has been moved to Table (a) in the permit.

SECTION D.3 EMISSIONS UNIT OPERATION CONDITIONS

Emissions Unit Description: AHM - Product Recovery Operations
(a) The following Unit IDs have applicable conditions in this D Section:

Bldg.	Unit ID*	Narasin Emission Unit***	Unit Description	Stack/Vent ID	Control**	Capacity	Units
*****	********	*******	**********	**********	**********	**********	******
C45	**EV101**	**8**	**EVAPORATOR**	**PVC45AAC460**	**Carbon Adsorber CA460****	**9,000**	**Gallons**
*****	********	*******	**********	**********	**********	**********	******

(b) The following Unit IDs are not subject to applicable requirements, and are listed only for informational purposes

Bldg.	Unit ID*	Narasin Emission Unit***	Unit Description	Stack/Vent ID	Control**	Capacity	Units
*****	********	*******	**********	**********	**********	**********	******
~~C45~~	~~EV101~~	~~8~~	~~EVAPORATOR~~	~~PVC45AAC460~~	~~Carbon Adsorber CA460**~~	~~9,000~~	~~Gallons~~
*****	********	*******	**********	**********	**********	**********	******

Appendix E

Section E: LDAR Program

Background and Description

Section E.3 of the permit identify the leak detection and repair (LDAR) and other fugitive emission control requirements for leaks involving volatile organic compounds (VOC). These emissions occur primarily from small leaks in piping systems, including pumps, valves, open-ended valves or lines, connectors, and instrumentation systems. This section of the TSD describes the LDAR program that will be employed by the Permittee.

Types of Emission Units and Pollution Control Equipment

Fugitive VOC emissions occur the Narasin Recovery and Finishing Operations. Fugitive emissions can be expected from several elements of the solvent/solvent waste distribution and handling systems, including pumps, valves and flanges. LDAR programs are the most widely used systems to control fugitive emissions from these components.

Insignificant Activities

While individual components of piping systems that cause fugitive VOC emissions have low enough emissions to be classified as insignificant activities, this permit looks at such emissions in their entirety. On that basis, they are not classified as insignificant activities.

Existing Approvals

The Permittee has been issued several permits in the past that contain requirements for fugitive VOC emissions. These permits typically address both point source and fugitive emissions from specific large pieces of equipment or operating areas, not fugitive emission components. Because the source is obtaining a PSD permit to address all point and fugitive emissions from the Narasin Recovery and Finishing Operations, the combined PSD/Title V permit will supersede the fugitive emission requirements of the previously issued permits.

Emission Units and Pollution Control Devices Identified Through the Title V Compliance Transition Program

There were no emission units in this section of the permit identified by the source pursuant to the Title V Compliance Transition Program under IC 13-7-7 and non-rule policy document Air-000-NPD [19 IR 1709].

Federal Rule Applicability

The fugitive VOC emissions in the Narasin Recovery and Finishing Operations are not subject to any federal LDAR requirements.

Narasin Recovery and Finishing Operations
In evaluating the benefit that would be derived from the use of a LDAR system for Narasin recovery and/or finishing operations, Lilly first determined whether components would be classified as being in “light liquid” service or “heavy liquid” service. LDAR programs are contained in NSPS in 40 CFR Part 60, Subpart VV (Standards of Performance for Equipment Leaks of VOC in the Synthetic Organic Chemicals Manufacturing Industry) and for MACT standards in 40 CFR Part 63, Subpart H (National Emission Standards for Organic Hazardous Air Pollutants for Equipment Leaks). Both standards utilize a similar definition for “light liquid” service, which is:

> In light liquid service means that a piece of equipment in organic hazardous air pollutant service contains a liquid that meets the following conditions:
>
> (1) The vapor pressure of one or more of the organic compounds is greater than 0.3 kilopascals at 20°C,
>
> (2) The total concentration of the pure organic compounds constituents having a vapor pressure greater than 0.3 kilopascals at 20°C is equal to or greater than 20 percent by weight of the total process stream, and
>
> (3) The fluid is a liquid at operating conditions.

As noted earlier, the VOC used in Narasin recovery and finishing operations is amyl alcohol. Amyl alcohol has a vapor pressure of 1.5 mm mercury at 20° C, or approximately 0.2 kilopascals. Based on the definitions contained in Part 60 and Part 63, amyl alcohol would be considered to be a heavy liquid. Currently, a portion of the Narasin Recovery process is required to perform Leak Detection and Repair according to the provisions of a Lilly-developed LDAR program which references the 1991 proposed HON rule which was later adopted at 40 CFR Part 63, Subpart H. For heavy liquids, this rule requires only prompt repair of identified leakers.

For components in heavy liquid service, existing USEPA LDAR regulations (e.g. Pharma MACT and others), and comparable State requirements (e.g. Texas' TCEQ 28VHP) require, at most, that visible, audible, or olfactory leaks be repaired. No surveys or inspections are mandated. The permit includes a new LDAR Section E.3, which requires that observed leaks be repaired. It is worth noting that the most stringent current Texas Council on Environmental Quality (TCEQ) BACT for VOC fugitives requires application of the TCEQ 28VHP LDAR program. The TCEQ 28VHP LDAR program provides that neither monitoring nor repair requirements apply. USEPA regulations including heavy liquids (compare 40 CFR Part 63, Subpart H and GGG, and 40 CFR Part 60, Subpart VV) generally simply require repair of leaks which may be observed; Lilly's is proposing to do likewise.

A sensory-based Leak Detection and Repair (LDAR) program for inclusion in this flexible permit as BACT for VOC fugitive emissions. Unlike broader LDAR programs, which are meant to be able to address components with a variety of VOCs and service conditions, which may be located intermingled in the field, the new program does not require individual identification of each component. Instead, Lilly will distinguish components subject to the leak repair requirements from those not by identification done in the field, or by drawings or other means. Components requiring repair will have a repair tag attached on or near them, with sufficient information to allow location of the leaking item, but there will not be a list of every component at any point. Such as listing is unneeded, as there is no requirement to quantify the number of components, as might be necessary to perform a percent leaking calculation. The " repair tag" will adequately identify a suspect leaking component during the period when it is being addressed. While there is a legitimate concern that a "repeat leaker" trend may occur unrecognized, it should be noted that no existing LDAR rule actually mandates permanent replacement of a "repeat leaker" component. Further, Lilly has been tracking leak repairs in the Narasin process and has observed no repeat leaking components for many years. In addition, Lilly proposes to retain records of the leaks, and even if the "repair tag" description of a particular component is not identical to its description the next time it leaks, the Narasin process area is small enough that a repeating pattern of leaks is likely to be detected and addressed, if only to minimize the cost of repeated repairs.

Evaluating the net impact of individual changes through the many steps of the Narasin process has historically been a complex task. Bottlenecks throughout the process meant that a confusing and complicated analysis of hundreds of pieces of Narasin equipment was often required when a small change was made to one piece of equipment. This often resulted in Clinton Laboratories having to do hundreds of calculations, likely overstating emissions for each small process change in order to determine the appropriate permitting and impacts of aggregation and bottlenecking.

The table below shows the highest average actual emission estimates for any two consecutive years in the past 10 years from Elanco Animal Health Narasin Operations. These were estimated based on past production rates, data submitted for IDEM emission statements, and emission calculations. VOCs and PM are the only significant pollutants. Only VOCs are applicable to this PSD / Flexible Permit application as future changes to PM are anticipated to not exceed PSD permitting thresholds. Future PM emissions increases will be evaluated against PSD thresholds outside the scope of this PSD / Flexible Permit Application.

The table below also includes the expected actual emission estimates for VOCs. Clinton Laboratories expects that there could be VOC emission increases from Narasin Operations as a result of the proposed modifications and growth in production rates. The values reflect a general estimate of what the site is capable of emitting based on the past actual emissions with increases to reflect realistic changes and growth. Since, under a flexible permit, individual pieces of equipment will not need individual permits a single, an emission unit value is appropriate.

As mentioned earlier, VOC emission calculations are complex and vary depending on the type of emission unit. In general, emissions are calculated using a material balance based on standard chemistry principles. For example:

1. Fermentation: Assumes methyl oleate added is converted to methanol vapor. Emissions are calculated based on stack emissions from historical data, adjusted for throughputs.

2. Recovery: Vapor displacement, purging, heating, depressurization, and vacuum systems based on 40 CFR 63, subpart GGG guidance.

3. Finishing: Emissions are based on historical data of concentrations of Amyl Alcohol in the product as well as inlet and outlet data from the existing carbon adsorber.

In addition, the table below includes potential fugitive emissions. The current Title V Operating Permit requires a Lilly LDAR program only in the C45A area of the Narasin recovery process. This area includes approximately 1800 components. A Potential emission estimate from these components is 30 tons/yr. For future fugitives, the LDAR program will expand into additional areas of Narasin production. It is assumed that the expansion to other existing areas, not currently under the LDAR program, will double the number of components included in the program, by bringing in numerous additional existing components. Future changes within the scope of this PSD / Flexible Permit may then add another 25% to this number resulting in approximately 75 ton/yr potential VOC emissions. The estimates for component emissions were developed using the LDAR counts and SOCMI/TCEQ emission factors, recognizing that Amyl Alcohol is a heavy liquid. Actual emissions from the C45A area currently under LDAR for 2008 were only a fraction of the potential emissions (approximately 1.5 tons/yr).

Elanco Animal Health Narasin Operations Emission Summary

Emission Unit	Description	Volatile Organic Compound [VOC] Actual PSD Estimated Emissions	
		2007 -2008 (tpy)	Expected (tpy)
EU-1	Fermentation Batch Make-up	0	0
EU-2	Fermentation Bump Tanks	0	0
EU-3	Fermenters	29.4	55
EU-4	Fermentation Harvest Tanks	9.7	15
EU-5	Dry Raw Materials Unloading and Storage	0	0
EU-6	Liquid Raw Materials Unloading and Storage	0	0
EU-7	Fermentation Vacuum Cleaning	0	0
EU-8	Recovery Process	32.9	15
EU-9	New Amyl Alcohol Unloading and Storage	1.7	5

EU-10	New Clay Unloading and Storage	0	0
EU-11	Finishing Process	3.2	5
EU-1 thru EU-11	Fugitives	30	75
Total	Total of All EU's and Fugitives	107	170

State Rule Applicability

The fugitive VOC emissions in Narasin Recovery and Finishing Operations are subject to the state fugitive emission control requirements listed below.

Applicable LDAR requirements:

1. PSD Best Available Control Technology Requirements [326 IAC 2-2]

The source has demonstrated that compliance with federal LDAR requirements satisfies the requirements of both these state requirements. Therefore, the source may satisfy the state fugitive emission control requirements by complying with the Pharmaceutical MACT and 40 CFR Part 60, Subpart VV.

Testing and Compliance Requirements

An LDAR program does not employ any testing and compliance requirements beyond the inspections and monitoring within the program itself.

Recordkeeping

(1) A record explaining how equipment subject to this section is identified such that it can be distinguished from equipment not subject to this section.

(2) For each leak detected:

(A) The date the leak was detected.

(B) Whether the leak was detected using M21 or by visual, audible, olfactory or other evidence.

(C) If the leak was detected using M21, the M21 reading that confirmed the leak.

(D) The individual who detected the leak.

(E) The date of the first attempt to repair the leak.

(F) The date the leak was repaired (whether this was successful or not). This will be the date of the visual, audible, olfactory or other inspection confirming repair of the leak, or the M21 test results confirming repair of the leak.

(G) The result of the visual, audible, olfactory or other inspection confirming repair of the leak, or the M21 test results confirming repair of the leak.

(H) "Repair delayed" and the reason for the delay if a leak is not repaired within 15 calendar days after discovery of the leak. The delay of repair conditions at 40 CFR 63.1255(g)(4)(v)(A) and (B) shall also apply.

(I) If repairs were delayed, dates when the equipment was not in VOC service during the delay of repair period.

(J) If repairs were delayed, dates of process shutdowns that occurred while the equipment was unrepaired.

(3) Records of exempt components: Information identifying equipment which is exempt from this section because is it in VOC service less than 300 hours per calendar year.

Indiana Department of Environmental Management
Office of Air Quality

Technical Support Document (TSD) for the Prevention of Significant deterioration (PSD) Flexible Permit and Part 70 Operating Permit Renewal

Source Background and Description

Source Name:	Eli Lilly and Company - Clinton Laboratories
Source Location:	10500 South State Road 63, Clinton, IN 47842
County:	Vermillion
SIC Code:	2833, 2834, 2879
Significant Source Modification No.:	165-27702-00009
Permit Renewal No.:	T165-27283-00009
Permit Reviewer:	Josiah Balogun

The Office of Air Quality (OAQ) has reviewed the operating permit renewal application from Eli Lilly and Company - Clinton Laboratories relating to the operation of a pharmaceutical manufacturing plant**.**

Because Clinton Laboratories is a large and complex source, this technical support document describes source-wide emissions information and regulatory requirements and references the reader to a series of appendices containing more detailed information on various aspects of the plant site.

History

On December 22, 2008, Eli Lilly and Company - Clinton Laboratories submitted an application to the OAQ requesting to renew its operating permit. On March 31, 2009, Eli Lilly and Company - Clinton Laboratories submitted an application for a Prevention of Significant Deterioration (PSD) Flexible Permit. Eli Lilly and Company - Clinton Laboratories was issued a Part 70 Operating Permit Renewal on October 1, 2004.

The Office of Air Quality (OAQ) has reviewed a Part 70 permit application and Prevention of Significant Deterioration (PSD) permit application from Eli Lilly and Company – Clinton Laboratories. The purpose of this Prevention of Significant Deterioration [PSD] / Flexible Permit application is to allow Clinton Laboratories' Narasin Production Processes to be modified through a series of product and process changes, replacement of existing production equipment, and installation of new production equipment. These changes are anticipated to occur without a gap of 18 months or more between any two of them, and would thus be considered continuous construction.

Permitted Emission Units and Pollution Control Equipment

The source consists of the following operating areas that are made up of various types of emission units and pollution control devices. These operating areas correspond to the various "D" sections of the Part 70 permit and are described in more detail in Appendix A of this TSD.

(a) D.1 Utilities Operations: The utilities operations consist of one coal-fired boiler equipped with an ash handling system, four natural gas/fuel oil boilers, and other miscellaneous support equipment. The boilers provide steam to process operations in bulk pharmaceutical manufacturing and animal health manufacturing. The detailed equipment list is located in Section D.1 of this permit.

(b) D.2 Animal Health Manufacturing (AHM) – Fermentation Operations: The fermentation processes include the dry material storage area (C44A), the liquid material storage area (C44), raw material prep area (C43/C43A), the fermentation production areas (C41/C41A) and product

storage area (C41). The detailed equipment list is located in Section D.2 of this permit.

(c) D.3 Animal Health Manufacturing (AHM) – Product Recovery Operations: The whole broth products from fermentation are continuously fed to the product recovery equipment as capacity allows. The product recovery operations consist of extraction, evaporation, centrifugation and drying processes (C45/C45A), solvent recovery (C45/C45A), raw and recovered material storage (C45), and product storage (C45/C45A). The detailed equipment list is located in Section D.3 of this permit.

(d) D.4 Animal Health Manufacturing (AHM) – Product Finishing Operations: The recovered and dried product from product recovery is continuously fed to the product finishing area as capacity allows. The product finishing operations consist of pelletizing, granulation, milling, mixing, conveying, blending and bagging equipment (C47/C47B/C47E). The detailed equipment list is located in Section D.4 of this permit.

Emission Units and Pollution Control Devices Identified Through the Title V Compliance Transition Program

This TSD describes facilities and emission units that were identified by the source pursuant to the Title V Compliance Transition Program under IC 13-7-7 and non-rule policy document Air-000-NPD [19 IR 1709]. Those facilities and emission units are listed in the specific sections of this TSD relating to individual operating areas.

Emission Units and Pollution Control Equipment Constructed and/or Operated without a Permit

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

Emission Units and Pollution Control Equipment Removed From the Source

(a) D.5 Bulk Pharmaceutical Manufacturing (BPM) – Process Operations: The emission units in the BPM production operations can be generally described as process vessels (tanks), crystallizers, filters, centrifuges, dryers, and process condenser systems and are referred to as process vents. The detailed equipment list was in Section D.5 of the initial Title V permit.

(b) D.6 Bulk Pharmaceutical Manufacturing (BPM) – Solvent Recovery Operations: The BPM solvent recovery emission units can be generally described as columns, stills, evaporators, accumulators and receivers and are referred to as process vents. The detailed equipment list was in Section D.6 of the initial Title V permit.

(c) D.7 Bulk Pharmaceutical Manufacturing (BPM) – Solvent Storage Tank Operations: The BPM solvent storage tanks are defined as any vessel designed to store raw material feedstocks or used solvent to be recovered that contain VOCs and/or VOHAP. Pressure vessels greater than 204.9 kPa without emissions to the atmosphere, vessels attached to motor vehicles, or vessels used to store beverage alcohol are not BPM solvent storage tanks. The detailed equipment list was in Section D.7 of the initial Title V permit.

(d) D.8 Bulk Pharmaceutical Manufacturing (BPM) – Waste Storage Tank Operations: The BPM waste storage tanks are defined as any waste management unit designed to contain an accumulation of waste material containing VOCs and/or VOHAP. Pressure vessels greater than 204.9 kPa without emissions to the atmosphere or vessels attached to motor vehicles are not BPM waste storage tanks. The detailed equipment list was in Section D.8 of the initial Title V permit.

(e) D.9 BPM Waste Containers: Waste containers are segregated into small and large containers. A small BPM waste container, such as a drum, contains VOC/VOHAP

with a capacity greater than 26.4 gallons and equal to or less than 110.5 gallons. A large BPM waste container, such as a melon or a tanker truck, contains VOC/VOHAP with a capacity greater than 110.5 gallons. Identification of these types of containers have not been individually listed given they are portable and continually change.

(f) D.10 BPM Individual Drain Systems (IDSs): The BPM IDSs consist of stationary systems used to convey affected wastewater streams to a waste management unit. Segregated stormwater sewer systems, designed and operated for the sole purpose of collecting rainfall-runoff at a facility, and segregated from all other IDSs, are excluded from this definition. The detailed equipment list was in Section D.10 of the initial Title V permit.

(g) D.11 BPM Control Systems – RTO Operations: The regenerative thermal oxidizer (RTO) system consists of a closed-vent system that transports fume streams exhausted from the BPM manufacturing and support operations to the RTOs. The RTOs, designed to thermally destruct the VOC and/or VOHAP laden fume streams from the process and support operations, are also equipped with caustic scrubbing systems to control hydrogen halide and halogen emissions. The detailed equipment list was in Section D.11 of the initial Title V permit.

(h) D.12 BPM Control Systems – TO3/TO4 Liquid Waste Incinerators: The TO3/TO4 liquid waste incinerators provide treatment of Lilly hazardous and non-hazardous waste to support its operational requirements, including high Btu liquids (primary waste) and low Btu liquids (secondary waste). The TO3/TO4 incinerators consist of a primary combustion chamber followed by a wet quench system, a condenser/absorber, a Hydro-Sonic® scrubber, a polishing scrubber, and a stack with continuous emissions monitoring. The detailed equipment list was in Section D.12 of the initial Title V permit.

(i) D.13 BPM Control Systems – Bartlett-Snow Solid Waste Incinerator: The Bartlett-Snow solid waste incinerator provides treatment of Lilly hazardous and non-hazardous solid waste to support its operational requirements. The Bartlett-Snow incinerator consists of a rotary kiln and afterburner, a packed bed scrubber, a Hydro-Sonic® scrubber, and a stack. The detailed equipment list was in Section D.13 of the initial Title V permit.

(j) D.14 BPM General Wastewater Conditions: This section does not contain any regulated equipment but provides general definitions and conditions for the D sections which include requirements for equipment managing wastewater.

(k) D.15 BPM Waste Transfer Activities: This section does not contain any regulated equipment but provides specific requirements for shipping and accepting shipments of affected wastewater.

Insignificant Activities

Most insignificant activities are noted in the specific sections of the TSD relating to an individual operating area. The source also consists of the following insignificant activities, as defined in 326 IAC 2-7-1(21), not otherwise listed in specific sections of this TSD:

(a) Natural gas-fired combustion sources with heat input equal to or less than ten million (10,000,000) Btu per hour;

(b) Propane or liquefied petroleum gas, or butane-fired combustion sources with heat input equal to or less than six million (6,000,000) Btu per hour;

(c) Equipment powered by internal combustion engines of capacity equal to or less than 500,000 Btu/hour, except where total capacity of equipment operated by one

stationary source exceeds 2,000,000 Btu/hour;

(d) Combustion source flame safety purging on startup;

(e) A gasoline fuel transfer and dispensing operation handling less than or equal to 1,300 gallons per day, such as filling of tanks, locomotives, automobiles, having a storage capacity less than or equal to 10,500 gallons;

(f) A petroleum fuel, other than gasoline, dispensing facility, having a storage capacity of less than or equal to 10,500 gallons, and dispensing less than or equal to 230,000 gallons per month;

(g) VOC/HAP storage tanks with capacity less than or equal to 1,000 gallons and annual throughputs less than 12,000 gallons;

(h) VOC/HAP storage vessels storing lubricating oils, hydraulic oils, machining oils, and machining fluids;

(i) Filling drums, pails or other packaging containers with lubricating oils, waxes, and greases;

(j) Cleaners and solvents with a combined use less than or equal to 145 gallons per 12 months characterized having a vapor pressure equal to or less than 2 kPa, 15 mm Hg, or 0.3 psi measured at 38°C (100°F); or having a vapor pressure equal to or less than 0.7 kPa, 5 mm Hg, or 0.1 psi measured at 20°C (68°F);

(k) Closed loop heating and cooling systems;

(l) Activities associated with the transportation and treatment of sanitary sewage, provided discharge to the treatment plant is under the control of the owner/operator, that is, an on-site sewage treatment facility;

(m) Any operation using aqueous solutions containing less than 1% by weight of VOCs excluding HAPs;

(n) Water based adhesives that are less than or equal to 5% by volume of VOCs excluding HAPs;

(o) Noncontact cooling tower systems that are forced and induced draft cooling tower systems not regulated under a NESHAP;

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

(q) Heat exchanger cleaning and repair;

(r) Process vessel degassing and cleaning to prepare for internal repairs;

(s) Stockpiled soils from soil remediation activities that are covered and waiting transport for disposal;

(t) Paved and unpaved roads and parking lots with public access;

(u) Covered conveyors for coal or coke conveying of less than or equal to 360 tons per day;

(v) Coal bunker and coal scale exhausts and associated dust collector vents;

(w) Asbestos abatement projects regulated by 326 IAC 14-10;

(x) Purging of gas lines and vessels that is related to routine maintenance and repair of buildings, structures, or vehicles at the source where air emissions from those activities would not be associated with any production process;

(y) Equipment used to collect any material that might be released during a malfunction, process upset, or spill cleanup including catch tanks, temporary liquid separators, tanks and fluid handling equipment;

(z) Blowdown from sight glasses; boilers; compressors; pumps; and cooling towers;

(aa) On-site fire and emergency response training approved by the department;

(bb) Emergency generators including gasoline generators not exceeding 110 horsepower, diesel generators not exceeding 1,600 horsepower; and natural gas turbines or reciprocating engines not exceeding 16,000 horsepower;

(cc) Stationary fire pumps;

(dd) Purge double block and bleed valves;

(ee) Filter or coalescer media changeout;

(ff) Vents from ash transport systems not operated at positive pressure;

(gg) A laboratory as defined in 326 IAC 2-7-1(21)(D); and

(hh) Farm operations.

(ii) Other activities below insignificant threshold levels:

(A) Building C86 10,000-gallon storage tank or other portable container(s) for storing hexane used for fire training with emissions less than 5 pounds per day or 1 ton per year of a single HAP.

(B) Tanks C9TK01, TK02, TK03, TK04 TK6A TK09, TK10 TK11, TK12, TK13, TK14, TK15, TK16, TK17, TK19 and TK20 may be used for insignificant activities.

(C) Waste water treatment system with VOC emissions less than three (3) pounds per hour or fifteen (15) pounds per day.

(jj) D.2 Animal Health Manufacturing (AHM) – Fermentation Operations: Various mixers, bump tanks and fementer tanks in the fermentation operations each emitting less than 5 pounds PM10 per hour or 25 pounds per day. [326 IAC 6-3-2].

(kk) D.16 Insignificant Activities: This section provides specific requirements for cold-cleaning organic solvent degreasing operations at the site which are defined as insignificant activities pursuant to 326 IAC 2-7-1(21)(G)(vi)(CC).

Existing Approvals

Since the issuance of the Part 70 Operating Permit T165-6462-00009 on October 1, 2004, the source has constructed or has been operating under the following approvals as well:

(a) Significant Permit Modification No. 165-22481-00009, issued on March 4, 2008;

(b) Significant Source Modification No. 165-25636-00009, issued on July 29, 2008;

(c) Significant Permit Modification No. 165-25674-00009, issued on August 21, 2008; and

(d) Appeal Resolution No. 165-26307-00009, issued on December 18, 2008.

All terms and conditions of previous permits issued pursuant to permitting programs approved into the state implementation plan have been either incorporated as originally stated, revised, or deleted by this permit. All previous registrations and permits are superseded by this permit.

Enforcement Issue

There are no enforcement actions pending.

Emission Calculations

The calculation methodologies submitted by the applicant have been verified and found to be accurate and correct. These calculation methodologies can be found in the documentation accompanying the original Part 70 permit application for the source.

County Attainment Status

The source is located in Vermillion County

Pollutant	Designation
SO_2	Better than national standards.
CO	Unclassifiable or attainment effective November 15, 1990.
O_3	Unclassifiable or attainment effective June 15, 2004, for the 8-hour ozone standard.[1]
PM_{10}	Attainment effective October 27, 1997, for the part of Clinton Township that includes sections 15, 16, 21, 22, 27, 28, 33, and 34. Unclassifiable effective November 15, 1990, for the remainder of Vermillion County.
NO_2	Cannot be classified or better than national standards.
Pb	Not designated.
[1]Unclassifiable or attainment effective October 18, 2000, for the 1-hour ozone standard which was revoked effective June 15, 2005. Unclassifiable or attainment effective April 5, 2005, for PM2.5.	

(a) Ozone Standards

(1) Volatile organic compounds (VOC) and Nitrogen Oxides (NOx) are regulated under the Clean Air Act (CAA) for the purposes of attaining and maintaining the National Ambient Air Quality Standards (NAAQS) for ozone. Therefore, VOC and NOx emissions are considered when evaluating the rule applicability relating to ozone. Vermillion County has been designated as attainment or unclassifiable for ozone. Therefore, VOC and NOx emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2.

(b) PM2.5

Vermillion County has been classified as attainment for PM2.5. On May 8, 2008 U.S. EPA promulgated the requirements for Prevention of Significant Deterioration (PSD) for PM2.5 emissions, and the effective date of these rules was July 15th, 2008. Indiana has three years from the publication of these rules to revise its PSD rules, 326 IAC 2-2, to

include those requirements. The May 8, 2008 rule revisions require IDEM to regulate PM10 emissions as a surrogate for PM2.5 emissions until 326 IAC 2-2 is revised.

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

(d) Fugitive Emissions
Since this type of operation is in one of the twenty-eight (28) listed source categories under 326 IAC 2-2 or 326 IAC 2-3, fugitive emissions are counted toward the determination of PSD and Emission Offset applicability.

Unrestricted Potential Emissions

This table reflects the unrestricted potential emissions of the source.

Pollutant	tons/year
PM	> 100
PM_{10}	> 100
SO_2	> 100
VOC	> 100
CO	> 100
NO_x	> 100

HAPs	tons/year
Single HAP	> 10
Total HAPs	> 25

(a) The potential to emit (as defined in 326 IAC 2-7-1(29)) of all the pollutants are equal to or greater than 100 tons per year. Therefore, the source is subject to the provisions of 326 IAC 2-7.

(b) The potential to emit (as defined in 326 IAC 2-7-1(29)) of any single HAP is equal to or greater than ten (10) tons per year and/or the potential to emit (as defined in 326 IAC 2-7-1(29)) of a combination of HAPs is equal to or greater than twenty-five (25) tons per year. Therefore, the source is subject to the provisions of 326 IAC 2-7.

Part 70 Permit Conditions

This source is subject to the requirements of 326 IAC 2-7, pursuant to which the source has to meet the following:

(a) Emission limitations and standards, including those operational requirements and limitations that assure compliance with all applicable requirements at the time of issuance of Part 70 permits.

(b) Monitoring and related record keeping requirements which assume that all reasonable information is provided to evaluate continuous compliance with the applicable requirements.

Permit Level determination - Part 70

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

The modification consists of Prevention of Significant Deterioration [PSD] / Flexible Permit for VOC. Therefore, this source modification shall be processed as PSD/Significant Source Modification pursuant to 326 IAC 2-7-10.5(f)(1). Additionally, the modification will be incorporated into the Part 70 Operating Permit through the Renewal Permit.

Potential to Emit After Issuance

The table below summarizes the potential to emit, reflecting all limits, of the emission units. Any control equipment is considered federally enforceable only after issuance of this Part 70 permit renewal, and only to the extent that the effect of the control equipment is made practically enforceable in the permit.

Process/ Emission Unit	PM (tons/yr)	PM_{10} (tons/yr)	$PM_{2.5}$ (tons/yr)	SO_2 (tons/yr)	VOC (tons/yr)	CO (tons/yr)	NO_X (tons/yr)
Source-wide	> 100	> 100	> 100	> 100	> 100	> 100	> 100
Total Emissions	> 100	> 100	> 100	> 100	> 100	> 100	> 100

This existing stationary source is major for PSD because the emissions of at least one regulated pollutant are greater than one hundred (>100) tons per year, and it is one of the twenty-eight (28) listed source categories.

Federal Rule Applicability

(a) Pursuant to 40 CFR 64.2, Compliance Assurance Monitoring (CAM) is applicable to existing emission units that involve a pollutant-specific emission unit and meet the following criteria:

(1) has a potential to emit before controls equal to or greater than the major source threshold for the pollutant involved;

(2) is subject to an emission limitation or standard for that pollutant; and

(3) uses a control device, as defined in 40 CFR 64.1, to comply with that emission limitation or standard.

The following table is used to identify the applicability of each of the criteria, under 40 CFR 64.1, to each existing emission unit and specified pollutant subject to CAM:

Emission Unit / Pollutant	Control Device Used	Emission Limitation (Y/N)	Uncontrolled PTE (tons/year)	Controlled PTE (tons/year)	Major Source Threshold (tons/year)	CEMS Applicable (Y/N)	CAM Applicable (Y/N)	Large Unit (Y/N)
C31 BLR 01 (SO2)	N	Y	>100	> 100	100	N	N	Y
C21 BLR01, BLR02, BLR03 and BLR04 (SO2)	N	Y	>100	> 100	100	N	N	N
C31 BLR 01 (PM10)	N	Y	> 100	> 100	100	N	N	N
C31 BLR 01 (PM)	Y	Y	> 100	< 100	100	N	Y	N
Narasin Process Equipment (VOC)	Y	Y	< 100	< 100	100	Y	N	N
Monensin Product Finishing Process equipment (VOC)	Y	Y	> 100	< 100	100	Y	N	N
Narasin Product Finishing Process Equipment (VOC)	Y	Y	> 100	< 100	100	Y	N	N

Based on this evaluation, the requirements of 40 CFR Part 64, CAM are applicable to C31 BLR 01 for PM upon issuance of the Title V Renewal. A CAM plan will be incorporated into this Part 70 permit renewal.

Based on this evaluation, the requirements of 40 CFR Part 64, CAM are not applicable to the Narasin process Equipmet, Monensin Product Finishing Process Equipment and Narasin Product Finishing Process Equipmet for VOC because the equipments are subject to compliance emission monitoring systems (CEMS) method for compliance.

Based on this evaluation, the requirements of 40 CFR Part 64, CAM are not applicable to the boilers, identified as C21 BLR01, BLR 02, BLR 03 and BLR 04 for PM, PM10 and SO2 as part of this Part 70 permit renewal.

Federal Rule Applicability – New Source Performance Standards (NSPS)
[40 CFR Part 60 and 326 IAC 12]

(a) **NSPS applicable to source:**

(1) **Subpart A – General Provisions:** The provisions of 40 CFR Part 60, Subpart A apply to the facilities described in item (2) below except when otherwise specified in the relevant Subpart.

(b) **NSPS not applicable to source:** IDEM has determined that the following NSPS are not applicable to this source:

(1) **Subpart D – Fossil-fuel fired steam generating units:** This source is not subject to 40 CFR Part 60, Subpart D because none of the boilers at the plant site exceed 250 MMBtu/hr in heat input capacity. [40 CFR 60.40(a)(1)]

(2) **Subpart Db – Industrial-Commercial-Institutional steam generating units:** This source is not subject to 40 CFR Part 60, Subpart Db because none of the boilers at plant site were constructed, reconstructed, or modified after June 19, 1984. [40 CFR 60.40b(a)]

(3) **Subpart Dc – Industrial-Commercial-Institutional steam generating units:** This source is not subject to 40 CFR Part 60, Subpart Dc because none of the boilers at plant site were constructed, reconstructed, or modified after June 9, 1989. [40 CFR 60.40c(a)]

(4) **All other NSPS:** This source is not subject to other NSPS requirements not listed here because the source does not own or operate the affected facilities subject to those NSPS.

(5) **Subpart Kb – Solvent Storage Tanks:** The solvent storage tanks are not subject to Subpart Kb because they store a volatile organic liquid with a vapor pressure less than 3.5 kilopascals (kPa). [40 CFR 60.110b(b)

Federal Rule Applicability – Section 111(d) Emission Guidelines
[40 CFR Part 60 and 326 IAC 11]

(a) **Emissions guidelines not applicable to source:** With the exception of the rules listed below, IDEM has determined that the none of the emission guidelines in 40 CFR Part 60, 40 CFR Part 62, Subpart P, and 326 IAC 11 are applicable to this source because the source does not own or operate an affected facility subject to those requirements.

Federal Rule Applicability – National Emission Standards for Hazardous Air Pollutants (NESHAPs)
[40 CFR Part 61 and 326 IAC 14]

(a) **Part 61 NESHAPs applicable to source:**

(1) **Subpart A – General Provisions:** The provisions of 40 CFR 61, Subpart A - General Provisions, apply to the facilities described in items (2) through (4) below, except when otherwise specified in the relevant Subpart.

(2) **Subpart M – Asbestos:** This source is subject to 40 CFR Part 61, Subpart M and 326 IAC 14-10, which applies to, among other things, demolition and renovation operations and asbestos containing materials. The requirements of this NESHAP are reflected in Condition C.7 of this permit.

(b) **Part 61 NESHAPs not applicable to source:** IDEM has determined that the following NESHAPs are not applicable to this source:

(1) **Part 61 NESHAP:** This source is not subject to Part 61 NESHAP requirements not listed here because the source does not own or operate the affected facilities subject to those NESHAPs.

Federal Rule Applicability – National Emission Standards for Hazardous Air Pollutants (NESHAPs) [40 CFR Part 63 and 326 IAC 20]

(a) **Part 63 NESHAPs applicable to source:**

(1) **Subpart A – General Provisions:** The provisions of 40 CFR 63, Subpart A apply to the facilities described in items (2) through (9) below, except when otherwise specified in the relevant Subpart.

(2) **Subpart B – Case-by-case MACT determination:** The Permittee submitted a Part 1 MACT Application indicating that the source may be subject to the requirements of Section 112(j) of the Clean Air Act on May 14, 2002. The requirements of Section 112(j) of the Clean Air Act (40 CFR Part 63.50 through 63.56) are no longer applicable because the EPA finalized rules on February 26, 2004 for the remaining source categories that Lilly indicated might be applicable in their Part 1 MACT Application. Pursuant to 40 CFR 63.50(c), since final standards have been promulgated for Lilly's source categories, the source categories are no longer affected by Section 112(j) Maximum Achievable Control Technology (MACT) Hammer. IDEM has evaluated the final standards to determine if the final standards are applicable and has explained the determination if the standards are applicable within this technical support document.

(b) **Part 63 NESHAPs not applicable to source:** IDEM has determined that the following NESHAPs are not applicable to this source:

(1) **Subpart Q – Industrial Process Cooling Towers:** This source is not subject to 40 CFR Part 63, Subpart Q and 326 IAC 20-4 because the source does not utilize chromium based water treatment compounds in its cooling towers. [40 CFR 63.400]

(2) **Subpart T – Halogenated Solvent Cleaning:** This source is not subject to 40 CFR Part 63, Subpart T and 326 IAC 20-6 because the source does not use halogenated solvents in any solvent cleaning machines. [40 CFR 63.460]

(3) **Subpart MMM – Pesticide Active Ingredient Production:** This source is not subject to 40 CFR Part 63, Subpart MMM and 326 IAC 20-45 because the source does not contain any pesticide active ingredient process units or associated equipment as described in 40 CFR 63.1360. [40 CFR 63.1360]

(4) **Subpart GGGGG – Site Remediation:** This source is not subject to 40 CFR Part 63, Subpart GGGGG because the site is not conducting remediation activities as defined in Subpart GGGGG.

(5) **Other Part 63 NESHAPs:** This source is not subject to other NESHAP requirements not listed here because the source does not own or operate the affected facilities subject to those NESHAPs.

Federal Rule Applicability – Other Provisions

(a) **Part 68 – Chemical Accident Prevention:** The provisions of 40 CFR Part 68 and 326 IAC 20-2 are applicable to this source because the source may have more than a threshold quantity of a substance regulated by Part 68. The source is required to prepare a Risk Management Plan meeting the requirements of Part 68. The source submitted its most recent plan on January 3, 2003.

(b) **Part 70 – Operating Permits:** This source is a major source, as defined by 40 CFR 70.2 and 326 IAC 2-7-1, and is subject to the Part 70 operating permits program. This permit serves as the Part 70 operation permit for the source.

(c) **Parts 72-78 – Acid Rain Program Provisions:** This source is not an affected source subject to the Acid Rain Program Provisions found in 40 CFR Parts 72-78 and 326 IAC 21.

(d) **Part 82 – Protection of Stratospheric Ozone:** This source conducts maintenance of appliances containing ozone depleting substances, and therefore is subject to the recycling and emission reduction requirements of 40 CFR Part 82, Subpart F. Condition C.19 of this permit describes the requirements of these provisions.

(e) **Other Clean Air Act Regulations:** This source is not subject to other Clean Air Act requirements not listed in this permit because the source does not own or operate the affected facilities subject to those requirements nor does it conduct the activities subject to those requirements.

State Rule Applicability - Entire Source

326 IAC 2-2-3 (PSD BACT: Control Technology Review Requirements)
Pursuant to PSD/Operating Permit 165-27283-00009 and 326 IAC 2-2-3 (Prevention of Significant Deterioration (PSD)), IDEM has made the following determinations as Best Available Control Technologies (BACTs) for Narasin Fermentation operations, Narasin Recovery operations, Narasion Finishing operations and non Narasin Recovery operations:

(A) Narasin Fermentation Operations

Pursuant to 326 IAC 2-2-3 (Prevention of Significant Deterioration (PSD), IDEM, OAQ has determined that there is no control device feasible to control VOC emission from the Narasin Fermentation Operations.

Pursuant to 326 IAC 2-2-3 (Prevention of Significant Deterioration (PSD), IDEM has established the following as BACT for VOC emissions from the Narasin Fermentation Operations.

The VOC emissions from the fermenter emission unit, identified as EU-3 operating under the flexible permit conditions shall not exceed one hundred (100) tons per twelve (12) month period, rolled on a calendar month basis.

(B) Narasin Recovery Operations

Pursuant to 326 IAC 2-2-3 (Prevention of Significant Deterioration (PSD), IDEM has established the following as BACT for VOC emissions from the Narasin Recovery Operations.

The VOC emissions from the Narasin Recovery Operations shall be controlled by the existing Carbon Adsorption system (CA460) with an overall control efficiency of no less than to 98% or a volumetric concentration of 30 parts per million (ppmv) based on a 24 - hour block average.

(C) Narasin Finishing Operations

Pursuant to 326 IAC 2-2-3 (Prevention of Significant Deterioration (PSD), IDEM has established the following as BACT for VOC emissions from the Narasin Finishing Operations:

The VOC emissions from the Narasin Finishing Operations shall be controlled by the existing Carbon Adsorption system (CA190) with an overall control efficiency of no less than 98% or a volumetric concentration of 10 parts per million (ppmv) based on a 24 - hour block average.

(D) Other Narasin Recovery Operations

Pursuant to 326 IAC 2-2-3 (Prevention of Significant Deterioration (PSD), IDEM has established the following as BACT for VOC emissions from the other Narasin Recovery Operations:

(1) The VOC emissions from the evaporator, identified as E101 will be directed to the existing Narasin Recovery carbon adsorption system (CA460) and subject to the emission limit for CA 460 established.

(2) The VOC emissions from the remaining Narasin Recovery emission units not vented to carbon adsorption unit (TK350A, TK350B, TK350C, TK350D, TK152, TK153, COS153, TK408, and COL204) will not be further controlled.

(a) **326 IAC 2 (Permit Review Rules):** This source is subject to the permit review rules in 326 IAC 2 as described below.

(1) **326 IAC 2-1.1 – General Provisions:** Except where other rules in 326 IAC 2 require otherwise, the provisions of 326 IAC 2-1.1 apply to the entire source.

(2) **326 IAC 2-2 – Prevention of Significant Deterioration (PSD) and 326 IAC 2-2.5 – Pollution Control Projects:** This source is a major stationary source, as defined in 326 IAC 2-2-1, and is therefore subject to PSD requirements when major modifications occur at the source. This permit serves as a PSD permit for the modifications that will occur in Narasin Fermentation operations, Narasin Recovery operations, Narasin Finishing operations and non Narasin Recovery operations during the term of this permit.

The following aspects of the PSD permitting program were reviewed and evaluated and determined to satisfy the PSD permitting requirements:

- Best Available Control Technology [326 IAC 2-2-3];
- Air Quality Analysis [326 IAC 2-2-4(a) and 326 IAC 2-2-5]; and
- Additional impacts analysis [326 IAC 2-2-7].

The detailed analyses of the BACT review and Air Quality Modeling results can be found in Appendix C and Appendix D of this TSD, respectively.

(3) **326 IAC 2-3 – Emission Offset:** This source is located in an area designated as attainment or unclassifiable for all criteria pollutants. Therefore, the requirements of 326 IAC 2-3 do not apply to this source.

(4) **326 IAC 2-4.1 – Major Sources of Hazardous Air Pollutants [HAPs]:** This source is a major source of hazardous air pollutants. If the source proposes to construct or reconstruct a major source of HAPs, as defined in 40 CFR 63.41, and that major source is not excluded pursuant to 326 IAC 2-4.1-1(b), then the source must comply with the requirements of 326 IAC 2-4.1-1(c) and (d) for case-by-case Maximum Achievable Control Technology determinations. The source does not anticipate constructing or reconstructing a major source of HAPs that will be subject to these requirements.

(5) **326 IAC 2-5.1 – Construction of New Sources:** This source is an existing source, and therefore cannot be considered to construct a "new source" as defined by 326 IAC 2-1.1-1(10). Therefore, 326 IAC 2-5.1 does not apply to this source.

(6) **326 IAC 2-7 – Part 70 Operating Permit Program:** This source is a major source, as defined by 326 IAC 2-7-1, and is therefore, subject to the requirements of 326 IAC 2-7.

(7) **Other permit review rules:** This source is an existing source operating under a Part 70 permit, and therefore, is not subject to the requirements of 326 IAC 2-5.5 [Registrations], 326 IAC 2-6.1 [Minor Source Operating Permit Program], 326 IAC 2-8 [Federally Enforceable State Operating Permit Program], 326 IAC 2-9 [Source Specific Operating Agreement Program], 326 IAC 2-10 [Permit by Rule], 326 IAC 2-11 [Permit by Rule for Specific Source Categories], 326 IAC 2-12 [General Permits], and 326 IAC 2-14 [Portable Sources].

326 IAC 2-6 (Emission Reporting)
This source is subject to 326 IAC 2-6 (Emission Reporting) because it is required to have an operating permit under 326 IAC 2-7, Part 70 program), because it has the potential to emit more than one hundred (100) tons per year of carbon monoxide, nitrogen oxides, particulate matter, sulfur dioxide, and volatile organic compounds. Pursuant to this rule, the Permittee shall submit an emission statement certified pursuant to the requirements of 326 IAC 2-6. In accordance with the compliance schedule specified in 326 IAC 2-6-3, an emission statement must be submitted annually by July 1 every year. The emission statement shall contain, at a minimum, the information specified in 326 IAC 2-6-4.

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

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

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

State Rule Applicability – Individual Facilities

326 IAC 3 (Monitoring requirements)
This source includes facilities subject to the continuous monitoring, source sampling and fuel sampling provisions of 326 IAC 3. The specific monitoring, source sampling, and fuel sampling requirements applicable to the source are described in specific sections of this permit.

326 IAC 4 (Burning regulations)
This source is subject to two aspects of 326 IAC 4. The open burning limitations and standards in 326 IAC 4-1 are applicable to the entire source. These limitations are described in Condition C.3 of the permit.

326 IAC 4-2 establishes particulate matter limitations and other standards for incinerators. This rule applies to incinerators burning solid or liquid wastes. It does not apply to incinerators used to reduce emissions from process operations. Therefore, this rule is not applicable to the Regenerative Thermal Oxidizers.

326 IAC 6 (Particulate Rules)

(1) **326 IAC 6-1 – Nonattainment Area Limitations:** This source is located in an attainment area for particulate matter. Therefore, 326 IAC 6-1 does not apply to any facilities at this source.

(2) **326 IAC 6-2 – Particulate Emission Limitations for Sources of Indirect Heating:** This source includes boilers that are subject to the requirements of this rule. The specific limitations and other requirements applicable to these facilities are described in Section D.1 (Utilities Operations) of this TSD.

(3) **326 IAC 6-3 – Process Operations:** This rule establishes particulate matter limits for manufacturing processes that emit particulate matter. This source includes several facilities subject to the requirements of this rule. The permit includes specific conditions, including expression of the particulate matter emission limitations, incorporating this requirement for manufacturing processes and emission units in various locations of the plant site. As a result, this requirement will be described in multiple locations in the permit. In addition, this permit includes a general condition [Condition C.1], that generally describes the emission limitation for all other manufacturing processes subject to 326 IAC 6-3 which are not described in detail in D sections of the permit. Administrative, maintenance, and other support activities conducted at the source that are not manufacturing are not subject to this rule.

(4) **326 IAC 6-4 – Fugitive Dust Emissions:** This source is subject to the fugitive dust limitations in 326 IAC 6-4. The source may not allow fugitive emissions to cross the property boundaries of the site, including easements and rights-of-way, in a manner that violates this rule. Condition C.4 of this permit describes the requirements of this rule in greater detail.

(5) **326 IAC 6-5 – Fugitive Particulate Matter Emission Limitations:** This source does not have potential fugitive dust emissions greater than 25 tons per year, and is therefore, not subject to the requirements of this rule.

326 IAC 7 (Sulfur Dioxide Rules): This source includes boilers that are subject to the requirements of 326 IAC 7. The specific limitations and other requirements applicable to these facilities are described in Section D.1 (Utilities Operations) of this TSD. No other emission units are subject to the requirements of this rule.

326 IAC 8 (Volatile Organic Compound Rules): This source is subject to the VOC control rules in 326 IAC 8 as described below.

(1) **326 IAC 8-1 – General Provisions:** Because this source operates facilities subject to rules in 326 IAC 8, the General Provisions in 326 IAC 8-1 apply to the source. Where a specific provision of 326 IAC 8-1 is applicable to facilities at this source, those provisions will be contained in a specific section of the permit and described in the appropriate section of the TSD. Sections 326 IAC 8-1-7, 8-1-10, 8-1-11, and 8-1-12 are not applicable to this source.

(2) **326 IAC 8-3 – Organic Solvent Degreasing Operations:** This source does not own or operate open top degreasing facilities containing organic solvent. Therefore, the requirements of 326 IAC 8-3-3 and 326 IAC 8-3-6 do not apply.

(3) **326 IAC 8-4 – Petroleum Sources:** This source does not operate any facilities subject to the requirements of 326 IAC 8-4. 326 IAC 8-4-6 is not applicable to this source because the source does not accept deliveries of gasoline by transports, as defined by 326 IAC 1-2-84.

(4) **326 IAC 8-6 – Organic Solvent Emissions Limitations**: The provisions of 326 IAC 8-6 are not applicable to this source because the source uses exempt solvents pursuant to 326 IAC 8-6-2(a)(4).

(5) **Other rules in 326 IAC 8**: This source is not subject to other requirements in 326 IAC 8 not listed here because the source does not own or operate the affected facilities subject to those rules.

326 IAC 10 (Nitrogen Oxides Rules): This source does not contain any emission units identified in 326 IAC 10-4. Therefore, the source is not subject to the NO_x emission control requirements of that rule.

326 IAC 11 (Emission Limitations for Specific Types of Operations): The applicability of the Emission Limitations for Specific Types of Operations, as embodied in Indiana air quality regulations, is described in greater detail in the section of this TSD addressing the federal Section 112(d) Emission Guideline program.

326 IAC 12 (New Source Performance Standards): The applicability of the New Source Performance Standards, as embodied in Indiana air quality regulations, is described in greater detail in the section of this TSD addressing the federal NSPS program.

326 IAC 14 (Emission Standards for Hazardous Air Pollutants): The applicability of these Emission Standards for Hazardous Air Pollutants, as embodied in Indiana air quality regulations, is described in greater detail in the section of this TSD addressing the federal Part 61 NESHAPs program.

326 IAC 15 (Lead Rules): This source does not contain any emission units described in 326 IAC 15. Therefore, the source is not subject to the requirements of those rules.

326 IAC 20 (Hazardous Air Pollutants): The applicability of Part 63 National Emission Standards for Hazardous Air Pollutants, as embodied in 326 IAC 20, is described in greater detail in the section of this TSD addressing the federal Part 63 NESHAPs program.

326 IAC 21 (Acid Deposition): This source does not contain any emission units described in 326 IAC 21. Therefore, the source is not subject to the requirements of those rules.

326 IAC 22 (Emission Standards for Hazardous Air Pollutants): The applicability of Part 82 Stratospheric Ozone Protection program, as embodied in 326 IAC 22, is described in greater detail in the section of this TSD addressing the Part 82 program.

326IAC 2-2-10 (Source Information)
The Permittee has submitted all information necessary to perform analysis or make the determination required under this rule.

326 IAC 2-2-12 (Permit Rescission)
The permit issued under this rule shall remain in effect unless and until it is rescinded, modified, revoked, or it expires in accordance with 326 IAC 2-1.1.-9.5 or section 8 of this rule.

Testing Requirements

The detailed testing requirements for individual facilities are described in Appendix A of this TSD.

Compliance Requirements

Permits issued under 326 IAC 2-7 are required to ensure that source can demonstrate compliance with applicable state and federal rules on a more or less continuous basis. All state and federal rules contain compliance provisions, however, these provisions do not always fulfill the requirement for a more or less continuous demonstration. If a rule does not contain requirements to periodically collect compliance related information, IDEM, OAQ, in conjunction with the source, must develop specific conditions to satisfy 326 IAC 2-7-5.

The testing and monitoring requirements for individual facilities or specific areas of the source are described in detail in Appendix A of this TSD.

The draft permit contains provisions related to the Permitee's obligation to operate the Continuous Emissions Monitoring Systems (CEMS). The most recent federal rules specifically address certain situations that that arise outside of Permitee's control. The General Provisions of the National Emission Standards for Hazardous Air Pollutants addresses this issue at 40 CFR 63.8(c)(4). This provision exempts the collection of emissions information during "system breakdowns, out-of-control periods, repairs, maintenance periods, calibration checks, and zero (low-level) and high-level calibration drift adjustments." 40 CFR Part 63 also requires that the CEMS be included in the Startup, Shutdown, and Malfunction Plan for the source to ensure that necessary repairs are made as expeditiously as possible. The Compliance Assurance Monitoring rule allows downtime at 40 CFR 64.7(c) for "monitoring malfunctions, associated repairs, and required quality assurance or control activities."

The applicable state rules, 326 IAC 3-5 (Continuous Monitoring of Emissions) does not contain such specific exemptions. However, 326 IAC 3-5-4(a)(9) requires a preventive maintenance plan to "ensure continuous operation and to minimize malfunctions."

326 IAC 3-5-7(5) requires reports of continuous monitoring system downtime. Zero and span checks are reported separately; and reports for all other events shall include: the date of the downtime, time of commencement, duration of downtime, reasons for each downtime, and the nature of system repairs and adjustments.

The state rule requires a plan to minimize, not eliminate malfunctions. The IDEM considers the extent and reason for downtime when deciding whether to pursue enforcement when small amounts of data are not collected due to CEMS malfunction. The draft permit contains language, which requires that the CEMS be operated at all times except during reasonable and properly documented periods of calibration and maintenance activities and malfunction.

Recommendation

The staff recommends to the Commissioner that the Part 70 Operating Permit Renewal be approved. This recommendation is based on the following facts and conditions:

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

An application for the purposes of this review was received on December 22, 2008.

Conclusion

The operation of this pharmaceutical manufacturing plant shall be subject to the conditions of the attached Part 70 Operating Permit Renewal No. 165-27283-00009.

Appendix A

Indiana Department of Environmental Management
Office of Air Quality

Technical Support Document (TSD) for a Part 70 Operating Permit Renewal

Section D.1 - D.4

D.1: Utilities Operations

Background and Description

The utilities operations consist of one coal-fired boiler with an associated ash handling system, and four fuel oil/natural gas boilers with an associated fuel oil tank. The boilers provide steam to process operations in bulk pharmaceutical manufacturing and animal health manufacturing. The utilities operations also include miscellaneous support equipment such as emergency generators, fire pumps, and HTM systems.

Types of Emission Units and Pollution Control Equipment

(a) Boilers

The site operates one coal-fired boiler rated at 243 MMBtu per hour, constructed in 1977, and particulates controlled by an baghouse. The site also operates four natural gas/fuel oil boilers rated at 140 MMBtu per hour (Boiler 4) and 79.5 MMBtu per hour each (Boilers 1, 2, and 3), which were constructed in 1970.

(b) Ash Handling System

The ash handling system transfers the ash generated by the coal-fired boiler to an ash tank via a scrubber/separator and baghouse system to control particulate emissions.

(c) Fuel Oil Storage Tanks

The fuel oil tank associated with the boilers is a vertical, fixed roof type with a storage capacity of 238,000 gallons. This tank was constructed prior to January 1980.

In addition, there are three small fuel oil tanks (<1,000 gallons each) used to supply the emergency generators and fire pumps.

(d) HTM Systems

The HTM systems are used for more efficient heating and cooling of process tanks and chillers in bulk pharmaceutical manufacturing (BPM). The HTM system includes storage tanks for storing the heat transfer material.

(e) Emergency Generators/Fire Pumps

There are three emergency generators (C44, C55 and C79) and two diesel fire pumps (C24-DFP-1 and C24-DFP-2) on site that are dedicated to emergency situations only.

(f) HCl Storage Tank

The utilities also operates a 15,000 gallons capacity HCl storage tank that is used to supply dilute acid for cleaning and maintenance purposes.

Insignificant Activities

(a) Storage Tanks

The storage tanks for fuel oil, HTM, and HCl are considered insignificant activities because the uncontrolled potential emissions are less than the applicability thresholds stated in 326 IAC 2-7-1(21)(A).

(b) Emergency Generators/Fire Pumps

The emergency generators and fire pumps are operated only in emergency situations, and therefore classified as insignificant activities under 326 IAC 2-7-1(21)(G)(xxii)(BB) (Emergency generators) and 326 IAC 2-7-1(21)(G)(xxii)(CC) (stationary fire pump engines).

(c) HTM Systems

The HTM tanks are considered insignificant activities pursuant to 326 IAC 2-7-1(21)(G)(vi)(FF) (Closed loop heating and cooling systems).

Emission Units and Pollution Control Devices Identified Through the Title V Compliance Transition Program

There were no emission units in the utilities operations identified by the source pursuant to the Title V Compliance Transition Program under IC 13-7-7 and non-rule policy document Air-000-NPD [19 IR 1709].

Federal Rule Applicability

There are no federal rules that apply to the utilities operations. The following non-applicability determinations are included for clarification purposes.

(a) Boilers

40 CFR Part 60, Subpart Da [New Source Performance Standards (NSPS) for Electric Utility Steam Generating Units] – This standard applies to units constructed after September 18, 1978 with the capability of combusting more than 250 MMBtu per hour heat input of fossil fuel (either alone or in combination with any other fuel). All of the boilers on site have a heat input capacity less than 250 MMBtu per hour and therefore are not subject to this rule.

40 CFR Part 60, Subpart Db (NSPS for Industrial Steam Generating Units) – This standard applies to units constructed, reconstructed, or modified after June 19, 1984 with the capability of combusting more than 100 MMBtu per hour heat input. All of the boilers on site were constructed prior to the rule applicability date, and therefore are not subject to this rule.

40 CFR Part 60, Subpart Dc (NSPS for Small Industrial Steam Generating Units) – This standard applies to units constructed, reconstructed, or modified after June 9, 1989 having a maximum heat input capacity of 100 MMBtu per hour or less, but greater than

10 MMBtu/hr. All of the boilers on site were constructed prior to the rule applicability date, and therefore are not subject to this rule.

(b) Fuel Oil Storage Tanks

40 CFR Part 60, Subpart Kb (NSPS for Volatile Organic Liquid Storage Vessels – Pursuant to 40 CFR 60.110b(a), the 238,000 gallons capacity fuel oil storage tank is not subject to the control requirements of this subpart because the tank was constructed prior to July 23, 1984; and the three smaller fuel oil storage tanks have capacities less than 40 cubic meters.

State Rule Applicability

(a) Boilers

326 IAC 6-2-3 (Particulate Rules for Indirect Heating) – This rule applies to both the coal-fired boiler and natural gas/fuel oil-fired boilers (Boilers 1, 2, 3, and 4).

The particulate emissions from the coal-fired boiler shall not exceed 0.34 pounds per million British thermal units (MMBtu) heat input.

The particulate emissions from each of the natural gas/fuel oil-fired boilers shall not exceed 0.19 pounds per MMBtu heat input.

326 IAC 5-1 (Opacity Limitations) – The opacity from the coal-fired boiler and natural gas/fuel oil-fired boilers shall not exceed an average of 40% in any one 6-minute averaging period or 60% for more than a cumulative total of 15 minutes in a 6-hour period. These boilers are allowed temporary alternative opacity limits for startup/shut down of a boiler and when removing ashes or blowing tubes in a boiler pursuant to 326 IAC 5-1-3(a) and (b).

326 IAC 7-1.1-2 (Sulfur Dioxide Emission Limitations) – This rule limits the SO_2 emissions from boilers.

The SO_2 emissions from the coal-fired boiler shall be limited to 4.72 pounds per MMBtu heat input.

The SO_2 emissions from the natural gas/fuel oil-fired boilers shall be limited to 0.36 pounds per MMBtu heat input, when burning No. 2 fuel oil.

326 IAC 3-7-2(b) (Coal Sampling and Analysis Procedures) – Because the SO_2 emissions from the coal-fired boiler are related to the sulfur content in the coal, the Permittee is required to sample and analyze the coal in accordance with the sampling and analysis procedure outlined in 326 IAC 3-7-5. This rule is used to demonstrate compliance with the SO_2 limit under 326 IAC 7-1.1-2.

326 IAC 3-7-4 (Fuel Oil Sampling and Analysis Procedures) – Before fuel oil can be burned in the natural gas/fuel oil-fired boilers, the fuel oil analysis of the sulfur content must be compliant with the SO_2 limitations established in 326 IAC 7-1.1-2.

326 IAC 2-2 (Prevention of Significant Deterioration) – All of the boilers on the site were constructed prior to 1977. Therefore, the prevention of significant deterioration (PSD) rules are not applicable.

(b) Ash Handling System

326 IAC 6-3-2 (Process Weight Rate) – The recently revised process weight rate rule clarifies that the rule does not apply to processes that have potential to emit (PTE) less than 0.551 pounds per hour of particulate matter before controls. The ash tank is subject to the requirements of 326 IAC 6-3-2 because the potential particulate matter emissions are greater than 0.551 pounds per hour.

The ash tank was considered to be a single process for purposes of calculating the allowable particulate matter emissions pursuant to 326 IAC 6-3-2. The maximum throughputs and calculated emission limits are provided in the permit (Section D.1).

The PTE for the equipment are provided in the Title V permit application. According to these calculations, the potential controlled emissions are less than the respective allowable particulate matter emissions. Therefore, the equipment can comply with these rules. Compliance monitoring requirements for the ash tank are described later in this document.

(c) Fuel Oil Storage Tanks

326 IAC 8-9 (Volatile Organic Liquid Storage Vessels) – The fuel oil tanks are not subject to the requirements of this rule because the site is located in Vermillion County. According to 326 IAC 8-9-1(a), this rule only applies to tanks located in Clark, Floyd, Lake or Porter County.

(d) HTM System

There are no state rules that apply to the HTM system.

(e) Emergency Generators/Fire Pumps

Compliance Requirements

(a) Boilers

The following compliance activities are required for the boilers:

1. Continuous opacity monitoring for the coal-fired boiler to assure compliance with the opacity limits in 326 IAC 5-1-2.

2. Coal sampling and analysis shall be performed according to the Permittee's Coal Sampling and Assay Plan, submitted pursuant to 326 IAC 3-7-5(a), to demonstrate compliance with SO_2 limitations under 326 IAC 7-1.1-2.

3. Particulate stack test for the coal-fired boiler shall be performed in August 2010 to demonstrate compliance with the particulate standards under 326 IAC 6-2-3.

4. The baghouse is required to be operated wherever the coal-fired boiler C31 is in operation and combusting coal as a fuel.

5. Analysis of the fuel oil must show compliance with the SO_2 limits established under 326 IAC 7-1.1-2 before the fuel oil can be burned in the natural gas/fuel oil-fired boilers. This can be satisfied with the fuel oil vendor's certification.

6. Preventive maintenance plan is required for boilers and associated control devices.

(b) Fuel Oil Storage Tanks

The fuel oil storage tanks are not subject to any compliance requirements because these emission units are not subject to any state or federal rules.

(c) HTM System

The HTM system is not subject to any compliance requirements because it is not subject to any state or federal rules or other limits or standards required by a federally enforceable permit.

(d) Emergency Generators/Fire Pumps

The emergency generators and fire pumps are not subject to any compliance requirements because these emission units are not subject to any state or federal rules, as described in the sections above.

D.2: Animal Health Manufacturing (AHM) – Fermentation Operations

Background and Description

The fermentation processes include the bulk dry material storage area (C44A), the bulk liquid storage area (C44), the raw material prep area (C43/C43A), the fermentation production areas (C41/C41A) and product storage area (C41). PM/PM-10, VOC and HAP are the only emissions generated in the fermentation area. The following summary has been prepared for each of these areas making up the fermentation section of the Title V permit to document technical information used to prepare the Title V permit conditions and to demonstrate compliance with the Title V requirements.

Types of Emission Units and Pollution Control Equipment

(a) Bulk Dry Material Storage Area (C44A)

The bulk dry material storage area consists of 12 bins equipped with baghouses to control particulate matter. Dry raw material such as yellow cream meal, soybean meal, cottonseed flour, and fish meal are used in fermentation as nutrient media for the microorganisms. The bulk storage area is used for high-volume dry raw materials. These materials are pneumatically transferred from rail cars or tank trucks to the storage bins. Particulate is the only pollutant emitted from the bulk storage area.

(b) Bulk Liquid Storage Area (C44)

The bulk liquid storage area is made up of liquid storage tanks that store raw materials such as lard and vegetable oil, liquid waste from the fermentation operations, and whole broth from the fermentation operations. The emissions from these operations are insignificant and were not calculated. There are no dry materials added to these tanks and the tanks are not agitated. The storage tanks are not subject to any applicable rules or compliance monitoring requirements. This equipment is being included in the description section of the Title V permit for clarification purposes only.

(c) Raw Material Prep Area (C43/C43A)

The raw material prep area consists of a dispensing station of raw materials, mixing tanks, and make-up tanks. Raw material such as yellow cream meal, soybean meal, cottonseed flour, and fish meal are used in fermentation as nutrient media for the microorganisms. Particulate, including negligible amounts of particulate HAP, is the only pollutant emitted from the raw material prep area.

(d) Fermentation Production Areas (C41/C41A)

The fermentation production areas consist of bump tanks, additive tanks, and fermentation tanks. The fermentation process begins in the culture laboratory. In the laboratory, a shake flask containing sterile media is inoculated under sterile conditions using a preserved culture. The shake flask is grown for several days and then several shake flasks are used to inoculate a bump tank. The bump tank will be grown for several days and is used to inoculate a fermenter. During the process, air is sparged into the fermenters and bump tanks for agitation and to provide oxygen for the microorganisms. Both particulate and VOC emissions may be emitted from the bump and fermentation tanks. Small amounts of a single HAP may also be emitted from the fermentation tanks.

(e) Product Storage Area (C41)

The C41 product storage area consists of five tanks that hold the whole broth product from fermentation prior to recovery of active ingredient. The fermentation process is a batch operation and the recovery process is a continuous operation. The whole broth product from fermentation is emptied into one of these tanks and then continuously fed to the recovery equipment as capacity allows. There are de minimis emissions from the product storage area.

(f) The following equipment has been removed from service since the initial Title V application was submitted:

The conveyor C41HAUGER and its associated baghouse C41VSH5BAGH, and seed tanks (S2, S4, S5, S6, S8, S10, S12, S14, S15 and S16).

Insignificant Activities

With the exception of the fermentation tanks, vibrating bins and batch makeup tanks, all other emission units associated with the fermentation operations are considered insignificant because the potential uncontrolled particulate emissions are below the particulate threshold levels (5 pounds per hour and 25 pounds per day) as defined in 326 IAC 2-7-1(21)(B) and the potential uncontrolled VOC emissions are below the VOC threshold levels (3 pounds per hour or 15 pounds per day) as defined in 326 IAC 2-7-1(21)(A)(iv).

Federal Rule Applicability

(a) Fermentation Production Areas (C41/C41A)

40 CFR Part 63, Subpart GGG (Pharmaceutical MACT Standard) – The Pharmaceutical MACT Standards are applicable to the fermentation operations because the fermentation tanks produce a hazardous air pollutant (HAP) during the process. However, the emissions limitations, compliance determination and compliance monitoring requirements of this rule do not apply to these emission units because these emission units do not produce HAP emissions in excess of 50 ppmv pursuant to 40 CFR 63.1251 (Process Vent Definition) or generate affected wastewater as defined in 40 CFR 63.1256 (Wastewater Requirements).

State Rule Applicability

(a) Bulk Dry Material Storage Area (C44A)

326 IAC 6-3-2 (Process Weight Rate) – The vibrating bins are subject to the requirements of this rule. Each emission unit was considered to be a single process for purposes of calculating the allowable particulate emissions pursuant to 326 IAC 6-3. The maximum throughputs and calculated emission limits are provided in Section D.2 of the permit.

The potential emissions for these vibrating bins are provided in the Title V permit application. According to these calculations, the controlled emissions are less than the respective allowable PM emissions. Therefore, the equipment is in compliance with the requirements of this rule.

(b) Bulk Liquid Storage Area (C44)

There are no state rules that apply to the bulk liquid storage tanks located in the fermentation operations.

(c) Raw Material Prep Area (C43/C43A)

326 IAC 6-3-2 (Process Weight Rate) - The batch fermenter tanks (batch makeup tanks) are subject to the requirements of this rule. Each emission unit was considered to be a single process for purposes of calculating the allowable particulate emissions pursuant to 326 IAC6-3. The maximum throughputs and calculated emission limits are provided in Section D.2 of the permit.

The potential emissions for these batch fermenter tanks are provided in the Title V permit application. According to these calculations, the controlled emissions are less than the respective allowable particulate emissions. Therefore, the equipment is in compliance with the requirements of this rule.

(d) Fermentation Production Areas (C41/C41A)

326 IAC 6-3-2 (Process Weight Rate) – The recently revised process weight rule clarifies that the rule does not apply to processes that have the potential to emit less than 0.551 pounds per hour of particulate matter before controls. The bump tanks in the fermentation production areas are not subject to the requirements of 326 IAC 6-3 because potential uncontrolled particulate emissions from each bump tank are less than 0.551 pounds per hour.

The process weight rule (326 IAC 6-3) for particulate matter applies to the fermentation tanks because the potential emissions from each fermentation tank are greater than 0.551 pounds per hour and they are not included in an exempt category. Each emission unit was considered to be a single process for purposes of calculating the allowable particulate emissions pursuant to 326 IAC 6-3. The maximum throughputs and calculated emission limits are provided in Section D.2 of the permit.

The potential emissions for these fermentation tanks are provided in the Title V permit application. According to these calculations, the uncontrolled emissions for each fermentation tank are less than the respective allowable particulate emissions. Therefore, the equipment is in compliance with the requirements of this rule and no control devices are required.

326 IAC 8-5-3 (Synthetic Pharmaceutical RACT Rule) – The emission units associated with fermentation operations do not manufacture pharmaceutical products by chemical synthesis. Therefore, the emission units associated with fermentation operations are not subject to the requirements of 326 IAC 8-5-3 (VOC Emission Limitations for Synthesized Pharmaceutical Manufacturing Operations).

326 IAC 8-1-6 (State VOC BACT Rule) – The emission units associated with fermentation operations are not subject to the requirements of 326 IAC 8-1-6 (Best Available Control Technologies for VOC Emissions) because the VOC emissions associated with each emission unit or emission project are less than 25 tons per year.

(e) Product Storage Area (C41)

326 IAC 6-3-2 (Process Weight Rate) – The recently revised process weight rule clarifies that the rule does not apply to processes that have the potential to emit less than 0.551 pounds per hour of particulate matter before controls. The hold tanks in the product storage area are not subject to the requirements of 326 IAC 6-3 because potential uncontrolled particulate emissions from each hold tank are less than 0.551 pounds per hour.

Compliance Requirements

No compliance monitoring is required for any of the equipment associated with the fermentation operations because the actual PM emissions are less than 25 tons per year (pursuant to April 1999 IDEM Guidance).

D.3: Animal Health Manufacturing (AHM) – Product Recovery Operations

Background and Description

The whole broth products from fermentation are stored in hold tanks and then continuously fed to the product recovery equipment as capacity allows. The product recovery operations consist of extraction, separation, drying, conveying, and process tanks (C45/C45A), solvent recovery (C45), and raw and recovered material storage (C45). PM/PM-10 and VOC are the only emissions generated in the product recovery area. The following summary has been prepared for each of these areas making up the product recovery section of the Title V permit to document technical information used to prepare the Title V permit conditions and to demonstrate compliance with the Title V permit requirements.

Types of Emission Units and Pollution Control Equipment

(a) Product Recovery Operations (C45/C45A)

The product recovery operations isolate and recover the active ingredients from the fermentation broth through extraction, separation and drying processes that use a solvent to help separate the water from the active ingredient.

VOC emissions occur from the displacement of air at initial start up, drying operations, transfer operations, and fugitive leaks. Several pieces of emitting equipment associated with C45 product recovery operations are routed to carbon adsorber C-140 for control of non-condensible solvent vapors. However, the CA-140 carbon adsorber is a voluntary control device.

Several pieces of emitting equipment associated with C45A product recovery operations are routed to carbon adsorber CA-460 for control of non-condensible solvent vapors. The CA-460 carbon adsorber is required by rule.

The particulate emissions occur from pneumatic conveying of dried material and transfers into storage tanks. Several vent socks are used to voluntarily control PM emissions from storage tanks and screw conveyors. All baghouses used in the product recovery operations are integral to the process because they are used as transfer devices.

(b) Solvent Recovery Operations (C45)

Solvents used in the product recovery processes are recovered for reuse in the solvent recovery area. Equipment in this area includes decanter tanks, evaporators, distillation columns and associated process tanks and waste tanks. Each of the evaporators and distillation columns are equipped with process condensers to collect the recovered material.

The condensers associated with the evaporators and distillation columns are considered process condensers, not control devices. Therefore, the condensers are considered integral to the process.

(c) Solvent Storage Tanks (C45)

These storage tanks store new and recovered solvent material used in the product recovery operations. These tanks are not controlled because emissions are low and there are no applicable requirements.

Insignificant Activities

(a) C45 Product Recovery Operations

With the exception of COS109A, D160/VLS160, D260/VLS260, FIL109, SM153, TK151, VS156, VS173, and VS174, the emission units associated with the C45 product recovery operations are considered “insignificant activities” because the potential emissions are less than the threshold values defined in 326 IAC 2-7-1(21).

(b) C45A Product Recovery Operations

With the exception of BL410, COS401D, COS420A, COS420L, D420, D421, and SM410A, the emission units associated with the C45A product recovery operations are considered “insignificant activities” because the potential emissions are less than the threshold values defined in 326 IAC 2-7-1(21).

(c) Solvent Recovery Operations

With the exception of EV101, the emission units associated with the solvent recovery operations are considered “insignificant activities” because the potential emissions are less than the threshold values defined in 326 IAC 2-7-1(21).

(d) Solvent Storage Tanks (C45)

All of the solvent storage tanks are considered “insignificant activities” because the potential emissions are less than the threshold values defined in 326 IAC 2-7-1(21).

Emission Units and Pollution Control Devices Identified Through Title V Compliance Transition Program

The following emission units in the AHM product recovery operations were identified by the source pursuant to the Title V Compliance Transition Program under IC 13-7-7 and non-rule policy document Air-000-NPD [19 IR 1709]:

Federal Rule Applicability

(a) Product Recovery Operations (C45/C45A)

NSPS 40 CFR Part 60, Subpart Kb – Volatile Organic Liquid Storage Vessels
The tanks associated with product recovery operations (C45/C45A) are not subject to Subpart Kb because they were all installed prior to the July 23, 1984 rule applicability date, and the tanks have not been modified since that date, or the tanks are process tanks and do not meet the definition of a storage vessel.

NESHAP 40 CFR Part 63, Subpart GGG – Pharmaceutical MACT
The emission units associated with the C45/C45A product recovery operations are not subject to Subpart GGG because these emission units do not generate, produce or use HAP compounds that generate HAP emissions.

(b) Solvent Recovery Operations (C45)

NSPS 40 CFR Part 60, Subpart Kb – Volatile Organic Liquid Storage Vessels
The tanks associated with the solvent recovery operations (C45) are not subject to Subpart Kb because these tanks were installed prior to the July 23, 1984 applicability date and have not been modified since that date, or the tanks do not meet the definition of a storage vessel.

NESHAP 40 CFR Part 63, Subpart GGG – Pharmaceutical MACT
The emission units associated with solvent recovery operations are not subject to Subpart GGG because these emission units do not process, produce or use HAP compounds that generate HAP emissions.

(c) Solvent Storage Tanks (C45)

NSPS 40 CFR Part 60, Subpart Kb – Volatile Organic Liquid Storage Vessels
The solvent storage tanks are not subject to Subpart Kb because they store a volatile organic liquid with a vapor pressure less than 3.5 kilopascals (kPa). [40 CFR 60.110b(b)].

NESHAP 40 CFR Part 63, Subpart GGG – Pharmaceutical MACT
The solvent storage tanks are not subject to Subpart GGG because these tanks do not store HAP compounds that generate hazardous air pollutant (HAP) emissions.

State Rule Applicability

(a) Product Recovery Operations (C45)

326 IAC 6-3-2 – Process Weight Rate
The recently revised process weight rate rule clarifies that the rule does not apply to processes that have potential to emit (PTE) less than 0.551 pounds per hour of particulate matter before controls. With the exception of VS156, VS173, VS174, the requirements of 326 IAC 6-3-2 do not apply to the C45 product recovery operations equipment because the particulate matter emissions are less than 0.551 pounds per hour.

VS156, VS173, and VS174 were each considered to be a single process for purposes of calculating the allowable particulate matter emissions pursuant to 326 IAC 6-3-2. The maximum throughputs and calculated emission limits are provided in the permit (Section D.3).

The PTE for these transfer baghouses are provided in the Title V permit application. According to these calculations, the potential uncontrolled emissions are less than the respective allowable particulate matter emissions. Therefore, the equipment is in compliance with these rules.

326 IAC 8-1-6 – VOC BACT Rule
The C45 product recovery operations equipment is not subject to 326 IAC 8-1-6 because either the equipment was installed before January 1, 1980 or VOC emissions from the equipment are less than 25 tons per year.

326 IAC 8-5-3 – Synthesized Pharmaceutical Manufacturing Operations – The C45 product recovery operations do not manufacture pharmaceutical products by chemical synthesis. Therefore, this equipment *is not* subject to this requirement.

326 IAC 8-6-1 – Organic Solvent Rule
The C45 product recovery operations equipment is not subject to the requirements of 326 IAC 8-6-1 because the equipment was installed prior to October 7, 1974 or after January 1, 1980, or the equipment does not have potential VOC emissions greater than 100 tons per year.

326 IAC 12 – New Source Performance Standards
The regulations in 326 IAC 12 reference the requirements of 40 CFR Part 60 (326 IAC 1-1-3), including the requirements for volatile organic liquid (VOL) storage vessels in 40 CFR Part 60, Subpart Kb. However, there are no VOL storage vessels in the C45 product recovery area.

(b) Product Recovery Operations (C45A)

326 IAC 6-3-2 – Process Weight Rate
The recently revised process weight rate rule clarifies that the rule does not apply to processes that have potential to emit (PTE) less than 0.551 pounds per hour of particulate matter before controls. The requirements of 326 IAC 6-3-2 do not apply to the C45A product recovery operations equipment because the particulate matter emissions are less than 0.551 pounds per hour.

326 IAC 2-2-3 and 326 IAC 8-1-6 – VOC BACT Rule
The C45A product recovery operations VOC emitting equipment permitted pursuant to CP 165-1966 are subject to the requirements of 326 IAC 2-2-3 and 326 IAC 8-1-6 because the equipment was installed after the January 1, 1980 rule applicability date and because the potential VOC emissions were greater than the 25 tons per year applicability threshold level.

Pursuant to 326 IAC 2-2-3 (Prevention of Significant Deterioration (PSD), IDEM has established the following as BACT for VOC emissions from the Narasin Recovery Operations.

The VOC emissions from the Narasin Recovery Operations shall be controlled by the existing Carbon Adsorption system (CA460) and the VOC emissions shall be controlled to 98% control of VOC emissions or a volumetric concentration of 30 parts per million (ppmv) based on a 24 - hour block average.

326 IAC 8-5-3 – Synthesized Pharmaceutical Manufacturing Operations
The C45A product recovery operations do not manufacture pharmaceutical products by chemical synthesis. Therefore, this equipment is not subject to this requirement.

326 IAC 8-6-1 – Organic Solvent Rule
The C45A product recovery operations equipment is not subject to the requirements of 326 IAC 8-6-1 because the equipment was not installed between October 7, 1974 and January 1, 1980.

326 IAC 12 – New Source Performance Standards
The regulations in 326 IAC 12 reference the requirements of 40 CFR Part 60 (326 IAC 1-1-3), including the requirements for volatile organic liquid (VOL) storage vessels in 40 CFR Part 60, Subpart Kb. However, there are no storage vessels storing VOLs with vapor pressure greater than 3.5 kPa in the C45A product recovery area.

(c) Solvent Recovery Operations (C45)

326 IAC 8-1-6 – VOC BACT Rule
The emission units associated with the solvent recovery operations are not subject to 326 IAC 8-1-6 because the equipment was installed before January 1, 1980 or VOC emissions are less than 25 tons per year.

326 IAC 8-5-3 – Synthesized Pharmaceutical Manufacturing Operations
The solvent recovery operations do not manufacture pharmaceutical products by chemical synthesis. Therefore, this equipment is not subject to this requirement.

326 IAC 8-6-1 – Organic Solvent Rule
The solvent recovery equipment is not subject to the requirements of 326 IAC 8-6-1 because the equipment was installed prior to October 7, 1974 or after January 1, 1980, or the equipment does not have potential VOC emissions greater than 100 tons per year.

326 IAC 12 – New Source Performance Standards
The regulations in 326 IAC 12 reference the requirements of 40 CFR Part 60 (326 IAC 1-1-3), including the requirements for volatile organic liquid (VOL) storage vessels in 40 CFR Part 60, Subpart Kb. However, there are no VOL storage vessels in the solvent recovery area.

(d) Solvent Storage Tanks

326 IAC 8-1-6 – VOC BACT Rule
The solvent storage tanks associated are not subject to 326 IAC 8-1-6 because the potential VOC emissions from the tanks are less than 25 tons per year.

326 IAC 8-6-1 – Organic Solvent Rule
The solvent storage tanks are not subject to the requirements of 326 IAC 8-6-1 because the tanks were installed after January 1, 1980.

326 IAC 8-5-3 – Synthesized Pharmaceutical Manufacturing Operations – The solvent storage tanks only serve the animal health manufacturing area. Products manufactured in the animal health manufacturing area are based on fermentation principles, not by chemical synthesis. Therefore, the solvent storage tanks are not subject to this requirement.

326 IAC 12 – New Source Performance Standards
The regulations in 326 IAC 12 reference the requirements of 40 CFR Part 60 (326 IAC 1-1-3).

No NSPS Subpart Kb requirements apply to the solvent storage tanks (C45).

The C45 solvent storage tanks are not subject to 326 IAC 12 because they were installed prior to the July 23, 1984 applicability date or do not store a VOL with vapor pressure greater than 3.5 kPa .

Compliance Requirements

(a) C45A Product Recovery Operations

To demonstrate compliance with the carbon adsorber VOC emissions limit, the permittee must determine the outlet VOC emissions by mass balance calculations, or direct measurement (e.g. flame ionization detector).

(b) C45 Product Recovery Operations

Pursuant to April 1999 IDEM guidance, the transfer baghouses VS156, VS173, and VS174 are not subject to compliance monitoring because the allowable particulate matter emissions from each of these equipments are less than 10 pounds per hour.

D.4: Animal Health Manufacturing (AHM) – Product Finishing Operations

Background and Description

The product finishing operations consist of conveying, mixing, palletizing, granulation, blending, bagging, and raw material storage equipment in buildings C47, C47B and C47E. The pollutants emitted from the product finishing operations are VOCs and particulates. The following summary has been prepared for the product finishing section of the Title V permit to document technical information used to prepare the Title V permit conditions and to demonstrate compliance with the Title V permit requirements.

Types of Emission Units and Pollution Control Equipment

(a) Raw Material Storage
The finishing operations add dry raw materials (e.g. clay, limestone, rice hulls) at various steps of the process. These raw materials are received from railcar or tank trailer via pneumatic conveying systems and stored in silos. Particulate matter is the only pollutant emitted from these processes. With the exception of baghouses VS103 and VS420, all of the baghouses associated with raw material storage are considered integral because they are used as transfer devices. With the exception of socks for TK201A, TK201B, TK011A, and TK011B; and baghouses VS103 and VS420, all other PM controls are considered voluntary because potential uncontrolled emissions are less than the applicable limitations.

The finishing operations also add anti-dusting oils (e.g. mineral oil) at various steps to keep equipment clean. These materials are also received from railcar or tank trailer and stored in bulk tank TK132. There are no controls on this tank due to negligible emissions.

(b) C47 Finishing Operations
Recovered product is pneumatically conveyed from either C45/C45A or from tank trailers to temporary storage tanks in C47.

The product that is conveyed from tank trailers is not completely dry and is therefore run through a fluidized bed dryer (D250) prior to being milled (hammer mill HM250), sized

(screeners SS250), and mixed (screw mixer SM280, ribbon mixers SM210A and SM210B). The final product is then bagged in totes directly from SM280. Various conveyors, transfer baghouses, and surge tanks are also used during this process. Diluents are also added at various steps in the process.

Particulate matter is the only pollutant emitted from this process. All of the baghouses in this process are integral because they are used as transfer devices. All particulate matter controls are considered voluntary because the potential uncontrolled emissions are less than the applicable limitations.

There is one product conveyed from C45A to dedicated granulation, blending, and bagging equipment in C47. This material is pelletized (pellet mill PEL006), cooled (pellet cooler PC006), granulated (hammer mills HM006 and HM008), sized (screener SCR006), and mixed (ribbon mixer SM182), before being bagged in totes (tote bagger TB185) or paper bags (bagger BAG185). Various conveyors, transfer baghouses, and surge tanks are also used during this process. Diluents are also added at various steps of the process.

Particulate matter and VOC are the pollutants emitted from this process. All of the baghouses in this process are integral because they are used as transfer devices. All particulate matter controls in this process are considered voluntary because potential uncontrolled emissions are less than applicable limitations. VOC emissions from various equipments in the process are routed to a required carbon adsorber for control.

(c) C47B Finishing Operations
One of the products transferred from C45 to C47 is subsequently transferred to dedicated granulation equipment in C47B. This material is pelletized (pellet mill PEL430), cooled (pellet cooler PC430), granulated (roller mills RM440, RM440A, RM480, and RM481), and sized (screeners SCR 450, SCR 451, SCR 490, and SCR 491) prior to being transferred to C47E for blending and bagging. Various conveyors, transfer baghouses, and surge tanks are also used during this process. Diluents are also added at various steps of the process.

Particulate matter and VOC are the pollutants emitted from this process. All of the baghouses in this process are integral because they are used as transfer devices. All particulate matter controls in this process are considered voluntary because potential uncontrolled emissions are less than applicable limitations. VOC emissions from various equipment in the process are routed to a required carbon adsorber for control.

(d) C47E Finishing Operations
Granulated and sized material is transferred pneumatically from C47B to C47E for blending and bagging. This material is sized (screener SCR813), blended (blenders BL808A, BL808B, BL809A, and BL809B; and blender mixers BL811A and BL811B) before being bagged in totes (tote bag filler TB813) or paper bags (bagger BAG813). Various conveyors, transfer baghouses and surge tanks are also used in the process.

Particulate matter and VOC are the pollutants emitted from this process. All of the baghouses in this process are integral because they are used as transfer devices. All particulate matter controls in this process are considered voluntary because potential uncontrolled emissions are less than applicable limitations. VOC emissions from various equipment in the process are routed to a required carbon adsorber for control.

Insignificant Activities

The following list of equipments are not insignificant activities:

Bldg.	Unit ID	Unit Description	Stack/Vent ID
C47E	H101	HOPPER	PVC47EH101
C47E	H102	HOPPER	PVC47EH102
C47E	H103	HOPPER	PVC47EH103
C47	H180	HOPPER	PVC47H180
C47	SM280	SCREW MIXER	PVC47SM280
C47E	TK101A	STORAGE TANK	PVC47ETK101A
C47E	TK101B	STORAGE TANK	PVC47EATK101B
C47E	TK102A	STORAGE TANK	PVC47ETK102A
C47E	TK102B	STORAGE TANK	PVC47ETK102B
C47E	TK103	STORAGE TANK	PVC47EVS103A
C47	TK181	STORAGE TANK	PVC47TK181
C47	TK201A	SILO	PVC47AC201
C47	TK201B	SILO	PVC47AC201
C47	TK270	SILO	PVC47TK270
C47B	TK420	STORAGE TANK	PVC47BVS420
C47	VS001	TRANSFER BAGHOUSE	PVC58AC190
C47	VS010	TRANSFER BAGHOUSE	PVC58AC190
C47	VS017	TRANSFER BAGHOUSE	PVC58AC190
C47	VS018	TRANSFER BAGHOUSE	PVC58AC190
C47	VS180	TRANSFER BAGHOUSE	PVC58AC190
C47	VS182	TRANSFER BAGHOUSE	PVC58AC190
C47	VS183	TRANSFER BAGHOUSE	PVC58AC190
C47	VS002	TRANSFER BAGHOUSE	PVC58AC190
C47	VS004	TRANSFER BAGHOUSE	PVC58AC190
C47	VS400	TRANSFER BAGHOUSE	PVC59AC520
C47B	VS410	TRANSFER BAGHOUSE	PVC59AC520
C47B	VS430	TRANSFER BAGHOUSE	PVC59AC520
C47B	VS430A	TRANSFER BAGHOUSE	PVC59AC520
C47B	VS431	TRANSFER BAGHOUSE	PVC59AC520
C47B	VS460	TRANSFER BAGHOUSE	PVC59AC520
C47B	VS470	TRANSFER BAGHOUSE	PVC59AC520
C47B	VS480	TRANSFER BAGHOUSE	PVC59AC520
C47	VS007	TRANSFER BAGHOUSE	PVC58AC190
C47E	VS815A	TRANSFER BAGHOUSE	PVC59AC520
C47E	VS815B	TRANSFER BAGHOUSE	PVC59AC520
C47E	VS815C	TRANSFER BAGHOUSE	PVC59AC520
C47E	WB805	WEIGH BELT	PVC59AC520

All other equipment associated with product finishing operations are considered insignificant activities as defined in 326 IAC 2-7-1(21).

Emission Units and Pollution Control Devices Identified Through Title V Compliance Transition Program

The following emission units in the AHM product finishing operations were identified by the source pursuant to the Title V Compliance Transition Program under IC 13-7-7 and non-rule policy document Air-000-NPD [19 IR 1709]:

Building	Installation Date	Equipment
C47	4/1/1988	BAG135
C47	<1994	BAG185
C47	3/1/1989	HM250
C47B	12/1/1984	COE440A
C47B	11/1/1990	SCR450, SCR451
C47B	12/1/1990	COE450, COE451, CYC461, CYC462, CYC463, CYC471

Federal Rule Applicability

(a) Raw Material Storage

40 CFR Part 60, Subpart Kb – Volatile Organic Liquid Storage Vessels
The anti-dusting oil tanks associated with the raw material storage are not subject to Subpart Kb because they store a liquid with vapor pressure less than 3.5 kPa.

40 CFR Part 63, Subpart GGG – Pharmaceutical MACT
The emission units associated with raw material storage are not subject to 40 CFR Part 63, Subpart GGG (Pharmaceutical MACT Standards) because these emission units do not process, use, or produce hazardous air pollutant (HAP) compounds that generate HAP emissions.

(b) C47 Finishing Operations

40 CFR Part 63, Subpart GGG – Pharmaceutical MACT
The emission units associated with the C47 finishing operations are not subject to 40 CFR Part 63, Subpart GGG (Pharmaceutical MACT Standards) because these emission units do not process, use, or produce HAP compounds that generate HAP emissions.

(c) C47B Finishing Operations

40 CFR Part 63, Subpart GGG – Pharmaceutical MACT
The emission units associated with the C47B finishing operations are not subject to 40 CFR Part 63, Subpart GGG (Pharmaceutical MACT Standards) because these emission units do not process, use, or produce HAP compounds that generate HAP emissions.

(d) C47E Finishing Operations

40 CFR Part 63, Subpart GGG – Pharmaceutical MACT
The emission units associated with the C47E finishing operations are not subject to 40 CFR Part 63, Subpart GGG (Pharmaceutical MACT Standards) because these emission units do not process, use, or produce HAP compounds that generate HAP emissions.

State Rule Applicability

(a) Raw Material Storage

326 IAC 6-3-2 – Process Weight Rate
The recently revised process weight rate rule clarifies that the rule does not apply to processes that have potential to emit (PTE) less than 0.551 pounds per hour of particulate matter before controls.

With the exception of VS201, TK201A, TK201B, TK011A, TK420, TK101A, TK101B, TK102A, TK102B, TK103, H101, H102, and H103, the requirements of 326 IAC 6-3-2 do

not apply to the other equipment in raw material storage because the particulate matter emissions are less than 0.551 pounds per hour.

Each emissions unit subject to this requirement was considered to be a single process for purposes of calculating the allowable particulate matter emissions pursuant to 326 IAC 6-3-2. The maximum throughputs and calculated emission limits are provided in the permit (Section D.4).

The PTE for the equipment are provided in the Title V permit application. According to these calculations, the potential uncontrolled emissions are less than the respective allowable particulate matter emissions for all of these equipment except TK201A, TK201B, TK420, and TK103. Therefore, these equipment are in compliance with these rules.

The potential controlled emissions for TK201A, TK201B, TK420 and TK103 are less than the respective allowable particulate matter emissions. Therefore, these equipment can comply with the rules. Compliance monitoring requirements for these equipment are described later in this document.

326 IAC 12 – New Source Performance Standards
The regulations in 326 IAC 12 reference the requirements of 40 CFR Part 60, as they were published July 1, 2000 (326 IAC 1-1-3).

Although no NSPS requirements, as currently published apply to the storage tank TK132, the NSPS 40 CFR Part 60, Subpart Kb recordkeeping requirements, as published July 1, 2000 were applicable to the storage tank. Therefore, those requirements are described below. These requirements are not federally enforceable.

The storage tank TK132 is not subject to any controls or monitoring requirements because it stores volatile organic liquid with vapor pressure less than 3.5 kPa. However, the permittee must keep records of the dimension and capacity of the tank and vapor pressure of the liquid being stored. If the vapor pressure of the liquid exceeds 27.6 kPa, the permittee must submit a notification to IDEM.

(b) C47 Finishing Operations

326 IAC 2-2 -3 – Prevention of Significant Deterioration
The requirements of 326 IAC 2-2-3 apply to the VOC emitting equipments because they have potential VOC emissions that exceed the PSD significance threshold.

Pursuant to 326 IAC 2-2-3 (Prevention of Significant Deterioration (PSD), IDEM has established the following as BACT for VOC emissions from the Narasin Finishing Operations:

The VOC emissions from the Narasin Finishing Operations shall be controlled by the existing Carbon Adsorption system (CA190) and the VOC emissions shall be controlled to 98% control of VOC emissions or a volumetric concentration of 10 parts per million (ppmv) based on a 24 - hour block average.

326 IAC 6-3-2 – Process Weight Rate
The recently revised process weight rate rule clarifies that the rule does not apply to processes that have potential to emit (PTE) less than 0.551 pounds per hour of particulate matter before controls.

With the exception of SM280, H180, TK181, TK270, and VS210, the requirements of 326 IAC 6-3-2 do not apply to the other equipment in C47 finishing operations because the particulate matter emissions are less than 0.551 pounds per hour.

Each emissions unit subject to this requirement was considered to be a single process for purposes of calculating the allowable particulate matter emissions pursuant to 326 IAC 6-3-2. The maximum throughputs and calculated emission limits are provided in the permit (Section D.4).

The PTE for the equipment are provided in the Title V permit application. According to these calculations, the potential uncontrolled emissions are less than the respective allowable particulate matter emissions. Therefore, the equipment is in compliance with these rules.

326 IAC 8-1-6 - VOC BACT Rule
The requirements of 326 IAC 8-1-6 apply to the VOC emitting equipment permitted and constructed pursuant to permit SSM 165-12309 because the equipment was constructed after January 1, 1980 and potential emissions of VOCs are greater than 25 tons per year. The permittee satisfied this requirement by complying with the PSD BACT requirements.

(c) C47B Finishing Operations

326 IAC 6-3-2 – Process Weight Rate
The recently revised process weight rate rule clarifies that the rule does not apply to processes that have potential to emit (PTE) less than 0.551 pounds per hour of particulate matter before controls.

The requirements of 326 IAC 6-3-2 do not apply to the equipment associated with C47B finishing operations because the particulate matter emissions are less than 0.551 pounds per hour.

326 IAC 2-2 – Prevention of Significant Deterioration
The requirements of 326 IAC 2-2 apply to the VOC emitting equipments because they have potential VOC emissions that exceed the PSD significance threshold.

Pursuant to 326 IAC 2-2-3 (Prevention of Significant Deterioration (PSD), IDEM has established the following as BACT for VOC emissions from the Narasin Finishing Operations:

The VOC emissions from the Narasin Finishing Operations shall be controlled by the existing Carbon Adsorption system (CA190) and the VOC emissions shall be controlled to 98% control of VOC emissions or a volumetric concentration of 10 parts per million (ppmv) based on a 24 - hour block average.

326 IAC 8-1-6 - VOC BACT Rule
The requirements of 326 IAC 8-1-6 apply to the VOC emitting equipment permitted and constructed pursuant to permit SSM 165-12309 because the equipment was constructed after January 1, 1980 and potential emissions of VOCs are greater than 25 tons per year. The permittee satisfied this requirement by complying with the PSD BACT requirements.

(d) C47E Finishing Operations

326 IAC 6-3-2 – Process Weight Rate
The recently revised process weight rate rule clarifies that the rule does not apply to processes that have potential to emit (PTE) less than 0.551 pounds per hour of particulate matter before controls.

The requirements of 326 IAC 6-3-2 do not apply to the equipment associated with C47E finishing operations because the particulate matter emissions are less than 0.551 pounds per hour.

326 IAC 2-2-3 – Prevention of Significant Deterioration
The requirements of 326 IAC 2-2 apply to the VOC emitting equipments because they have potential VOC emissions that exceed the PSD significance threshold.

Pursuant to 326 IAC 2-2-3 (Prevention of Significant Deterioration (PSD), IDEM has established the following as BACT for VOC emissions from the Narasin Finishing Operations:

The VOC emissions from the Narasin Finishing Operations shall be controlled by the existing Carbon Adsorption system (CA190) and the VOC emissions shall be controlled to 98% control of VOC emissions or a volumetric concentration of 10 parts per million (ppmv) based on a 24 - hour block average.

326 IAC 8-1-6 - VOC BACT Rule
The requirements of 326 IAC 8-1-6 apply to the VOC emitting equipment permitted and constructed pursuant to permit SSM 165-12309 because the equipment was constructed after January 1, 1980 and potential emissions of VOCs are greater than 25 tons per year. The permittee satisfied this requirement by complying with the PSD BACT requirements.

Compliance Requirements

(a) Raw Material Storage

1. Visible emissions observations are required for storage tank TK-103 to assure compliance with the PM emissions limits.

(b) Finishing Operations (C47, C47B, C47E)

1. To demonstrate compliance with the carbon adsorber VOC emissions limits, the inlet and outlet VOC concentrations of CA190 and CA520 carbon adsorbers shall be continuously measured and recorded.

Appendix C – BACT Analyses

Indiana Department of Environmental Management
Office of Air Quality

Technical Support Document (TSD)
Prevention of Significant Deterioration (PSD)

Source Background and Description

Source Name:	Eli Lilly and Company - Clinton Laboratories
Source Location:	10500 South State Road 63, Clinton, IN 47842
County:	Vermillion
SIC Code:	2833, 2834, 2879
Operation Permit No.:	T 165-6462-00009
Operation Permit Issuance Date:	October 1, 2004
Significant Source Modification No.:	165-27702-00009
Permit Renewal No.:	T165-27283-00009
Permit Reviewer:	Josiah Balogun

Proposed Expansion

Eli Lilly and Company (Lilly) is a research-based company that discovers, develops, manufactures and markets pharmaceutical products for people and animals. The purpose of this Prevention of Significant Deterioration [PSD] / Flexible Permit application is to allow Clinton Laboratories' Narasin Production Processes to be modified through a series of product and process changes, replacement of existing production equipment, and installation of new production equipment. These changes are anticipated to occur without a gap of 18 months or more between any two of them, and would thus be considered continuous construction. This PSD application will cover only volatile organic compounds [VOCs].
In lieu of evaluating future changes individually for PSD applicability, and potentially requiring time-and resource-consuming permit reviews for each individual change, as well as raising complex aggregation and debottlenecking issues. The parts of the Elanco Animal Health Narasin Operations affected by the changes and the types of changes Lilly intends to make are evaluated as a group under the Prevention of Significant Deterioration (PSD) program (326 IAC 2-2). Essentially the site will be continuously modified over the next 5 years, and instead of evaluating each project for PSD and minor NSR applicability, Lilly will obtain a PSD permit for the range of modifications that will occur over the next 5 years.

This approach is allowed under provisions in Indiana's air permit regulations (326 IAC 2-2 and 326 IAC 2-7-5) and guidance issued by USEPA in its draft on implementing the Title V operating permit program. The PSD permit will allow Lilly to make changes in the future with minimal administrative requirements and will assure compliance with all applicable Clean Air Act requirements.

Eli Lilly and Company - Clinton Laboratories, located at 10500 South State Road 63, Clinton, Indiana, in Vermillion County submitted a PSD application and Title V Flexible Permit Renewal to IDEM, OAQ on March 31, 2009.

Requirement for Best Available Control Technology (BACT)

326 IAC 2-2 requires a best available control technology (BACT) review to be performed on the proposed modification because the modification has the potential to emit of VOC emissions greater than 40 tons per year, which exceeds the significant level for this pollutant.

Emission Units Subject to BACT Requirements for VOC:

The following emission units have the potential to emit Volatile Organic Compounds (VOC); therefore, a Best Available Control Technology analyses for VOC was performed for these units:

The Narasin production areas that are affected by the proposed modifications include:

- Fermentation Batch Make-up (EU-1)
- Fermentation Bump Tanks (EU-2)
- Fermenters (EU-3)
- Fermentation Harvest Tanks (EU-4)
- Dry Raw Materials Unloading and Storage (EU-5)
- Liquid Raw Materials Unloading and Storage (EU-6)
- Fermentation Vacuum Cleaning (EU-7)
- Recovery Process (EU-8)
- New Amyl Alcohol Unloading and Storage (EU-9)
- New Clay Unloading and Storage (EU-10)
- Finishing Process (EU-11)

Requirement for VOC BACT

The Narasin production areas have the total potential to emit of volatile organic compounds (VOC), greater than 40 tons per year; therefore, Best Available Control Technology analyses for VOC were performed for Narasin production areas.

Summary of the Best Available Control Technology (BACT) Process

BACT is a mass emission limitation based on the maximum degree of pollution reduction of emissions, which is achievable on a case-by-case basis. BACT analysis takes into account the energy, environmental, and economic impacts on the source. These reductions may be determined through the application of available control techniques, process design, work practices, and operational limitations. Such reductions are necessary to demonstrate that the emissions remaining after application of BACT will not cause or contribute to air pollution, thereby protecting public health and the environment.

Federal guidance on BACT requires an evaluation that follows a “top down” process. In this approach, the applicant identifies the best-controlled similar source on the basis of controls required by regulation or permit, or controls achieved in practice. The highest level of control is then evaluated for technical feasibility.

The five (5) basic steps of a top-down BACT analysis are listed below:

Step 1: Identify Potential Control Technologies

The first step is to identify potentially "available" control options for the emission unit under review. Available options should consist of a comprehensive list of those technologies with a potentially practical application to the emissions unit in question. The list should include lowest achievable emission rate (LAER) technologies, innovative technologies, and controls (if submitted by the applicant) applied to similar source categories. There is no requirement in the State or Federal regulations to require innovative control to be used as BACT.

Step 2: Eliminate Technically Infeasible Options

The second step is to eliminate technically infeasible options from further consideration. To be considered feasible, a technology must be both available and applicable. It is important in this step that any presentation of a technical argument for eliminating a technology from further consideration be clearly documented based on physical, chemical, engineering, and source-specific factors related to safe and successful use of the controls. Innovative control means a control that has not been demonstrated in a commercial application on similar units. Innovative controls are normally given a waiver from the BACT requirements due to the uncertainty of actual control efficiency. Only available and proven control technologies are evaluated. A control technology is considered available when there are sufficient data indicating that the technology results in a reduction in emissions of regulated pollutants. Eli Lilly has not included any innovative control technology for consideration as a BACT.

Step 3: Rank the Remaining Control Technologies by Control Effectiveness

The third step is to rank the technologies not eliminated in Step 2 in order of descending control effectiveness for the pollutant of concern. The ranked alternatives are reviewed in terms of environmental, energy, and economic impacts specific to the proposed modification. If the analysis determines that the evaluated alternative is not appropriate as BACT due to any of the impacts, then the next most effective control is evaluated. This process is repeated until a control alternative is chosen as BACT. If the highest ranked technology is proposed as BACT, it is not necessary to perform any further technical or economic evaluation, except for the environmental analyses.

Step 4: Evaluate the Most Effective Controls and Document the Results

The fourth step entails an evaluation of energy, environmental, and economic impacts for determining a final level of control. The evaluation begins with the most stringent control option and continues until a technology under consideration cannot be eliminated based on adverse energy, environmental, or economic impacts.

Step 5: Select BACT

The fifth and final step is to select as BACT the most effective of the remaining technologies under consideration for the pollutant of concern. For the technologies determined to be feasible, there may be several different limits that have been set as BACT for the same control technology. The permitting agency has to choose the most stringent limit as BACT unless the applicant demonstrates in a convincing manner why that limit is not feasible. The final BACT determination would be the technology with the most stringent corresponding limit that is economically feasible. BACT must, at a minimum, be no less stringent than the level of control required by any applicable New Source Performance Standard (NSPS) and National Emissions Standard for Hazardous Air Pollutants (NESHAP) or state regulatory standards applicable to the emission units included in the permits.

The Office of Air Quality (OAQ) makes BACT determinations by following the five steps identified above.

Volatile Organic Compounds (VOC) BACT – Narasin Fermentation

Step 1: Identify Potential Control Technologies

The volatile organic compounds (VOC) emissions can be controlled by the following:

(1) Destruction Processes;

(2) Reclamation Processes;

(3) Biofiltration; and

(4) Combination of Reclamation and Destruction Technologies.

Destruction technologies reduce VOC concentration by high temperature oxidation into carbon dioxide and water vapor. Reclamation is the capture of VOCs for reuse or disposal.

Step 2: Eliminate Technically Infeasible Options

The test for technical feasibility of any control option is whether it is both available and applicable in reducing VOC emissions from emissions units at Narasin Fermentation operations. The control technologies listed in the previous section are discussed and evaluated below for their technical feasibility.

Destruction Control Methods

The destruction of organic compounds usually requires temperatures ranging from $1,200^0$F to $2,000^0$F for direct thermal incinerators or 600^0F to $1,200^0$F for catalytic systems. Combustion temperature depends on the chemical composition and the desired destruction efficiency. Carbon dioxide and water vapor are the typical products of complete combustion. Turbulent mixing and combustion chamber retention times of 0.5 to 1.0 seconds are needed to obtain high destruction efficiencies.

Combustion control technologies include recuperative thermal incineration, regenerative thermal incineration, recuperative catalytic incineration, regenerative catalytic incineration, and flares.

Combustion control technologies include:

Recuperative Thermal Oxidation:

Recuperative thermal incinerators are add-on control devices used to control VOC emissions by introducing solvent-laden fume to the oxidizer. The stream is pre-heated by exiting flue gas from the same system in a heat exchanger or recuperator. A burner then heats the air to the required temperature. The air is then passed through an oxidation chamber where the solvent-laden air is converted to carbon dioxide and water. These are then passed through the heat exchanger where incoming fume is preheated by the heat of the exiting flue gas. Finally the clean flue gas is discharged to the atmosphere. The recuperative thermal oxidizer is appropriate for waste streams with a relatively high solvent content and/or consistent pollutant loading. Variation in pollutant loading will require a longer retention time in the oxidizer in order to properly destroy VOC emissions. Eli Lilly's streams do not have high solvent content or consistent pollutant loading. Based on a review of the RBLC, this type of control has been used for controlling VOC emissions from other sources, but has not been typically used for pharmaceutical processes. This would not be an appropriate control method for low VOC exhaust stream from the Narasin Fermentation operations.

Based on the information reviewed for this BACT determination, IDEM, OAQ has determined that the use of a Recuperative Thermal Oxidation is not a technically feasible option for the Narasin Fermentation operations at this source.

Regenerative Thermal Oxidation:
Regenerative thermal oxidizers (RTOs) are add-on control devices used to control VOC emissions by simple reaction of the harmful air pollutants with oxygen and heat. RTO uses a direct contact heat exchanger. These direct contact heat exchangers consist of a bed of porous ceramic packing or other structured, high heat capacity media. These systems can handle variable and low-concentration VOC waste streams.

The inlet gas first passes through a hot ceramic bed thereby heating the stream (and cooling the bed) to its ignition temperature. The hot gases then react (releasing energy) in the combustion chamber and while passing through another ceramic bed, thereby heating it to the combustion chamber outlet temperature. The process flows are then switched, now feeding the inlet stream to the hot bed. This cyclic process affords very high energy recovery (up to 95%). The higher capital costs associated with these high-performance heat exchangers and combustion chambers may be offset by the increased auxiliary fuel savings to make such a system economical.

Based on the information reviewed for this BACT determination, IDEM, OAQ has determined that the use of a Regenerative thermal oxidizer is a technically feasible option for the Narasin Fermentation operations at this source.

Recuperative and Regenerative Catalytic Oxidation:

Catalytic incinerators are add-on control devices used to control VOC emissions by using a bed of catalyst that facilitates the oxidation of the combustible gases. The catalyst increases the reaction rate and allows the conversion of VOC at lower temperatures than thermal incinerators. Catalytic oxidation can be used for low-concentration VOC waste streams; however, certain compounds present in waste stream gas may foul the catalyst. It may also be necessary to remove particulate prior to catalytic oxidation as well.

Based on the information reviewed for this BACT determination, IDEM, OAQ has determined that a Recuperative or Regenerative Catalytic Oxidation are not technically feasible option for the Narasin Fermentation operations at this source.

Flares:
Flaring is used to control VOC emissions by piping VOCs to a remote, usually elevated location and burning them in an open flame in the open air using a specially designed burner tip, auxiliary fuel, and steam or air to promote mixing for nearly complete (> 98%) VOC destruction. While flares are designed to eliminate waste gas streams, they can cause safety and operational problems and the exhaust stream concentration must be high enough to sustain combustion. The Narasin Fermentation has a lower concentration, which is not enough to sustain the combustion.

Based on the information reviewed for this BACT determination, IDEM, OAQ has determined that a flare is not technically feasible option for the Narasin Fermentation operations at this source.

Reclamation Control Methods

Organic compounds may be reclaimed by one of three possible methods; adsorption, absorption (scrubbing) or condensation. In general, the organic compounds are separated from the emission stream and reclaimed for reuse or disposal. Depending on the nature of the contaminant and the inlet concentration of the emission stream, recovery technologies can reach efficiencies of 98%.

Adsorption: is a surface phenomenon where attraction between the carbon and VOC molecules binds the pollutants to the carbon surface. Both carbon and VOC are chemically intact after adsorption. The VOCs may be removed, or desorbed, from the carbon bed reclaimed and destroyed. Adsorption can be used for relatively low VOC exhaust streams. Pollutants present in the gas streams can reduce adsorber efficiency, increase pressure drop and eventually plug the bed. Adsorption processes can be used to capture VOCs in low concentration exhaust; however, it is typically only used for exhaust that is not loaded with other pollutants which can plug the bed. Based on a review of the RBLC, this type of control has been used in the printing and petroleum refinery industries. This type of control is not typically used in pharmaceutical industries and based on the pollutant loading of the exhaust stream, adsorption is not considered technically feasible for the Narasin Fermentation operations as plugging of the adsorption media would likely occur.

Based on the information reviewed for this BACT determination, IDEM, OAQ has determined that the use of adsorption is not a technically feasible option for the Narasin Fermentation operations at this source.

Absorption: is a unit operation where components of a gas phase mixture (Pollutants) are selectively transferred to a relatively nonvolatile liquid, usually water. Sometimes, organic liquids, such as mineral oil or nonvolatile hydrocarbons, are suitable absorption solvents. The choice of solvent depends on cost and solubility of the pollutant in the solvent. Absorption is commonly used to recover products or purify gas streams that have high concentrations of organic compounds. Absorption processes are typically used to recover products or purify gas streams with high concentrations of organic compounds such as in the ethanol production and soybean oil refinery industries. However, it is not considered a technically feasible application for VOC control of emissions from the pharmaceutical operations due to the low concentration of VOC in the exhaust.

Based on the information reviewed for this BACT determination, IDEM, OAQ has determined that the use of absorption is not a technically feasible option for the Narasin Fermentation operations at this source.

Condensation: is the separation of VOCs from an emission stream through a phase change, by increasing the system pressure or, more commonly, lowering the system temperature below the dew point of the VOC vapor. When condensers are used for air pollution control, they usually operate at the pressure of the emission stream, and typically require a refrigeration unit to obtain the temperature necessary to condense the VOCs from the emission stream. These systems are frequently used prior to other control devices (e.g., oxidizers or absorbers) to remove components that may be corrosive or damaging to other parts of the system. Refrigerated condensers are used as air pollution control devices for treating emission streams with high VOC concentrations (usually > 5,000 ppmv). Condensers may be used to control VOC emissions with high VOC concentrations (usually greater than 5, 000 ppmv). The RBLC shows that this type of control has been used for botanical extraction processes and petroleum refineries. Condensers are not typically used in the pharmaceutical industries for VOC control and are not considered technically feasible for the application of controlling VOC emissions from the pharmaceutical operations due to the low concentration of VOC in the exhaust.

Based on the information reviewed for this BACT determination, IDEM, OAQ has determined that the use of condensation is not a technically feasible option for the Narasin Fermentation operations at this source.

Biofiltration

Biofilters, either outdoor piles similar to compost piles or sophisticated installations involving fixed film on granular activated carbon substrates, appear to work, although such systems are large and require considerable space. Systems applying ultraviolet radiation, either with a titanium dioxide catalyst or in combination with hydrogen peroxide, may destroy VOC pollutants.

Based on the information reviewed for this BACT determination, IDEM, OAQ has determined that the use of Biofilter is a technically feasible option for the Narasin Fermentation operations at this source.

Combinations of Reclamation and Destruction Control Methods

In some cases, a combination of control technologies offers the most efficient and cost effective VOC control.

The combination of carbon adsorption with recuperative thermal incineration is available commercially. This system concentrates the VOC stream by using carbon adsorption to remove low concentration VOCs in an emission stream and then uses a lower volume of hot air, commonly one-tenth the original flow, to desorb the pollutants. A recuperative incinerator for destroying pollutants in the concentrated stream is much smaller and has lower supplemental fuel requirement than an incinerator sized for the full emission stream volume.

Absorption systems can also be used to concentrate emission streams to reduce the size of destruction equipment. The concentration effect is not as extreme as with carbon adsorption, a concentrated exhaust stream one quarter the volume of the inlet stream seems to be the practical limit. Absorption concentrators are typically suited for batch processes or to equalize pollutant concentrations in a variable stream. The physical characteristics that drive the absorption of pollutants into a liquid also limit the opportunity to remove those pollutants from the liquid stream. This type of control is not typically used in pharmaceutical industries and based on the pollutant loading of the exhaust stream, adsorption is not considered technically feasible for the Narasin Fermentation operations as plugging of the adsorption media would likely occur.

Fume incinerators typically need supplemental fuel. Concentrated VOC streams with high heat contents obviously require less supplementary fuel than more dilute streams. VOC streams sometimes have a heat content high enough to be self-sustaining, but a supplemental fuel firing rate equal to about 5% of the total incinerator heat input is usually needed to stabilize the burner flame. Natural gas is the most common fuel for VOC incinerators, but fuel oil is an option in some circumstances.

Based on the information reviewed for this BACT determination, IDEM, OAQ has determined that the use of a combination of reclamation and destruction control methods due to the fact that the reclamation part of the system is not a technically feasible option for the Narasin Fermentation operations at this source.

Step 3: Rank the Remaining Control Technologies by Control Effectiveness

Based on the information reviewed for this BACT determination, IDEM, OAQ has determined that a Regenerative Thermal oxidizer or Biofiltration are both technically feasible for the control of VOC resulting from Narasin Fermentation operations at the Eli Lilly and Company - Clinton Laboratories.

(1) Regenerative Thermal Oxidizer - 98 % destruction efficiency

(2) Biofiltration - 80% control efficiency

Step 4: Evaluate the Most Effective Controls and Document the Results

The following table lists the proposed VOC BACT determination along with the existing VOC BACT determinations for Narasin Fermentation operations. All data in the table is based on the information obtained from the permit application submitted by Eli Lilly and Company - Clinton Laboratories, the U.S. EPA RACT/BACT/LAER Clearinghouse (RBLC), and electronic versions of permits available at the websites of other permitting agencies.

Feasibility of Control Technology: IDEM, OAQ evaluated the costs to control VOC emissions from the Narasin Fermenters using biofiltration and thermal destruction. Both of these evaluations resulted in cost estimates well in excess of that which would be considered to be economically feasible. (See Appx D-2- Cost Analysis).

Selected RBLC Entries for SOCMI Fermentation from Alcohol Fuel/Ethanol Industry - VOC Emission Limits:

Table 1: Existing VOC BACT Limits – Narasin Fermentation Operations			
Company Name / Operation	**Process Description**	**Control Type**	**Control Efficiency**
PROPOSED BACT FOR Narasin Fermentation Operations			
Eli Lilly and Company, Clinton Laboratories - **Clinton,** IN (Proposed permit 165-27283-00009) Proposed date, 2009	Narasin Fermentation Operations	None	None
COMPARABLE BACT DETERMINATIONS (List in Top-Down Order by Control Efficiency)			
Natureworks (NE-0042)	Fermentation (64.999, SOCMI Other)	RTO	15.4 ton/yr (BACT Control efficiency not identified)
Cargil (NE-0037)	Fermentation (64.003, SOCMI Process Vents)	Wet Scrubber	98% Control and 19.20 lb/hr (BACT)
Ace Ethanol, LLC (WI-0207)	Fermentation, P20-P23, P30, P32-P35 (64.001, Batch Reaction Vessels except 69.011	Wet Scrubber (Packed Tower)	98% Control, 538 lb/MMgal and 3.10 lb/hr (BACT)
Aventine Renewable Energy – Aurora West, LLC (NE-0046)	Fermentation (70.190, Other Alcohol Production)	CO2 Scrubber	99% control OR 150 ppmvd (BACT)
Homeland Energy Solutions, LLC PN 06-672 (IA-0089)	Fermenters and Beerwell, S40 (07-A-970P) (70.120)	Wet Scrubber	97% control OR 100 ppmv (BACT)

Table 1: Existing VOC BACT Limits – Narasin Fermentation Operations			
Company Name / Operation	**Process Description**	**Control Type**	**Control Efficiency**
Southwest Iowa Renewable Energy (IA-0092)	Fermentation (70.120)	Wet Scrubber	95% control OR 100 ppmv (BACT)

The RBLC entry with the highest indicated VOC control efficiency was for Cargill, Inc. in Blair, Nebraska that is described in the RBLC as "fermentation". This site ferments ethanol and is limited to 98% VOC control and an after controls limit of 19.2 lb/hr. The other RBLC entry with a 98% VOC control requirement, Ace Ethanol, is in Stanley, Wisconsin. This plant also ferments ethanol and has a controlled VOC limit of 3.1 lb/hr. The remaining SOCMI RBLC entry for fermentation was for Natureworks, LLC, in Blair, Nebraska. Natureworks is a subsidiary of Cargill and also ferments ethanol from corn.
The IDEM concludes that all of the RBLC entries for fermentation operations which appear in the SOCMI section of RBLC are fuel grade ethanol plants, not pharmaceutical, aerobic, or otherwise comparable fermentation operations.

The fuel grade ethanol fermentation operations have VOC emission streams which are much different than those of Narasin fermentation operations. Although such fermentation operations are required to install VOC control systems, each of the entries in the above Table contain alternate VOC concentration limits which are considerably higher than the uncontrolled emission rate for Narasin fermentation operations. Lilly believes that BACT control requirements for fuel grade ethanol fermentation operations are not transferrable to pharmaceutical grade fermentation operations such as Narasin fermentation.

No RBLC entries similar to pharmaceutical aerobic fermentation, or in any way comparable to Narasin fermentation, were found in RBLC.

Regulatory Limits: Indiana rule 326 IAC 8-5-6 requires that fermentation operations associated with fuel grade ethanol production at dry mills be controlled by 98 % or to 10 ppm using a thermal oxidizer, by 98% or to 20 ppm using a wet scrubber, or by 98% using an enclosed flare. This rule is not applicable to fermentation operations of the type utilized at the Clinton Laboratories to produce Narasin. Based on language contained in various state rules, pharmaceutical fermentation operations are generally exempted from regulation under pharmaceutical RACT requirements. The MACT standard would exempt the Narasin fermenters (if they were applicable to this standard, which they are not) since VHAP concentrations are expected to be less than 50 ppmv.

Permit Limits: The alcohol fuel (ethanol) fermentation operations have much higher VOC emission rates than fermentation operations of the type operated to produce Narasin. In many cases, the outlet concentration limit imposed on these plants is higher than the uncontrolled emissions from the Narasin fermentation operations. IDEM, OAQ identified no comparable pharmaceutical fermentation operations in RBLC which were required to install VOC control systems.

Step 5: Select BACT

IDEM, OAQ has determined that there is no control device feasible to control VOC emission from the Narasin Fermentation Operations.

IDEM has established the following as BACT for VOC emissions from the Narasin Fermentation Operations.

The VOC emissions from the fermenter emission unit, identified as EU-3 operating under the flexible permit conditions shall not exceed one hundred (100) tons per twelve (12) month period, rolled on a calendar month basis.

Volatile Organic Compounds (VOC) BACT – Narasin Recovery Operations

Step 1: Identify Potential Control Technologies

The volatile organic compounds (VOC) emissions can be controlled by the followings:

(1) Destruction Processes;

(2) Reclamation Processes; and /or

(3) Combination of Reclamation and Destruction Technologies.

Destruction technologies reduce VOC concentration by high temperature oxidation into carbon dioxide and water vapor. Reclamation is the capture of VOCs for reuse or disposal.

Step 2: Eliminate Technically Infeasible Options

The test for technical feasibility of any control option is whether it is both available and applicable to reducing VOC emissions from emissions units at Narasin Recovery operations. The control technologies listed in the previous section are discussed and evaluated below for their technical feasibility.

Destruction Control Methods

The destruction of organic compounds usually requires temperatures ranging from $1,200^0$F to $2,000^0$F for direct thermal incinerators or 600^0F to $1,200^0$F for catalytic systems. Combustion temperature depends on the chemical composition and the desired destruction efficiency. Carbon dioxide and water vapor are the typical products of complete combustion. Turbulent mixing and combustion chamber retention times of 0.5 to 1.0 seconds are needed to obtain high destruction efficiencies.

Combustion control technologies include recuperative thermal incineration, regenerative thermal incineration, recuperative catalytic incineration, regenerative catalytic incineration, and flares.

Combustion control technologies include:

Recuperative Thermal Oxidation:

Recuperative thermal incinerators are add-on control devices used to control VOC emissions by introducing solvent-laden fume to the oxidizer. The stream is pre-heated by exiting flue gas from the same system in a heat exchanger or recuperator. A burner then heats the air to the required temperature. The air is then passed through an oxidation chamber where the solvent-laden air is converted to carbon dioxide and water. These are then passed through the heat exchanger where incoming fume is preheated by the heat of the exiting flue gas. Finally the clean flue gas is discharged to the atmosphere. The recuperative thermal oxidizer is appropriate for waste streams with a relatively high solvent content and/or consistent pollutant loading. Variation in pollutant loading will require a longer retention time in the oxidizer in order to properly destroy VOC emissions. Eli Lilly's streams do not have high solvent content or consistent pollutant loading. Based on a review of the RBLC, this type of control has been used for controlling VOC emissions from other sources, but has not been typically used for pharmaceutical processes. This would not be an appropriate control method for low VOC exhaust stream from the Narasin Recovery operations

Based on the information reviewed for this BACT determination, IDEM, OAQ has determined that the use of a Recuperative Thermal Oxidation is not technically feasible option for the Narasin Recovery operations at this source.

Regenerative Thermal Oxidation:

Regenerative thermal oxidizers (RTOs) are add-on control devices used to control VOC emissions by simple reaction of the harmful air pollutants with oxygen and heat. RTO uses a direct contact heat exchanger. These direct contact heat exchangers consist of a bed of porous ceramic packing or other structured, high heat capacity media. These systems can handle variable and low-concentration VOC waste streams.

The inlet gas first passes through a hot ceramic bed thereby heating the stream (and cooling the bed) to its ignition temperature. The hot gases then react (releasing energy) in the combustion chamber and while passing through another ceramic bed, thereby heating it to the combustion chamber outlet temperature. The process flows are then switched, now feeding the inlet stream to the hot bed. This cyclic process affords very high energy recovery (up to 95%). The higher capital costs associated with these high-performance heat exchangers and combustion chambers may be offset by the increased auxiliary fuel savings to make such a system economical. The Narasin Recovery Operation has a low - concentration exhaust stream which makes the Regenerative thermal oxidizers a suitable control device.

Based on the information reviewed for this BACT determination, IDEM, OAQ has determined that the use of a Regenerative thermal oxidizer with control efficiency of 98% is a technically feasible option for the Narasin Recovery operations at this source.

Recuperative and Regenerative Catalytic Oxidation:

Catalytic incinerators are add-on control devices used to control VOC emissions by using a bed of catalyst that facilitates the oxidation of the combustible gases. The catalyst increases the reaction rate and allows the conversion of VOC at lower temperatures than thermal incinerators. Catalytic oxidation can be used for low-concentration VOC waste streams; however, certain compounds present in waste stream gas may foul the catalyst. It may also be necessary to remove particulate prior to catalytic oxidation as well. The Narasin Recovery operations have a high temperature and high concentration VOC waste streams which makes the control device technically infeasible for the Narasin Recovery operation.

Based on the information reviewed for this BACT determination, IDEM, OAQ has determined that the use of Recuperative or Regenerative Catalytic Oxidation are not technically feasible options for the Narasin Recovery operations at this source.

Flares:

Flaring is used to control VOC emissions by piping VOCs to a remote, usually elevated location and burning them in an open flame in the open air using a specially designed burner tip, auxiliary fuel, and steam or air to promote mixing for nearly complete (> 98%) VOC destruction. While flares are designed to eliminate waste gas streams, they can cause safety and operational problems and the exhaust stream concentration must be high enough to sustain combustion.

Based on the information reviewed for this BACT determination, IDEM, OAQ has determined that the use of a flare is not a technically feasible option for the Narasin Recovery operations at this source.

Reclamation Control Methods

Organic compounds may be reclaimed by one of three possible methods; adsorption, absorption (scrubbing) or condensation. In general, the organic compounds are separated from the emission stream and reclaimed for reuse or disposal. Depending on the nature of the contaminant and the inlet concentration of the emission stream, recovery technologies can reach efficiencies of 98%.

Adsorption: is a surface phenomenon where attraction between the carbon and VOC molecules binds the pollutants to the carbon surface. Both carbon and VOC are chemically intact after adsorption. The VOCs may be removed, or desorbed, from the carbon bed reclaimed and destroyed. Adsorption can be used for relatively low VOC exhaust streams. Pollutants present in the gas streams can reduce adsorber efficiency, increase pressure drop and eventually plug the bed. Adsorption processes can be used to capture VOCs in low concentration exhaust; however, it is typically only used for exhaust that is not loaded with other pollutants which can plug the bed.

Based on the information reviewed for this BACT determination, IDEM, OAQ has determined that the use of Carbon adsorption is a technically feasible option for the Narasin Recovery Operation at this source.

Absorption: is a unit operation where components of a gas phase mixture (Pollutants) are selectively transferred to a relatively nonvolatile liquid, usually water. Sometimes, organic liquids, such as mineral oil or nonvolatile hydrocarbons, are suitable absorption solvents. The choice of solvent depends on cost and solubility of the pollutant in the solvent. Absorption is commonly used to recover products or purify gas streams that have high concentrations of organic compounds. Absorption processes are typically used to recover products or purify gas streams with high concentrations of organic compounds such as in the ethanol production and soybean oil refinery industries. However, it is not considered a technically feasible application for VOC control of emissions from the pharmaceutical operations due to the low concentration of VOC in the exhaust.

Based on the information reviewed for this BACT determination, IDEM, OAQ has determined that the use of absorption is not a technically feasible option for the Narasin Recovery operations at this source.

Condensation: is the separation of VOCs from an emission stream through a phase change, by increasing the system pressure or, more commonly, lowering the system temperature below the dew point of the VOC vapor. When condensers are used for air pollution control, they usually operate at the pressure of the emission stream, and typically require a refrigeration unit to obtain the temperature necessary to condense the VOCs from the emission stream. These systems are frequently used prior to other control devices (e.g., oxidizers or absorbers) to remove components that may be corrosive or damaging to other parts of the system. Refrigerated condensers are used as air pollution control devices for treating emission streams with high VOC concentrations (usually > 5,000 ppmv). Condensers may be used to control VOC emissions with high VOC concentrations (usually greater than 5,000 ppmv). The RBLC shows that this type of control has been used for botanical extraction processes and petroleum refineries. Condensers are not typically used in the pharmaceutical industries for VOC control and are not considered technically feasible for the application of controlling VOC emissions from the pharmaceutical operations due to the low concentration of VOC in the exhaust.

Based on the information reviewed for this BACT determination, IDEM, OAQ has determined that the use of condensation is not a technically feasible option for the Narasin Recovery operations at this source.

Combinations of Reclamation and Destruction Control Methods

In some cases, a combination of control technologies offers the most efficient and cost effective VOC control.

The combination of carbon adsorption with recuperative thermal incineration is available commercially. This system concentrates the VOC stream by using carbon adsorption to remove low concentration VOCs in an emission stream and then uses a lower volume of hot air, commonly one-tenth the original flow, to desorb the pollutants. A recuperative incinerator for destroying pollutants in the concentrated stream is much smaller and has lower supplemental fuel requirement than an incinerator sized for the full emission stream volume.

Absorption systems can also be used to concentrate emission streams to reduce the size of destruction equipment. The concentration effect is not as extreme as with carbon adsorption, a concentrated exhaust stream one quarter the volume of the inlet stream seems to be the practical limit. Absorption concentrators are typically suited for batch processes or to equalize pollutant concentrations in a variable stream. The physical characteristics that drive the absorption of pollutants into a liquid also limit the opportunity to remove those pollutants from the liquid stream. This type of control is not typically used in pharmaceutical industries and based on the pollutant loading of the exhaust stream, adsorption is not considered technically feasible for the Narasin Fermentation operations as plugging of the adsorption media would likely occur.

Fume incinerators typically need supplemental fuel. Concentrated VOC streams with high heat contents obviously require less supplementary fuel than more dilute streams. VOC streams sometimes have a heat content high enough to be self-sustaining, but a supplemental fuel firing rate equal to about 5% of the total incinerator heat input is usually needed to stabilize the burner flame. Natural gas is the most common fuel for VOC incinerators, but fuel oil is an option in some circumstances.

Based on the information reviewed for this BACT determination, IDEM, OAQ has determined that the use of a combination of reclamation and destruction control methods due to the fact that the reclamation part of the system is not a technically feasible option for the Narasin Recovery operations at this source.

Step 3: Rank the Remaining Control Technologies by Control Effectiveness

Based on the information reviewed for this BACT determination, IDEM, OAQ has determined that a Regenerative Thermal oxidizer or Carbon Adsorption are both technically feasible for the control of VOC resulting from Narasin Recovery operations at the Eli Lilly and Company, Clinton Laboratories and both achieved the same level of control.

(1) Carbon Adsorption - 98 % Control efficiency

(2) Regenerative Thermal Oxidation - 98% Control efficiency

Step 4: Evaluate the Most Effective Controls and Document the Results

The following table lists the proposed VOC BACT determination along with the existing VOC BACT determinations for Narasin Recovery Operations. All data in the table is based on the information obtained from the permit application submitted by Eli Lilly and Company - Clinton Laboratories, the U.S. EPA RACT/BACT/LAER Clearinghouse (RBLC), and electronic versions of permits available at the websites of other permitting agencies.

Feasibility of Control Technology: VOC emissions are currently controlled through the use of the CA460 carbon adsorption system. IDEM, OAQ has determined that it is not feasible to enhance the CA460 control system to achieve a higher control efficiency. IDEM, OAQ evaluated

the costs that would be associated with routing the exhaust from CA460 to a RTO and determined that these costs were not economically feasible. (See Appx D-2- Cost Analysis).

RBLC Entries for Pharmaceutical Operations - VOC Emission Limits

Table 2: Existing VOC BACT Limits – Narasin Recovery Operations			
Company Name / Operation	**Process Description**	**Control Type**	**Control Efficiency/Limits**
PROPOSED BACT FOR Narasin Recovery Operations			
Eli Lilly and Company, Clinton Laboratories - **Clinton,** IN (Proposed permit 165-27283-00009) Proposed date, 2009	Narasin Recovery Operation	Carbon Adsorber (CA460)	98% control or 30 ppmv based on 24-hour block average
COMPARABLE BACT DETERMINATIONS (List in Top-Down Order by Control Efficiency)			
ICN Pharmaceuticals (CA-0348)	Drying Ovens (4)	Carbon Adsorption	65 lb/day (control efficiency not specified) (BACT)
Kelco-Division of Merck, Inc (CA-0570)	Biogum Processing Line	Water Scrubbers	95% (BACT)
American Cyanamid Co. (CT-0037)	Pharmaceutical Material Generation	Activated carbon Adsorption	90% (BACT)
Pfizer (CT-0103)	Pharmaceuticals Manufacturing Equipments	Regenerative Oil Adsorption System	93% (BACT)
Pfizer (CT-0108)	Coater	Catalytic Oxidizer	95% (BACT)
Pfizer (CT-0109)	Dryer	Catalytic Oxidizer	95% (BACT)
Pfizer (CT-0110)	Dryer	Catalytic Oxidizer	95% (BACT)
Pfizer (CT-0129)	Pharmaceuticals Manufacturing Process	Surface Condensers	95% (BACT)
Pfizer (CT-0129)	Pharmaceuticals Manufacturing Process	Scrubber and /or Carbon Adsorption	85% (BACT)
Pfizer (CT-0133)	Coater	Catalytic Oxidizer	95% (BACT)
Pfizer (CT-0134)	Dryer	Catalytic Oxidizer	95% (BACT)
Pfizer (CT-0135)	Dryer	Catalytic Oxidizer	95% (BACT)
Eli Lilly and Company (IN-0035)	Insulin Manufacturing	Low Temperature Vent Condensers	97% (BACT)
Upjohn (MI-0201)	Filter, Pressure for product drying	2 Nitrogen recycle Drying System	98% (LAER)
Dow Chemical (MI-0223)	Reactor, Distillation, Crystallizer, Centrifuge, Vacuum Dryer and Filter	Condenser followed by wet scrubber	90% for isopropyl Alcohol and 95% for Ethyl Alcohol
Upjohn (MI-0235)	Expansion of HF Chemistry	Refrigerated Condenser	94.7% (BACT)

Table 2: Existing VOC BACT Limits – Narasin Recovery Operations			
Company Name / Operation	**Process Description**	**Control Type**	**Control Efficiency/Limits**
Pfizer (MI-0276)	Pharmaceutical Production.	Thermal Oxidizer	99.9% (BACT)
Wyckoff Chemicals Co., Inc (MI-0107)	Pharmaceutical Mfg.	Caustic scrubber/Demister, carbon Adsorption System	95% (BACT)
Wyckoff, Inc (MI-0312)	Reactors, et. al	Scrubber and Condenser	94%
Eli Lilly and Company (IN-0098)	Monensin Process	Carbon Adsorber	95% (BACT)
Eli Lilly and Company (Permit No. T157-6879-00006)	BPM	RTO	98% control or 20ppmv

The most stringent VOC emission limitation contained in the pharmaceutical summary is 99.99% control on a pharmaceutical production operation. All remaining RBLC entries for this classification code had BACT requirements which contained VOC control requirements no more stringent than 98% control. In evaluating BACT for VOC control of pharmaceutical operations, it is important to note that the control efficiency anticipated for a given emission unit/control equipment combination is dependent upon the uncontrolled VOC emission rate of the emission unit. Even though a unit may be listed with a high control efficiency in RBLC, the same control equipment would be expected to have a lower control efficiency if the uncontrolled emission rate is lower. Lilly has focused its BACT evaluation on the extent to which the selected control equipment corresponds to the control equipment type utilized at the best-controlled facility identified in RBLC.

Review of Pfizer BACT Limit in Holland, Michigan

The RBLC entry with the highest indicated VOC control efficiency is an entry for Pfizer in Holland, Michigan that is described in RBLC as "three 22,500 cfm thermal oxidizers (that) will destroy VOC and combustibles at 99.99% guaranteed efficiency". Due to the high control efficiency noted in RBLC for this unit, a more detailed discussion of this permit is provided. Lilly notes that Pfizer Holland plant is no longer in operation. The Pfizer permit did not have a permit condition or limit that required 99.99% control of VOC emissions, but rather a mass emission rate of 0.84 pounds of VOC per hour (for all units combined). Lilly determined that the oxidizers at Pfizer were simple afterburners manufactured by Callidus, followed by waste heat boilers. No information was available on the inlet VOC concentration for this unit. Although the 99.99% control requirement was not a permit limit for this unit, Lilly did perform an analysis of the economic feasibility of installing thermal control systems on the outlet of the Narasin recovery exhaust, which has the higher VOC emission concentration of the two carbon adsorbers.

Regulatory Limits: There are no regulatory limits which are applicable to Narasin recovery operations. The most stringent VOC emission limitation applicable to emission units similar to Narasin recovery is the MACT standard for pharmaceutical operations. This rule requires HAP emissions to be controlled by 93% to 98% or to 20 ppm for units with combustion control systems or to 50 ppm for units with noncombustion control systems.

Permit Limits: The outlet concentration of approximately 30 ppmv achieved by the Narasin recovery carbon adsorption system correlates more closely with outlet concentration limits contained in permits with high control efficiencies. IDEM believes that a higher control efficiency could only be achieved through the installation of an additional control device following the existing carbon adsorption system.

The current recovery carbon adsorber is not designed to meet lower outlet concentrations with its current and future inlet loads. Therefore, it is not feasible to upgrade this system without substantial BACT analysis impact.

IDEM, OAQ believes that VOC BACT for the Narasin Recovery carbon adsorber is 98% control efficiency or 30 ppmv, averaged over a 24-hour block period. This limitation includes an increase in VOC loading to C460 of approximately 20% as a result of the addition of evaporator EV101 to the inlet air stream as discussed in the other Narasin Recovery Operation. IDEM, OAQ did not believe it is necessary to provide correction to a particular oxygen or carbon dioxide content as part of this limit, since no combustion is associated with this process.

Step 5: Select BACT

IDEM has established the following as BACT for VOC emissions from the Narasin Recovery Operations.

The VOC emissions from the Narasin Recovery Operations shall be controlled by the existing Carbon Adsorption system (CA460) with an overall VOC control efficiency of no less than 98% or a volumetric concentration of 30 parts per million (ppmv) based on a 24 - hour block average.

Volatile Organic Compounds (VOC) BACT – Narasin Finishing Operations

Step 1: Identify Potential Control Technologies

The volatile organic compounds (VOC) emissions can be controlled by the following:

(1) Destruction Processes;

(2) Reclamation Processes; and /or

(3) Combination of Reclamation and Destruction Technologies.

Destruction technologies reduce VOC concentration by high temperature oxidation into carbon dioxide and water vapor. Reclamation is the capture of VOCs for reuse or disposal.

Step 2: Eliminate Technically Infeasible Options

The test for technical feasibility of any control option is whether it is both available and applicable to reducing VOC emissions from emissions units at Narasin Finishing operations. The control technologies listed in the previous section are discussed and evaluated below for their technical feasibility.

Destruction Control Methods

The destruction of organic compounds usually requires temperatures ranging from 1,200^{0}F to 2,000^{0}F for direct thermal incinerators or 600^{0}F to 1,200^{0}F for catalytic systems. Combustion temperature depends on the chemical composition and the desired destruction efficiency. Carbon dioxide and water vapor are the typical products of complete combustion. Turbulent mixing and combustion chamber retention times of 0.5 to 1.0 seconds are needed to obtain high destruction efficiencies.

Combustion control technologies include recuperative thermal incineration, regenerative thermal incineration, recuperative catalytic incineration, regenerative catalytic incineration, and flares.

Combustion control technologies include:

Recuperative Thermal Oxidation:

Recuperative thermal incinerators are add-on control devices used to control VOC emissions by introducing solvent-laden fume to the oxidizer. The stream is pre-heated by exiting flue gas from the same system in a heat exchanger or recuperator. A burner then heats the air to the required temperature. The air is then passed through an oxidation chamber where the solvent-laden air is converted to carbon dioxide and water. These are then passed through the heat exchanger where incoming fume is preheated by the heat of the exiting flue gas. Finally the clean flue gas is discharged to the atmosphere. The recuperative thermal oxidizer is appropriate for waste streams with a relatively high solvent content and/or consistent pollutant loading. Variation in pollutant loading will require a longer retention time in the oxidizer in order to properly destroy VOC emissions. Eli Lilly's streams do not have high solvent content or consistent pollutant loading. Based on a review of the RBLC, this type of control has been used for controlling VOC emissions from other sources, but has not been typically used for pharmaceutical processes. This would not be an appropriate control method for low VOC exhaust stream from the Narasin Finishing operations because the stream is has a low solvent content.

Based on the information reviewed for this BACT determination, IDEM, OAQ has determined that a Recuperative Thermal Oxidation is not technically feasible option for the Narasin Finishing operations at this source.

Regenerative Thermal Oxidation:

Regenerative thermal oxidizers (RTOs) are add-on control devices used to control VOC emissions by simple reaction of the harmful air pollutants with oxygen and heat. RTO uses a direct contact heat exchanger. These direct contact heat exchangers consist of a bed of porous ceramic packing or other structured, high heat capacity media. These systems can handle variable and low-concentration VOC waste streams.

The inlet gas first passes through a hot ceramic bed thereby heating the stream (and cooling the bed) to its ignition temperature. The hot gases then react (releasing energy) in the combustion chamber and while passing through another ceramic bed, thereby heating it to the combustion chamber outlet temperature. The process flows are then switched, now feeding the inlet stream to the hot bed. This cyclic process affords very high energy recovery (up to 95%). The higher capital costs associated with these high-performance heat exchangers and combustion chambers may be offset by the increased auxiliary fuel savings to make such a system economical. The Narasin Finishing operations has a high concentration VOC waste stream, therefore the Regenerative thermal oxidizers (RTOs) will not be a viable option for the Narasin Finishing operations.

Based on the information reviewed for this BACT determination, IDEM, OAQ has determined that a Regenerative thermal oxidizer is not a technically feasible option for the Narasin Finishing operations at this source.

Recuperative and Regenerative Catalytic Oxidation:

Catalytic incinerators are add-on control devices used to control VOC emissions by using a bed of catalyst that facilitates the oxidation of the combustible gases. The catalyst increases the reaction rate and allows the conversion of VOC at lower temperatures than thermal incinerators. Catalytic oxidation can be used for low-concentration VOC waste streams; however, certain compounds present in waste stream gas may foul the catalyst. It may also be necessary to remove particulate prior to catalytic oxidation as well.

Based on the information reviewed for this BACT determination, IDEM, OAQ has determined that a Recuperative or Regenerative Catalytic Oxidation are not technically feasible options for the Narasin Finishing operations at this source.

Flares:

Flaring is used to control VOC emissions by piping VOCs to a remote, usually elevated location and burning them in an open flame in the open air using a specially designed burner tip, auxiliary fuel, and steam or air to promote mixing for nearly complete (> 98%) VOC destruction. While flares are designed to eliminate waste gas streams, they can cause safety and operational problems and the exhaust stream concentration must be high enough to sustain combustion. The flare system can not be use to control VOC emissions from the Narasin Finishing Operation because of the low heat capacity of the exhaust gas.

Based on the information reviewed for this BACT determination, IDEM, OAQ has determined that a flare is not technically feasible option for the Narasin Finishing operations at this source.

Reclamation Control Methods

Organic compounds may be reclaimed by one of three possible methods; adsorption, absorption (scrubbing) or condensation. In general, the organic compounds are separated from the emission stream and reclaimed for reuse or disposal. Depending on the nature of the contaminant and the inlet concentration of the emission stream, recovery technologies can reach efficiencies of 98%.

Adsorption: is a surface phenomenon where attraction between the carbon and VOC molecules binds the pollutants to the carbon surface. Both carbon and VOC are chemically intact after adsorption. The VOCs may be removed, or desorbed, from the carbon bed reclaimed and destroyed. Adsorption can be used for relatively low VOC exhaust streams. Pollutants present in the gas streams can reduce adsorber efficiency, increase pressure drop and eventually plug the bed. Adsorption processes can be used to capture VOCs in low concentration exhaust; however, it is typically only used for exhaust that is not loaded with other pollutants which can plug the bed.

Based on the information reviewed for this BACT determination, IDEM, OAQ has determined that the use of Carbon adsorption is a technically feasible option for the Narasin Finishing operations at this source.

Absorption: is a unit operation where components of a gas phase mixture (Pollutants) are selectively transferred to a relatively nonvolatile liquid, usually water. Sometimes, organic liquids, such as mineral oil or nonvolatile hydrocarbons, are suitable absorption solvents. The choice of solvent depends on cost and solubility of the pollutant in the solvent. Absorption is commonly used to recover products or purify gas streams that have high concentrations of organic compounds. Absorption processes are typically used to recover products or purify gas streams with high concentrations of organic compounds such as in the ethanol production and soybean oil refinery industries. However, it is not considered a technically feasible application for VOC control of emissions from the pharmaceutical operations due to the low concentration of VOC in the exhaust.

Based on the information reviewed for this BACT determination, IDEM, OAQ has determined that the use of absorption is not a technically feasible option for the Narasin Finishing operations at this source.

Condensation: is the separation of VOCs from an emission stream through a phase change, by increasing the system pressure or, more commonly, lowering the system temperature below the dew point of the VOC vapor. When condensers are used for air pollution control, they usually operate at the pressure of the emission stream, and typically require a refrigeration unit to obtain the temperature necessary to condense the VOCs from

the emission stream. These systems are frequently used prior to other control devices (e.g., oxidizers or absorbers) to remove components that may be corrosive or damaging to other parts of the system. Refrigerated condensers are used as air pollution control devices for treating emission streams with high VOC concentrations (usually > 5,000 ppmv). Condensers may be used to control VOC emissions with high VOC concentrations (usually greater than 5,000 ppmv). The RBLC shows that this type of control has been used for botanical extraction processes and petroleum refineries. Condensers are not typically used in the pharmaceutical industries for VOC control and are not considered technically feasible for the application of controlling VOC emissions from the pharmaceutical operations due to the low concentration of VOC in the exhaust.

Based on the information reviewed for this BACT determination, IDEM, OAQ has determined that the use of condensation is not a technically feasible option for the Narasin Finishing operations at this source.

Combinations of Reclamation and Destruction Control Methods

In some cases, a combination of control technologies offers the most efficient and cost effective VOC control.

The combination of carbon adsorption with recuperative thermal incineration is available commercially. This system concentrates the VOC stream by using carbon adsorption to remove low concentration VOCs in an emission stream and then uses a lower volume of hot air, commonly one-tenth the original flow, to desorb the pollutants. A recuperative incinerator for destroying pollutants in the concentrated stream is much smaller and has lower supplemental fuel requirement than an incinerator sized for the full emission stream volume.

Absorption systems can also be used to concentrate emission streams to reduce the size of destruction equipment. The concentration effect is not as extreme as with carbon adsorption, a concentrated exhaust stream one quarter the volume of the inlet stream seems to be the practical limit. Absorption concentrators are typically suited for batch processes or to equalize pollutant concentrations in a variable stream. The physical characteristics that drive the absorption of pollutants into a liquid also limit the opportunity to remove those pollutants from the liquid stream. This type of control is not typically used in pharmaceutical industries and based on the pollutant loading of the exhaust stream, adsorption is not considered technically feasible for the Narasin Finishing operations as plugging of the adsorption media would likely occur.

Fume incinerators typically need supplemental fuel. Concentrated VOC streams with high heat contents obviously require less supplementary fuel than more dilute streams. VOC streams sometimes have a heat content high enough to be self-sustaining, but a supplemental fuel firing rate equal to about 5% of the total incinerator heat input is usually needed to stabilize the burner flame. Natural gas is the most common fuel for VOC incinerators, but fuel oil is an option in some circumstances.

Based on the information reviewed for this BACT determination, IDEM, OAQ has determined that the use of a combination of reclamation and destruction control methods due to the fact that the reclamation part of the system is not a technically feasible option for the Narasin Finishing operations at this source.

Step 3: Rank the Remaining Control Technologies by Control Effectiveness

Based on the information reviewed for this BACT determination, IDEM, OAQ has determined that Carbon Adsorption is a technically feasible for the control of VOC emissions resulting from Narasin Finishing operations at the Eli Lilly and Company - Clinton Laboratories.

(1) Carbon Adsorption - 98 % Control efficiency

Step 4: Evaluate the Most Effective Controls and Document the Results

The following table lists the proposed VOC BACT determination along with the existing VOC BACT determinations for Narasin Finishing operations. All data in the table is based on the information obtained from the permit application submitted by Eli Lilly and Company - Clinton Laboratories, the U.S. EPA RACT/BACT/LAER Clearinghouse (RBLC), and electronic versions of permits available at the websites of other permitting agencies.

Feasibility of Control Technology: VOC emissions are currently controlled through the use of the CA190 carbon adsorption system. This unit must currently meet an emission limit of 95% control or 10 ppmv. Further control of this unit is not feasible, as the 10 ppmv outlet concentration is the lower end of what is achievable by any control technology.

RBLC Entries for Pharmaceutical Operations - VOC Emission Limits

Table 3: Existing VOC BACT Limits – Narasin Finishing Operations

Company Name / Operation	Process Description	Control Type	Control Efficiency/Limits
PROPOSED BACT FOR Narasin Finishing Operations			
Eli Lilly and Company, Clinton Laboratories - **Clinton,** IN (Proposed permit 165-27283-00009) Proposed date, 2009	Narasin Finishing Operation	Carbon Adsorber (CA190)	98% control or 10 ppmv based on 24-hour block average
COMPARABLE BACT DETERMINATIONS (List in Top-Down Order by Control Efficiency)			
ICN Pharmaceuticals (CA-0348)	Drying Ovens (4)	Carbon Adsorption	65 lb/day (control efficiency not specified) (BACT)
Kelco-Division of Merck, Inc (CA-0570)	Biogum Processing Line	Water Scrubbers	95% (BACT)
American Cyanamid Co. (CT-0037)	Pharmaceutical Material Generation	Activated carbon Adsorption	90% (BACT)
Pfizer (CT-0103)	Pharmaceuticals Manufacturing Equipments	Regenerative Oil Adsorption System	93% (BACT)
Pfizer (CT-0108)	Coater	Catalytic Oxidizer	95% (BACT)
Pfizer (CT-0109)	Dryer	Catalytic Oxidizer	95% (BACT)
Pfizer (CT-0110)	Dryer	Catalytic Oxidizer	95% (BACT)
Pfizer (CT-0129)	Pharmaceuticals Manufacturing Process	Surface Condensers	95% (BACT)

Table 3: Existing VOC BACT Limits – Narasin Finishing Operations			
Company Name / Operation	**Process Description**	**Control Type**	**Control Efficiency/Limits**
Pfizer (CT-0129)	Pharmaceuticals Manufacturing Process	Scrubber and /or Carbon Adsorption	85% (BACT)
Pfizer (CT-0133)	Coater	Catalytic Oxidizer	95% (BACT)
Pfizer (CT-0134)	Dryer	Catalytic Oxidizer	95% (BACT)
Pfizer (CT-0135)	Dryer	Catalytic Oxidizer	95% (BACT)
Eli Lilly and Company (IN-0035)	Insulin Manufacturing	Low Temperature Vent Condensers	97% (BACT)
Upjohn (MI-0201)	Filter, Pressure for product drying	2 Nitrogen recycle Drying System	98% (LAER)
Dow Chemical (MI-0223)	Reactor, Distillation, Crystallizer, Centrifuge, Vacuum Dryer and Filter	Condenser followed by wet scrubber	90% for isopropyl Alcohol and 95% for Ethyl Alcohol
Upjohn (MI-0235)	Expansion of HF Chemistry	Refrigerated Condenser	94.7% (BACT)
Pfizer (MI-0276)	Pharmaceutical Production.	Thermal Oxidizer	99.9% (BACT)
Wyckoff Chemicals Co., Inc (MI-0107)	Pharmaceutical Mfg.	Caustic scrubber/Demister, carbon Adsorption System	95% (BACT)
Wyckoff, Inc (MI-0312)	Reactors, et. al	Scrubber and Condenser	94%
Eli Lilly and Company (IN-0098)	Monensin Process	Carbon Adsorber	95% (BACT)
Eli Lilly and Company (Permit No. T157-6879-00006)	BPM	RTO	98% control or 20ppmv

The most stringent VOC emission limitation contained in the pharmaceutical summary is 99.99% control on a pharmaceutical production operation (found in Table 3.2-3). All remaining RBLC entries for this classification code had BACT requirements which contained VOC control requirements no more stringent than 98% control.

In evaluating BACT for VOC control of pharmaceutical operations, it is important to note that the control efficiency anticipated for a given emission unit/control equipment combination is dependent upon the uncontrolled VOC emission rate of the emission unit. Even though a unit may be listed with a high control efficiency in RBLC, the same control equipment would be expected to have a lower control efficiency if the uncontrolled emission rate is lower. IDEM, OAQ has focused its BACT evaluation on the extent to which the selected control equipment corresponds to the control equipment type utilized at the best-controlled facility identified in RBLC.

Review of Pfizer BACT Limit in Holland, Michigan

The RBLC entry with the highest indicated VOC control efficiency is an entry for Pfizer in Holland, Michigan that is described in RBLC as "three 22,500 cfm thermal oxidizers (that) will destroy VOC and

combustibles at 99.99% guaranteed efficiency". Due to the high control efficiency noted in RBLC for this unit, a more detailed discussion of this permit is provided.

IDEM, OAQ notes that Pfizer Holland plant is no longer in operation. The Pfizer permit did not have a permit condition or limit that required 99.99% control of VOC emissions, but rather a mass emission rate of 0.84 pounds of VOC per hour (for all units combined).
IDEM, OAQ determined that the oxidizers at Pfizer were simple afterburners manufactured by Callidus, followed by waste heat boilers. No information was available on the inlet VOC concentration for this unit. Although the 99.99% control requirement was not a permit limit for this unit, IDEM, OAQ did perform an analysis of the economic feasibility of installing thermal control systems on the outlet of the Narasin recovery exhaust, which has the higher VOC emission concentration of the two carbon adsorbers.

Regulatory Limits: There are no regulatory limits which are applicable to the Narasin finishing operations. The most stringent VOC emission limitation applicable to emission units similar to Narasin finishing is the MACT standard for pharmaceutical operations. This rule requires organic HAP emissions to be controlled by 93% to 98% or to 20 ppm for units with combustion control systems or to 50 ppm for units with noncombustion control systems.

Permit Limits: The outlet concentration of approximately 10 ppmv achieved by the Narasin finishing carbon adsorption system correlates well with the lowest outlet concentration limits contained in permits with high control efficiencies.

Based on these data, IDEM, OAQ believes that VOC BACT for the Narasin finishing carbon adsorber is 98% control or 10 ppmv, averaged over a 24-hour block period.

Step 5: Select BACT

IDEM has established the following as BACT for VOC emissions from the Narasin Finishing Operations:

The VOC emissions from the Narasin Finishing Operations shall be controlled by the existing Carbon Adsorption system (CA190) with an overall VOC control efficiency of no less than 98% or a volumetric concentration of 10 parts per million (ppmv) based on a 24 - hour block average.

Volatile Organic Compounds (VOC) BACT – Other Narasin Recovery Operation

Step 1: Identify Potential Control Technologies

The volatile organic compounds (VOC) emissions can be controlled by the following:

(1) Destruction Processes;

(2) Reclamation Processes; and /or

(3) Combination of Reclamation and Destruction Technologies.

Destruction technologies reduce VOC concentration by high temperature oxidation into carbon dioxide and water vapor. Reclamation is the capture of VOCs for reuse or disposal.

Step 2: Eliminate Technically Infeasible Options

The test for technical feasibility of any control option is whether it is both available and applicable to reducing VOC emissions from emissions units at the other Narasin Recovery operations. The

control technologies listed in the previous section are discussed and evaluated below for their technical feasibility.

Destruction Control Methods

The destruction of organic compounds usually requires temperatures ranging from $1,200^0$F to $2,000^0$F for direct thermal incinerators or 600^0F to $1,200^0$F for catalytic systems. Combustion temperature depends on the chemical composition and the desired destruction efficiency. Carbon dioxide and water vapor are the typical products of complete combustion. Turbulent mixing and combustion chamber retention times of 0.5 to 1.0 seconds are needed to obtain high destruction efficiencies.

Combustion control technologies include recuperative thermal incineration, regenerative thermal incineration, recuperative catalytic incineration, regenerative catalytic incineration, and flares.

Combustion control technologies include:

Recuperative Thermal Oxidation:

Recuperative thermal incinerators are add-on control devices used to control VOC emissions by introducing solvent-laden fume to the oxidizer. The stream is pre-heated by exiting flue gas from the same system in a heat exchanger or recuperator. A burner then heats the air to the required temperature. The air is then passed through an oxidation chamber where the solvent-laden air is converted to carbon dioxide and water. These are then passed through the heat exchanger where incoming fume is preheated by the heat of the exiting flue gas. Finally the clean flue gas is discharged to the atmosphere. The recuperative thermal oxidizer is appropriate for waste streams with a relatively high solvent content and/or consistent pollutant loading. Variation in pollutant loading will require a longer retention time in the oxidizer in order to properly destroy VOC emissions. Eli Lilly's streams do not have high solvent content or consistent pollutant loading. Based on a review of the RBLC, this type of control has been used for controlling VOC emissions from other sources, but has not been typically used for pharmaceutical processes. This would not be an appropriate control method for low VOC exhaust stream from the other Narasin Recovery operations

Based on the information reviewed for this BACT determination, IDEM, OAQ has determined that the use of a Recuperative Thermal Oxidation is not a technically feasible option for the other Narasin Recovery operations at this source.

Regenerative Thermal Oxidation:

Regenerative thermal oxidizers (RTOs) are add-on control devices used to control VOC emissions by simple reaction of the harmful air pollutants with oxygen and heat. RTO uses a direct contact heat exchanger. These direct contact heat exchangers consist of a bed of porous ceramic packing or other structured, high heat capacity media. These systems can handle variable and low-concentration VOC waste streams.

The inlet gas first passes through a hot ceramic bed thereby heating the stream (and cooling the bed) to its ignition temperature. The hot gases then react (releasing energy) in the combustion chamber and while passing through another ceramic bed, thereby heating it to the combustion chamber outlet temperature. The process flows are then switched, now feeding the inlet stream to the hot bed. This cyclic process affords very high energy recovery (up to 95%). The higher capital costs associated with these high-performance heat exchangers and combustion chambers may be offset by the increased auxiliary fuel savings to make such a system economical. The other Narasin Recovery Operations have a high concentration VOC waste stream, therefore the Regenerative thermal oxidizers (RTOs) will not be a viable option for the other Narasin Recovery Operations.

Based on the information reviewed for this BACT determination, IDEM, OAQ has determined that a Regenerative thermal oxidizer is not technically feasible option for the other Narasin Recovery operations at this source.

Recuperative and Regenerative Catalytic Oxidation:

Catalytic incinerators are add-on control devices used to control VOC emissions by using a bed of catalyst that facilitates the oxidation of the combustible gases. The catalyst increases the reaction rate and allows the conversion of VOC at lower temperatures than thermal incinerators. Catalytic oxidation can be used for low-concentration VOC waste streams; however, certain compounds present in waste stream gas may foul the catalyst. It may also be necessary to remove particulate prior to catalytic oxidation as well.

Based on the information reviewed for this BACT determination, IDEM, OAQ has determined that a Recuperative or Regenerative Catalytic Oxidation are not technically feasible options for the other Narasin Recovery operations at this source.

Flares:
Flaring is used to control VOC emissions by piping VOCs to a remote, usually elevated location and burning them in an open flame in the open air using a specially designed burner tip, auxiliary fuel, and steam or air to promote mixing for nearly complete (> 98%) VOC destruction. While flares are designed to eliminate waste gas streams, they can cause safety and operational problems and the exhaust stream concentration must be high enough to sustain combustion.

Based on the information reviewed for this BACT determination, IDEM, OAQ has determined that a flare is not technically feasible option for the other Narasin Recovery operations at this source.

Reclamation Control Methods

Organic compounds may be reclaimed by one of three possible methods; adsorption, absorption (scrubbing) or condensation. In general, the organic compounds are separated from the emission stream and reclaimed for reuse or disposal. Depending on the nature of the contaminant and the inlet concentration of the emission stream, recovery technologies can reach efficiencies of 98%.

Adsorption: is a surface phenomenon where attraction between the carbon and VOC molecules binds the pollutants to the carbon surface. Both carbon and VOC are chemically intact after adsorption. The VOCs may be removed, or desorbed, from the carbon bed reclaimed and destroyed. Adsorption can be used for relatively low VOC exhaust streams. Pollutants present in the gas streams can reduce adsorber efficiency, increase pressure drop and eventually plug the bed. Adsorption processes can be used to capture VOCs in low concentration exhaust; however, it is typically only used for exhaust that is not loaded with other pollutants which can plug the bed.

Based on the information reviewed for this BACT determination, IDEM, OAQ has determined that the use of carbon adsorption is a technically feasible option for the other Narasin Recovery operations at this source.

Absorption: is a unit operation where components of a gas phase mixture (Pollutants) are selectively transferred to a relatively nonvolatile liquid, usually water. Sometimes, organic liquids, such as mineral oil or nonvolatile hydrocarbons, are suitable absorption solvents. The choice of solvent depends on cost and solubility of the pollutant in the solvent. Absorption is commonly used to recover products or purify gas streams that have high concentrations of organic compounds. Absorption processes are typically used to recover products or purify gas streams with high concentrations of organic compounds such as in the ethanol production and soybean oil refinery industries. However, it is not considered a technically feasible application for VOC control of emissions from the pharmaceutical operations due to the low concentration of VOC in the exhaust.

Based on the information reviewed for this BACT determination, IDEM, OAQ has determined that the use of absorption is not a technically feasible option for the other Narasin Recovery operations at this source.

Condensation: is the separation of VOCs from an emission stream through a phase change, by increasing the system pressure or, more commonly, lowering the system temperature below the dew point of the VOC vapor. When condensers are used for air pollution control, they usually operate at the pressure of the emission stream, and typically require a refrigeration unit to obtain the temperature necessary to condense the VOCs from the emission stream. These systems are frequently used prior to other control devices (e.g., oxidizers or absorbers) to remove components that may be corrosive or damaging to other parts of the system. Refrigerated condensers are used as air pollution control devices for treating emission streams with high VOC concentrations (usually > 5,000 ppmv). Condensers may be used to control VOC emissions with high VOC concentrations (usually greater than 5,000 ppmv). The RBLC shows that this type of control has been used for botanical extraction processes and petroleum refineries. Condensers are not typically used in the pharmaceutical industries for VOC control and are not considered technically feasible for the application of controlling VOC emissions from the pharmaceutical operations due to the low concentration of VOC in the exhaust.

Based on the information reviewed for this BACT determination, IDEM, OAQ has determined that the use of condensation is not a technically feasible option for the other Narasin Recovery operations at this source.

Combinations of Reclamation and Destruction Control Methods

In some cases, a combination of control technologies offers the most efficient and cost effective VOC control.

The combination of carbon adsorption with recuperative thermal incineration is available commercially. This system concentrates the VOC stream by using carbon adsorption to remove low concentration VOCs in an emission stream and then uses a lower volume of hot air, commonly one-tenth the original flow, to desorb the pollutants. A recuperative incinerator for destroying pollutants in the concentrated stream is much smaller and has lower supplemental fuel requirement than an incinerator sized for the full emission stream volume.

Absorption systems can also be used to concentrate emission streams to reduce the size of destruction equipment. The concentration effect is not as extreme as with carbon adsorption, a concentrated exhaust stream one quarter the volume of the inlet stream seems to be the practical limit. Absorption concentrators are typically suited for batch processes or to equalize pollutant concentrations in a variable stream. The physical characteristics that drive the absorption of pollutants into a liquid also limit the opportunity to remove those pollutants from the liquid stream. This type of control is not typically used in pharmaceutical industries and based on the pollutant loading of the exhaust stream, adsorption is not considered technically feasible for the Narasin Fermentation operations as plugging of the adsorption media would likely occur.

Fume incinerators typically need supplemental fuel. Concentrated VOC streams with high heat contents obviously require less supplementary fuel than more dilute streams. VOC streams sometimes have a heat content high enough to be self-sustaining, but a supplemental fuel firing rate equal to about 5% of the total incinerator heat input is usually needed to stabilize the burner flame. Natural gas is the most common fuel for VOC incinerators, but fuel oil is an option in some circumstances.

Based on the information reviewed for this BACT determination, IDEM, OAQ has determined that the use of a combination of reclamation and destruction control methods due to the fact that the reclamation part of the system is not a technically feasible option for the other Narasin Recovery operations at this source.

Step 3: Rank the Remaining Control Technologies by Control Effectiveness

Based on the information reviewed for this BACT determination, IDEM, OAQ has determined that a Carbon Adsorption is technically feasible for the control of VOC resulting from the other Narasin Recovery operations at the Eli Lilly and Company, Clinton Laboratories.

(1) Carbon Adsorption - 98 % Control efficiency

Step 4: Evaluate the Most Effective Controls and Document the Results

The following table lists the proposed VOC BACT determination along with the existing VOC BACT determinations for the other Narasin Recovery operations. All data in the table is based on the information obtained from the permit application submitted by Eli Lilly and Company - Clinton Laboratories, the U.S. EPA RACT/BACT/LAER Clearinghouse (RBLC), and electronic versions of permits available at the websites of other permitting agencies.

Feasibility of Control Technology: IDEM, OAQ evaluated the costs which would be associated with routing each of these emission units to existing carbon adsorption system CA460. Based on this analysis, it was determined that the costs to direct evaporator EV101 to this control system are reasonable, while the costs for each of the other emission units exceeded the level which would be expected to be reasonable. (See Appx D-2- Cost Analysis).

RBLC Listing for VOC for Non-Pharmaceutical Operations:

Table 4: Existing VOC BACT Limits – Other Narasin Recovery Operations

Company Name / Operation	Process Description	Control Type	Control Efficiency/Limits
PROPOSED BACT FOR Other Narasin Recovery Operations			
Eli Lilly and Company, Clinton Laboratories - **Clinton,** IN (Proposed permit 165-27283-00009) Proposed date, 2009	Other Narasin Recovery Operation	Carbon Adsorber with addition of Evaporator EV101	98% or to 20 ppm for units combusted or to 50 ppm for units noncombusted
COMPARABLE BACT DETERMINATIONS (List in Top-Down Order by Control Efficiency)			
Niklor Chemical Co. CA-0860	Chloropicrin Mfg. Equipment	Dual Bed Carbon Adsorber	99% BACT-other
Hoecst Celanese Corp. VA-0193	Cigarette Production Facility	Carbon Adsorption	98.9% BACT-PSD
United States Surgical Corp. CT-0142	Ethylene Oxide Sterilizer	Wet Scrubber	99.9% Other
BASF Corp. TX-0277	Acrylic Acids	Incinerator	99.9% BACT-PSD

Niklor Chemical Co. (RBLC CA-0860)
RBLC contains a listing for Niklor Chemical Co. (Niklor) that indicates 99% control of VOC emissions from a process described as “chloropicrin manufacturing equipment" (RBLC entry CA-0860). The RBLC description notes that the process controlled as a part of this permit is one in which cylinders that contain

chloropicrin are vented prior to refilling. The summary indicates that this equipment is not part of the chloropicrin manufacturing process and that emissions are controlled through the use of a carbon adsorption unit. RBLC states that the unit is limited to 50 ppmvd and a 99% average control efficiency (the averaging period is not indicated).

IDEM, OAQ believes that its carbon adsorption systems are comparable to this unit based on the outlet concentration achieved by this unit. The Niklor unit is limited to 50 ppmv, while the Narasin recovery system achieves an outlet concentration of approximately 30 ppmv and the Narasin finishing system achieves an outlet concentration of approximately 10 ppmv. The higher removal efficiency obtained by the Niklor unit is a function of the much higher inlet concentrations.

Hoechst Celanese Corp. (VA-0193)
RBLC contains a listing for Hoechst Celanese Corp. (Hoechst) that indicates 98.9% control of VOC emissions from a cigarette manufacturing facility (RBLC entry VA-0193). The RBLC description notes that this permit involved controls of acetone emissions from a "Cigarette Tow Production Facility". RBLC indicates that the unit is limited to 5,204 tons per year and 433.7 tons per month, and that VOC emissions are controlled through the use of a carbon adsorption unit.

IDEM, OAQ contacted the Virginia department of Environmental Quality (Virginia DEQ) to obtain additional information on the nature of this process. The facility manufactures cellulose acetate flake and fiber that is used in the production of cigarette filters. The operation covered by this permit is described as follows in a process description provided by the Virginia DEQ:

> "The Preparation, Solvent Recovery, and Extrusion Complex dissolves cellulose acetate flake with acetone, filters the 'dope', and pumps the solution to Extrusion where the dope is extruded through jets to produce acetate filaments to be collected and further processed. The acetone/air mixture, or vapor laden air in these areas, is collected through ducting systems to Solvent Recovery where the acetone solvent is recovered and recycled in the process."

Virginia DEQ indicated that the permit for this unit has since been rescinded, due to the reclassification of acetone as a nonphotochemically reactive hydrocarbon. Hoechst continues to operate the carbon adsorption units, however, for the purpose of solvent recovery and reuse in the process. Virginia DEQ indicated that three carbon adsorption units have been stack tested, and that two had a control efficiency of 98% and one had a control efficiency of 99%.

IDEM, OAQ notes that the control system technology utilized for this source is the same as that utilized for Narasin recovery and finishing operations. Based on the allowable emission limits from these systems, IDEM, OAQ concludes that the inlet VOC concentration is much higher than the concentrations in the Narasin recovery and finishing exhaust streams. The tested removal efficiencies of these units are comparable to efficiencies recorded by IDEM, OAQ for its Narasin recovery and finishing operations.

United States Surgical Corp. (CT-0142)
RBLC contains a listing for United States Surgical Corp. (USSC) that indicates 99.9% control of VOC emissions from an ethylene oxide sterilizer (RBLC entry CT-0142). RBLC states that the unit is limited to 0.61 pounds per hour of VOC emissions and a stack concentration of 199.3 ppm. VOC emissions are controlled by a wet scrubber.

Based on the description provided, the following observations are made in regards to the vent stream from the sterilizer:

1) The exhaust contains a single organic component (ethylene oxide).

2) The exhaust contains a very high concentration of ethylene oxide. Based on the stated control efficiency and allowable stack limit, the inlet concentration would be assumed to be 199,300 ppm.

3) The emission unit operates at a low air flow rate. Based on the allowable mass emission rate and allowable stack concentration, the air flow rate is approximately 425 cfm.

The ability to achieve a control efficiency as high as 99.9% in this application is enhanced by the fact the air stream contains a high concentration of a single organic compound. While the Narasin recovery and finishing operations involve a single organic compound (amyl alcohol) the VOC concentration in the air stream is orders of magnitude less than that experienced at this facility. As a result, IDEM, OAQ does not believe it is reasonable to expect a control efficiency of this magnitude on an air stream with a considerably lower VOC concentration. IDEM, OAQ notes that the outlet VOC concentration for this unit is considerably higher than that achieved by the Narasin recovery and finishing operations.

BASF Corp. (TX-0277)
RBLC contains a listing for BASF Corp. (BASF) for an acrylic acid incinerator that indicates 99.9% control of VOC emissions (RBLC TX-0277). The RBLC indicates that VOC emissions are limited to 1.42 pounds per hour and 6.2 tons per year (based on a rolling 12-month period). Acrylic acid emissions are permitted separately from VOC, and are limited to 0.48 pounds per hour and 2.1 tons per year. The RBLC does not provide a control device description other than to indicate that the unit controls acrylic acid and other organics through an incineration process. RBLC also states that the unit is permitted under a RCRA permit.

The Permittee contacted the Texas Natural Resource Conservation Commission (TNRCC) to obtain additional information on this unit. Mr. Tony Ionescu with TNRCC indicated that the equipment being controlled is acrylic acid manufacturing equipment at a chemical plant, and that the “incinerator” is the vapor control system on vents from this system to reduce VOC and acrylic acid emissions. Mr. Ionescu indicated that the control unit was not a regenerative or recuperative system, but a straight combustion control system. It is not known what the outlet VOC concentration of this unit is.

IDEM, OAQ has evaluated the feasibility of adding a thermal control system to the Narasin recovery carbon adsorption system.

Regulatory Limits: There are no regulatory limits which are applicable to Narasin recovery operations. The most stringent VOC emission limitation applicable to emission units similar to Narasin recovery is the MACT standard for pharmaceutical operations. This rule requires organic HAP emissions to be controlled by 93% to 98% or to 20 ppm for units with combustion control systems or to 50 ppm for units with noncombustion control systems. The MACT standard provides for the ability to exempt units which have low mass emission rates.

Permit Limits: Emission units identified in RBLC are units with high potential VOC emissions. As a result, it is not possible to draw a direct analogy of whether controls utilized for certain units in RBLC are appropriate for these Narasin recovery operations or not. IDEM, OAQ believes that the best manner in which to evaluate these units is through an evaluation of the costs associated with adding each of these units to the existing carbon adsorption system for Narasin recovery.

Based on these data, IDEM, OAQ believes that VOC BACT for these units is the addition of EV101 to existing carbon adsorption system CA460.

Step 5: Select BACT

IDEM has established the following as BACT for VOC emissions from the other Narasin Recovery Operations:

(1) The VOC emissions from the evaporator, identified as E101 will be directed to the existing Narasin Recovery carbon adsorption system (CA460) and subject to the emission limit for CA 460 established.

(2) The VOC emissions from the remaining Narasin Recovery emission units not vented to carbon adsorption unit (TK350A, TK350B, TK350C, TK350D, TK152, TK153, COS153, TK408, and COL204) will not be further controlled.

VOC Fugitive Emissions

Leak Detection and Repair
Lilly also considered whether a Leak Detection and Repair (LDAR) program should be included as BACT for any of the operations described above.

Fermentation
There is no organic solvent involved in the fermentation process at Lilly. VOC emissions associated with fermentation are a byproduct of the fermentation process rather than a result of chemical usage. The concentration of VOC will at no point exceed 5%; therefore LDAR is not appropriate.

Narasin Recovery and Finishing Operations
In evaluating the benefit that would be derived from the use of a LDAR system for Narasin recovery and/or finishing operations, Lilly first determined whether components would be classified as being in "light liquid" service or "heavy liquid" service. LDAR programs are contained in NSPS in 40 CFR Part 60, Subpart VV (Standards of Performance for Equipment Leaks of VOC in the Synthetic Organic Chemicals Manufacturing Industry) and for MACT standards in 40 CFR Part 63, Subpart H (National Emission Standards for Organic Hazardous Air Pollutants for Equipment Leaks). Both standards utilize a similar definition for "light liquid" service, which is:

> In light liquid service means that a piece of equipment in organic hazardous air pollutant service contains a liquid that meets the following conditions:
>
> (1) The vapor pressure of one or more of the organic compounds is greater than 0.3 kilopascals at 20°C,
>
> (2) The total concentration of the pure organic compounds constituents having a vapor pressure greater than 0.3 kilopascals at 20°C is equal to or greater than 20 percent by weight of the total process stream, and
>
> (3) The fluid is a liquid at operating conditions.

As noted earlier, the VOC used in Narasin recovery and finishing operations is amyl alcohol. Amyl alcohol has a vapor pressure of 1.5 mm mercury at 20° C, or approximately 0.2 kilopascals. Based on the definitions contained in Part 60 and Part 63, amyl alcohol would be considered to be a heavy liquid. Currently, a portion of the Narasin Recovery process is required to perform Leak Detection and Repair according to the provisions of a Lilly-developed LDAR program which references the 1991 proposed HON rule which was later adopted at 40 CFR Part 63, Subpart H. For heavy liquids, this rule requires only prompt repair of identified leakers.

For components in heavy liquid service, existing USEPA LDAR regulations (e.g. Pharma MACT and others), and comparable State requirements (e.g. Texas' TCEQ 28VHP) require, at most, that visible, audible, or olfactory leaks be repaired. No surveys or inspections are mandated. The permit includes a new LDAR Section E.3, which requires that observed leaks be repaired. It is worth noting that the most stringent current Texas Council on Environmental Quality (TCEQ) BACT for VOC fugitives requires application of the TCEQ 28VHP LDAR program. The TCEQ 28VHP LDAR program provides that neither monitoring nor repair requirements apply. USEPA regulations including heavy liquids (compare 40 CFR Part 63, Subpart H and GGG, and 40 CFR Part 60, Subpart VV) generally simply require repair of leaks which may be observed; Lilly's is proposing to do likewise.

A sensory-based Leak Detection and Repair (LDAR) program for inclusion in this flexible permit as BACT for VOC fugitive emissions. Unlike broader LDAR programs, which are meant to be able to address components with a variety of VOCs and service conditions, which may be located intermingled in the field, the new program does not require individual identification of each component. Instead, Lilly will distinguish components subject to the leak repair requirements from those not by identification done in the field, or by drawings or other means. Components requiring repair will have a repair tag attached on or near them, with sufficient information to allow location of the leaking item, but there will not be a list of every component at any point. Such as listing is unneeded, as there is no requirement to quantify the number of components, as might be necessary to perform a percent leaking calculation. The " repair tag" will adequately identify a suspect leaking component during the period when it is being addressed. While there is a legitimate concern that a "repeat leaker" trend may occur unrecognized, it should be noted that no existing LDAR rule actually mandates permanent replacement of a "repeat leaker" component. Further, Lilly has been tracking leak repairs in the Narasin process and has observed no repeat leaking components for many years. In addition, Lilly proposes to retain records of the leaks, and even if the "repair tag" description of a particular component is not identical to its description the next time it leaks, the Narasin process area is small enough that a repeating pattern of leaks is likely to be detected and addressed, if only to minimize the cost of repeated repairs.

Fugitive emissions
A summary of the factors which impact the determination of BACT for VOC fugitive emissions from Narasin operations is provided below:

Regulatory Limits: There are no regulatory limits which are applicable to VOC fugitives from Narasin recovery operations.

Permit Limits: The current permit limits on portions of Narasin recovery require repair of observed leaks.
Feasibility of Control Technology: As LDAR is a work practice standard, costs and benefits both occur on a per-component basis, and there are no real economies of scale. LDAR cost analyses for many regulations (e.g. the HON rule) have shown that the emissions reductions achievable by periodic monitoring or other work practices are not cost effective for heavy liquid components. Lilly did not repeat the exercise.

Based on these data, IDEM, OAQ believes that VOC BACT for fugitive emissions is the application of a LDAR program which requires repair of sensory leaks.

Appendix D

Cost Analysis

Indiana Department of Environmental Management
Office of Air Quality

(1) Biofiltration

Given the low methanol concentration in the exhaust from Narasin fermenters, IDEM OAQ, concludes that biofiltration is a feasible control option for fermentation emissions. IDEM OAQ, utilized actual costs for a biofiltration system which was designed for a similar Lilly facility with fermentation operations (not Narasin; there were different VOC emissions) located in Speke, England in order to estimate costs to install such a system on the Narasin fermenters. Cost and design parameters for the Speke system (in 2001 dollars) are:

- Total installation project cost of $6.8MM;
- System air flow rate of 80,000 acfm; and
- System differential pressure of 15" WC.

Based on the Speke design parameters, IDEM utilized an estimated total installation project cost estimate of $85/acfm. No adjustment for inflation was made to this figure.
IDEM estimates that the system air flow required for the maximum design of sixteen fermenters at the Clinton Laboratories is 57,600 acfm. A total installation project cost was estimated by multiplying this figure by the $85/acf Speke cost figure, which provides a total installation project cost estimate of $4.9MM.

Maximum potential VOC emissions from fermentation are 58.74 tons per year. Assuming all VOC emissions occur in the form of methanol, this represents an average inlet VOC concentration of approximately 46 ppmv methanol. IDEM assumed that biofiltration would control VOC emissions by approximately 80% (to an average outlet concentration of approximately 10 ppmv). System operating costs were estimated utilizing standard cost assumptions from USEPA's Office of Air Quality Planning and Standards (OAQPS).

Based on these assumptions, the cost to control VOC emissions from the Narasin fermentation process is approximately $22,300 per ton of VOC. IDEM concludes that biofiltration is not an economically reasonable control option.

The BACT cost analysis above demonstrated a cost to control VOCs as $22,300 for biofiltration and $20,600 for thermal destruction. These costs were based on 58.7 tons/yr of emissions. To allow for flexibility, while ensuring that the BACT cost effectiveness analysis remains valid, IDEM requires a limit from the fermenters of 100 tons per 12-month period, rolled on a calendar month basis. One Hundred (100) tons per year will result in the following values for the BACT cost effectiveness analysis:

	Cost ($)	$/ton	
		@ 58.7 tons/yr	@100 tons/yr
Biofiltration	1,309,010.00	22,300.00	13,090.00
Thermal Oxidizer	1,209,220.00	20,600.00	12,092.00

(2) Thermal Destruction (RTO)

IDEM computed the cost to install a regenerative thermal oxidizer (RTO) to control VOC emissions from fermentation. Fermentation-specific input parameters utilized in this analysis were:

- Air flow rate = 57,600 acfm;
- Potential VOC emission rate (considering bottlenecks) = 58.7 tons per year (assumed to be entirely methanol); and
- Estimated RTO control efficiency of 98%.

Using OAQPS cost equations, a total capital investment of $2.6MM is predicted. Based on predicted capital and operating costs and the VOC emission reduction at maximum potential emissions, the cost of an RTO is estimated to be $20,600 per ton of VOC controlled. In reality, the actual cost of VOC controlled would be expected to be substantially higher, as actual VOC emissions from Narasin fermentation are only 11.3 tons per year. Based on the high estimated cost of controls, IDEM concludes that the use of an RTO is not reasonable for this application.

(3) Thermal Destruction (RTO)

The Narasin recovery carbon adsorption unit (CA460) is currently limited to a maximum of 2.85 pounds per hour, which is equivalent to approximately 30 ppmv. Lilly has investigated the feasibility of enhancing the performance of this unit through expanding the bed size, however based on limited space available, this is not feasible. Lilly believes the only manner in which this unit could be further limited would be through the addition of an additional control device.

IDEM evaluated the potential costs associated with routing the outlet from CA460 through a separate RTO. This analysis utilized the outlet emission rate from CA460 as the inlet to the RTO, as the carbon adsorption unit recovers and reuses amyl alcohol in the process. Using similar cost assumptions as with fermentation above, IDEM computed the capital costs at $0.9MM and the overall costs at $28,800 per ton of VOC removed. Based on this estimated cost, IDEM concludes that the costs of control exceed the levels which would be considered reasonable for VOC control.

(4) Carbon Adsorption

The Narasin finishing carbon adsorption unit (CA190) must currently achieve a reduction in VOC emission rate of 95% or an outlet VOC concentration of 10 ppmv (whichever is less stringent). The operating experience for this unit is that the outlet VOC concentration is generally below 10 ppmv. Given the low outlet concentration limit of 10 ppmv that currently exists for this unit, IDEM did not believe it was necessary to evaluate the feasibility of add-on VOC control systems for this unit.

IDEM evaluated the costs to control each of the Narasin recovery operations which are not currently vented to the carbon adsorption system. In each of these evaluations, the estimated carbon adsorption control efficiency was assumed to be 98%.

(5) Evaporator EV-101

The following unit specific inputs were utilized in cost estimates for Evaporator EV-101:

- Potential VOC Emissions (based on bottlenecked capacity) = 16.83 tons per year (following condenser recovery systems); and
- Air flow rate = 100 acfm.

The capital cost to add this unit to the carbon adsorption system is estimated to be $52,000, which includes $27,000 for ductwork, $15,000 for a new blower, and $10,000 for a pressure control system on the carbon adsorber. IDEM also estimates that the captured VOC will have a value of approximately $0.88 per pound of material recovered. Based on these figures, the cost to control this vent stream is approximately $292 per ton of VOC controlled. IDEM concludes that it is reasonable to add this unit to the existing carbon adsorption system.

(6) Solvent Recovery Tanks A, B, C, and D

The following unit specific inputs were utilized in cost estimates for Solvent Recovery Tanks A, B, C, and D:

- Potential VOC Emissions (based on bottlenecked capacity) = 3.56 tons per year; and

- Air flow rate = 50 acfm.

The capital cost to add these tanks to the carbon adsorption system is estimated to be $275,000, which represents the cost for the ductwork necessary to route these emissions to the control system. IDEM also estimates that the captured VOC will have a value of approximately $0.88 per pound of material recovered. Based on these figures, the cost to control this vent stream is approximately $22,700 per ton of VOC controlled. IDEM concludes that it is not economically reasonable to add this unit to the existing carbon adsorption system.

(7) Material Handling Tanks TK152 and TK153, and Screw Conveyor COS153

The following unit specific inputs were utilized in cost estimates for Material Handling Tanks TK152 and TK153, and Screw Conveyor COS153:

- Potential VOC Emissions (based on bottlenecked capacity) = 0.0038 tons per year; and

- Air flow rate = 20 acfm.

The capital cost to add these units to the carbon adsorption system is estimated to be $70,000, which represents the cost for the ductwork necessary to route these emissions to the control system. IDEM also estimates that the captured VOC will have a value of approximately $0.88 per pound of material recovered. Based on these figures, the cost to control this vent stream is over $10,000,000 per ton of VOC controlled. IDEM concludes that it is not economically reasonable to add this unit to the existing carbon adsorption system.

(8) Tank TK408

The following unit specific inputs were utilized in cost estimates for Tank TK408:

- Potential VOC Emissions (based on bottlenecked capacity) = 0.28 tons per year; and

- Air flow rate = 20 acfm.

The capital cost to add these units to the carbon adsorption system is estimated to be $38,000, which represents the cost for the ductwork necessary to route these emissions to the control system. IDEM also estimates that the captured VOC will have a value of approximately $0.88 per pound of material recovered. Based on these figures, the cost to control this vent stream is over $109,000 per ton of VOC controlled. IDEM concludes that it is not economically reasonable to add this unit to the existing carbon adsorption system.

(9) Distillation Column COL 204

The following unit specific inputs were utilized in cost estimates for Distillation Column COL 204:

- Potential VOC Emissions (based on bottlenecked capacity) = 0.58 tons per year; and

- Air flow rate = 100 acfm.

The capital cost to add these units to the carbon adsorption system is estimated to be $61,000 for the ductwork necessary to route these emissions to the control system. IDEM also estimates that the captured VOC will have a value of approximately $0.88 per pound of material recovered. Based on these figures, the cost to control this vent stream is $61,500 per ton of VOC controlled. IDEM concludes that it is not economically reasonable to add this unit to the existing carbon adsorption system.

Appendix D
Global Inputs

Equipment Lifetime (yrs):	**18**
Interest Rate (%):	**11**
Operator cost ($/hr)	**$48.00**

Utilities

Natural Gas ($/MM BTU)	**$7.19**
Electricity ($/KW-Hr)	**$0.05**
Steam ($/1000 lbs)	**$4.64**
Cooling Water ($/therm)	**$0.10**

Appendix D
Fermentation

Users, specify information in column B of the following block
all cost information is then calculated
Be sure to input the correct purchased equipment cost for the operating efficiency being examine

Air Flow Rate:	57600	ft3/min
VOC Emissions Rate (Bottlenecked Potential)	58.74	tons/yr
Portion of emissions which are VOCs:	100%	%
Equipment Operating Efficiency:	80%	% VOC removal
Purchased (not installed) Equipment Cost (Cp)	$1,892,225	
Plant Operation (hrs/yr):	8760	
Equipment Lifetime (yrs):	18	
Interest Rate (%):	11	
Replacement Parts (% system replaced/yr)	5.00%	
Utility Requirements:		
Natural Gas (MM BTU/yr):	0	
Electricity (KW/hr):	156	
Steam (1000 lb/yr):	0	
Cooling Water (therms/yr):	0	
Operator cost ($/hr)	$48	

Assumptions:

1. Used estimated VOC emissions from Workbook: 58.74 tpy
2. Ave fermenter flow: 4500 scfm
3. Sixteen fermenters * 80% diversity: 57600 scfm
4. Practical outlet Biofilter conc- 10 ppm (lower MACT threshold) 80% effic.
4. Biofilter purchase cost- $27/acfm (based on 2003 estimate for ground level unit for fermenters @ Speke)
5. Total biofilter cost estimate for Speke (2001) was $2.6MM for a 80,000 acfm unit. Purchased cost was $33/ft2

Total installation project cost for Speke was $6.8MM for a 80,000 acfm flow ($84/ft3). Conservative (no inflation or increase for smaller scale) estimate of $84/ft3

Adjusted ductowk and site prep from EPA default factors to generate installation cost of $84/acfrm * 30,000 acfm or $2.52 MM

6. Differential pressure (from Speke design): 15 " w.c.

Adjustments to EPA factors

Ductwork, fans and arbors, need site real estate- include site prep,
30K for instrumentation is too low since continuous monitoring is needed

Cp = equipment costs

May 2001 Speke UK estimate breakout	Prime plant	$2,628,090	$1,892,225
	Civil & structural	$577,475	22.0% $415,782
	Mechanical installation	$1,897,638	72.2% $1,366,299
	Electrical and instrumentation	$467,019	17.8% $336,254
	Subtotal		$2,118,335
	Design and const	$808,500	30.8% $582,120
	Contingency	$259,822	9.9% $187,072
	Lilly design and Const	$254,016	9.7% $182,892
	Subtotal		$952,083
	Total	$6,892,560	262.3% $4,962,643

OAQPS Annual Cost Determination Metho

Plant Operation:	8760	hrs/yr
Equipment Lifetime:	18	yrs
Interest Rate:	11	%
Capital Recovery Factor:	0.130	
Replacement Parts:	$94,611	
Utility Requirements:		
Natural Gas (MM BTU/yr):	0	
Electricity (KW/hr):	156	
Steam (1000 lb/yr):	0	
Cooling Water (therms/yr):	0	

Item	Cost Factor	Cost ($/hr)	Total ($/yr or $/ton)
Direct Costs			
Operating labor			
Operator (hrs/shift)	0.5	$48.00	$26,280
Supervisor (% of operator)	15%		$3,942
Maintenance			
Labor (hrs/shift)	0.5	$48.00	$26,280
Supervisor (% of labor)	0%		$0
Materials (% of maint labor)	100%		$26,280
Replacement Parts (% system replaced/yr)			$0
Utilities Costs			
Natural Gas ($/MM BTU)	7.19		$0
Electricity ($/KW-Hr)	0.052		$71,114
Steam ($/1000 lbs)	4.64		$0
Cooling Water ($/therm)	0.1		$0
Waste Water disposal			$0
Indirect Costs			
Overhead	60% of labor and materials		$49,669
Administrative	2% of TCI		$99,253
Property taxes	1% of TCI		$49,626
Insurance	1% of TCI		$49,626
Capital recovery	Capital recovery factor x TCI		$644,364
Total Annual Cost		Sum of annual costs	**$1,046,434**
Uncontrolled VOC emission rate (tons/yr)			58.74
VOC controlled (tons/yr)			46.992
Controlled emission rate (tons/yr)			11.748
VOC Cost Effectiveness ($/ton)			**$22,268**
Uncontrolled HAP emission rate (tons/yr)			59
HAP controlled (tons/yr)			47
Controlled HAP emission rate (tons/yr)			12
HAP Cost Effectiveness ($/ton			**$22,268**

Appendix D
Evaporator EV101 Cost Analysis

Air Flow Rate:	100	ft3/min
VOC Emissions Rate:	16.83	tons/year
Portion of emissions which are HAPs:		%
Average Air Stream Concentration:		mg/m3
Equipment Operating Efficiency:	98%	% VOC removal
Ductwork Installation Equipment Cost	**$52,000**	
Plant Operation (hrs/yr):	7884	
Equipment Lifetime (yrs):	18	
Interest Rate (%):	11	
Replacement Parts (% system replaced/yr)	1%	%
Utility Requirements:		
Natural Gas (m3/yr):	0	
Electricity (KW/Hr):	0.36	
Steam (kg/yr):	0	
Cooling Water (L/yr):	0	
Operator cost ($/hr)	60	

With existing non regualtory control device the 479. 4 tpy actual emissions drops to 16.83 tpy

Differential pressure 20 " w.c.

Since this is an addition to an existing facility, the cost factors are based on the installation cost estimate rather than purchased equipment price

Cp = equipment costs

OAQPS Capital Cost Determination Method

Item		Cost
Direct Costs		
Purchased equipment costs:		
Equipment + auxiliary equipment		$52,000
Instrumentation		
Sales taxes		
Freight		
Purchased equipment cost, PEC		
Direct installation costs:		
Foundations and supports		
Handling and erection		
Electrical		
Piping		
Insulation for piping and duct work		
Painting		
Direct installation cost		
	Total Direct Cost, TDC	$52,000
Indirect Costs (installation)		
Engineering		$5,200
Construction and field expenses (incl. above)		$2,600
Contractor fees		$5,200
Start-up		$1,040
Performance test		$0
Contingencies		$1,560
	Total Indirect Cost, TIC	$15,600
Total Capital Investment, TCI = TDC + TIC		**$67,600**

OAQPS Capital Cost Determination Method

Item		Cost
Direct Costs		
Purchased equipment costs:		
Equipment + auxiliary equipment		Cp
Instrumentation		0.1 x Cp
Sales taxes		0.03 x Cp
Freight		0.05 x Cp
Purchased equipment cost, PEC		PEC= 1.18 x Cp
Direct installation costs:		
Foundations and supports		0.08 x PEC
Handling and erection		0.14 x PEC
Electrical		0.04 x PEC
Piping		0.02 x PEC
Insulation for piping and duct work		0.01 x PEC
Painting		0.01 x PEC
Direct installation cost		0.3 x PEC
	Total Direct Cost, TDC	1.3 x PEC
Indirect Costs (installation)		
Engineering		0.1 x TDC
Construction and field expenses		0.05 x TDC
Contractor fees		0.1 x TDC
Start-up		0.02 x TDC
Performance test		0 x TDC
Contingencies		0.03 x TDC
	Total Indirect Cost, TIC	
Total Capital Investment, TCI = TDC + TIC		

OAQPS Annual Cost Determination Method

Plant Operation:	7884 hrs/yr
Equipment Lifetime:	18 yrs
Interest Rate:	11 %
Capital Recovery Factor:	0.130
Replacement Parts:	$520
Utility Requirements:	
Natural Gas (MM BTU/yr):	0
Electricity (KW/hr):	0
Steam (1000 lb/yr):	0
Cooling Water (therms/yr):	0

Item	Cost Factor	Cost ($/hr)	Total ($/yr or $/ton)
Direct Costs			
Operating labor			
Operator (hrs/shift)	0.25	$48.00	$11,826
Supervisor (% of operator)	15%		$1,774
Maintenance			
Labor (hrs/shift)	0	$48.00	$0
Supervisor (% of labor)	15%		$0
Materials (% of labor)	10%		$0
Replacement Parts (% system replaced/yr)			$520
Utilities Costs			
Natural Gas ($/MM BTU)	$7.19		$0
Electricity ($/KW-Hr)	$0.05		$148
Steam ($/1000 lbs)	$4.64		$0
Cooling Water ($/therm)	$0.10		$0
Recovered solvent value ($/lb)	$0.88		-$29,094.36
Indirect Costs			
Overhead	60% of labor and materials		$8,160
Administrative	2% of TCI		$1,352
Property taxes	1% of TCI		$676
Insurance	1% of TCI		$676
Capital recovery	Capital recovery factor x TCI		$8,777
Total Annual Cost		Sum of annual costs	**$4,815**

Uncontrolled VOC emission rate (tons/yr)	16.83
VOC controlled (tons/yr)	16.4934
Controlled emission rate (tons/yr)	0.3366
VOC Cost Effectiveness ($/ton)	**$292**
Uncontrolled HAP emission rate (tons/yr)	0
HAP controlled (tons/yr)	0
Controlled HAP emission rate (tons/yr)	0
HAP Cost Effectiveness ($/ton)	**#DIV/0!**

Appendix D
Distillation Column Col 204 Cost Analysis

Air Flow Rate:	100	ft3/min
VOC Emissions Rate:	0.58	tons/year
Portion of emissions which are HAPs:		%
Average Air Stream Concentration:		mg/m3
Equipment Operating Efficiency:	98%	% VOC removal
Ductwork Installation Equipment Cost	**$61,000**	
Plant Operation (hrs/yr):	7884	
Equipment Lifetime (yrs):	18	
Interest Rate (%):	11	
Replacement Parts (% system replaced/yr)	1%	%
Utility Requirements:		
Natural Gas (m3/yr):	0	
Electricity (KW/Hr):	0	
Steam (kg/yr):	0	
Cooling Water (L/yr):	0	
Operator cost ($/hr)	60	

With existing non regualtory control device the 4.09 tpy actual emissions drops to 0.101 tpy

Differential pressure 20 " w.c.

Since this is an addition to an existing facility, the cost factors are based on the installation cost estimate rather than purchased equipment price

Cp = equipment costs

OAQPS Capital Cost Determination Method

Item		Cost
Direct Costs		
Purchased equipment costs:		$0
Equipment + auxiliary equipment		$61,000
Instrumentation		
Sales taxes		
Freight		
Purchased equipment cost, PEC		
Direct installation costs:		
Foundations and supports		
Handling and erection		
Electrical		
Piping		
Insulation for piping and duct work		
Painting		
Direct installation cost		
	Total Direct Cost, TDC	$61,000
Indirect Costs (installation)		
Engineering		$6,100
Construction and field expenses (incl. above)		$3,050
Contractor fees		$6,100
Start-up		$1,220
Performance test		$0
Contingencies		$1,830
	Total Indirect Cost, TIC	$18,300
Total Capital Investment, TCI = TDC + TIC		**$79,300**

OAQPS Capital Cost Determination Method

Item		Cost
Direct Costs		
Purchased equipment costs:		
Equipment + auxiliary equipment		Cp
Instrumentation		0.1 x Cp
Sales taxes		0.03 x Cp
Freight		0.05 x Cp
Purchased equipment cost, PEC		PEC= 1.18 x Cp
Direct installation costs:		
Foundations and supports		0.08 x PEC
Handling and erection		0.14 x PEC
Electrical		0.04 x PEC
Piping		0.02 x PEC
Insulation for piping and duct work		0.01 x PEC
Painting		0.01 x PEC
Direct installation cost		0.3 x PEC
	Total Direct Cost, TDC	1.3 x PEC
Indirect Costs (installation)		
Engineering		0.1 x TDC
Construction and field expenses		0.05 x TDC
Contractor fees		0.1 x TDC
Start-up		0.02 x TDC
Performance test		0 x TDC
Contingencies		0.03 x TDC
	Total Indirect Cost, TIC	
Total Capital Investment, TCI = TDC + TIC		

OAQPS Annual Cost Determination Method

Plant Operation:	7884 hrs/yr
Equipment Lifetime:	18 yrs
Interest Rate:	11 %
Capital Recovery Factor:	0.130
Replacement Parts:	$610
Utility Requirements:	
Natural Gas (MM BTU/yr):	0
Electricity (KW/hr):	0
Steam (1000 lb/yr):	0
Cooling Water (therms/yr):	0

Item	Cost Factor	Cost ($/hr)	Total ($/yr or $/ton)
Direct Costs			
Operating labor			
Operator (hrs/shift)	0.25	$48.00	$11,826
Supervisor (% of operator)	15%		$1,774
Maintenance			
Labor (hrs/shift)	0	$48.00	$0
Supervisor (% of labor)	15%		$0
Materials (% of labor)	10%		$0
Replacement Parts (% system replaced/yr)			$610
Utilities Costs			
Natural Gas ($/MM BTU)	$7.19		$0
Electricity ($/KW-Hr)	$0.05		$148
Steam ($/1000 lbs)	$4.64		$0
Cooling Water ($/therm)	$0.10		$0
Recovered solvent value ($/lb)	$0.88		-$1,002.66
Indirect Costs			
Overhead	60% of labor and materials		$8,160
Administrative	2% of TCI		$1,586
Property taxes	1% of TCI		$793
Insurance	1% of TCI		$793
Capital recovery	Capital recovery factor x TCI		$10,297
Total Annual Cost		Sum of annual costs	**$34,984**

Uncontrolled VOC emission rate (tons/yr)	0.58
VOC controlled (tons/yr)	0.5684
Controlled emission rate (tons/yr)	0.0116
VOC Cost Effectiveness ($/ton)	**$61,548**
Uncontrolled HAP emission rate (tons/yr)	0
HAP controlled (tons/yr)	0
Controlled HAP emission rate (tons/yr)	0
HAP Cost Effectiveness ($/ton)	**#DIV/0!**

Appendix D
Tank TK408 Cost Analysis

Air Flow Rate:	20	ft3/min
VOC Emissions Rate:	0.28	tons/year
Portion of emissions which are HAPs:		%
Average Air Stream Concentration:		mg/m3
Equipment Operating Efficiency:	98%	% VOC removal
Ductwork Installation Equipment Cost	**$38,000**	
Plant Operation (hrs/yr):	7884	
Equipment Lifetime (yrs):	18	
Interest Rate (%):	11	
Replacement Parts (% system replaced/yr)	1%	%
Utility Requirements:		
Natural Gas (m3/yr):	0	
Electricity (KW/Hr):	0	
Steam (kg/yr):	0	
Cooling Water (L/yr):	0	
Operator cost ($/hr)	60	

Differential pressure 20 " w.c.

Since this is an addition to an existing facility, the cost factors are based on the installation cost estimate rather than purchased equipment price

Cp = equipment costs

OAQPS Capital Cost Determination Method

Item		Cost
Direct Costs		
Purchased equipment costs:		
Equipment + auxiliary equipment		$38,000
Instrumentation		
Sales taxes		
Freight		
Purchased equipment cost, PEC		
Direct installation costs:		
Foundations and supports		
Handling and erection		
Electrical		
Piping		
Insulation for piping and duct work		
Painting		
Direct installation cost		
	Total Direct Cost, TDC	$38,000
Indirect Costs (installation)		
Engineering		$3,800
Construction and field expenses (incl. above)		$1,900
Contractor fees		$3,800
Start-up		$760
Performance test		$0
Contingencies		$1,140
	Total Indirect Cost, TIC	$11,400
Total Capital Investment, TCI = TDC + TIC		**$49,400**

OAQPS Capital Cost Determination Method

Item		Cost
Direct Costs		
Purchased equipment costs:		
Equipment + auxiliary equipment		Cp
Instrumentation		0.1 x Cp
Sales taxes		0.03 x Cp
Freight		0.05 x Cp
Purchased equipment cost, PEC		PEC= 1.18 x Cp
Direct installation costs:		
Foundations and supports		0.08 x PEC
Handling and erection		0.14 x PEC
Electrical		0.04 x PEC
Piping		0.02 x PEC
Insulation for piping and duct work		0.01 x PEC
Painting		0.01 x PEC
Direct installation cost		0.3 x PEC
	Total Direct Cost, TDC	1.3 x PEC
Indirect Costs (installation)		
Engineering		0.1 x TDC
Construction and field expenses		0.05 x TDC
Contractor fees		0.1 x TDC
Start-up		0.02 x TDC
Performance test		0 x TDC
Contingencies		0.03 x TDC
	Total Indirect Cost, TIC	
Total Capital Investment, TCI = TDC + TIC		

OAQPS Annual Cost Determination Method

Plant Operation:	7884 hrs/yr
Equipment Lifetime:	18 yrs
Interest Rate:	11 %
Capital Recovery Factor:	0.130
Replacement Parts:	$380
Utility Requirements:	
Natural Gas (MM BTU/yr):	0
Electricity (KW/hr):	0
Steam (1000 lb/yr):	0
Cooling Water (therms/yr):	0

Item	Cost Factor	Cost ($/hr)	Total ($/yr or $/ton)
Direct Costs			
Operating labor			
Operator (hrs/shift)	0.25	$48.00	$11,826
Supervisor (% of operator)	15%		$1,774
Maintenance			
Labor (hrs/shift)	0	$48.00	$0
Supervisor (% of labor)	15%		$0
Materials (% of labor)	10%		$0
Replacement Parts (% system replaced/yr)			$380
Utilities Costs			
Natural Gas ($/MM BTU)	$7.19		$0
Electricity ($/KW-Hr)	$0.05		$30
Steam ($/1000 lbs)	$4.64		$0
Cooling Water ($/therm)	$0.10		$0
Recovered solvent value ($/lb)	$0.88		-$484.04
Indirect Costs			
Overhead	60% of labor and materials		$8,160
Administrative	2% of TCI		$988
Property taxes	1% of TCI		$494
Insurance	1% of TCI		$494
Capital recovery	Capital recovery factor x TCI		$6,414
Total Annual Cost		Sum of annual costs	**$30,076**
Uncontrolled VOC emission rate (tons/yr)			0.28
VOC controlled (tons/yr)			0.2744
Controlled emission rate (tons/yr)			0.0056
VOC Cost Effectiveness ($/ton)			**$109,605**
Uncontrolled HAP emission rate (tons/yr)			0
HAP controlled (tons/yr)			0
Controlled HAP emission rate (tons/yr)			0
HAP Cost Effectiveness ($/ton)			**#DIV/0!**

Appendix D
COS 153, TK 152 and TK 153 Cost Analysis

Air Flow Rate:	20	ft3/min
VOC Emissions Rate:	0.00	tons/year
Portion of emissions which are HAPs:		%
Average Air Stream Concentration:		mg/m3
Equipment Operating Efficiency:	98%	% VOC removal
Ductwork Installation Equipment Cost	**$70,000**	
Plant Operation (hrs/yr):	7884	
Equipment Lifetime (yrs):	18	
Interest Rate (%):	11	
Replacement Parts (% system replaced/yr)	1%	%
Utility Requirements:		
Natural Gas (m3/yr):	0	
Electricity (KW/Hr):	0	
Steam (kg/yr):	0	
Cooling Water (L/yr):	0	
Operator cost ($/hr)	60	

Differential pressure 20 " w.c.

Since this is an addition to an existing facility, the cost factors are based on the installation cost estimate rather than purchased equipment price

Cp = equipment costs

OAQPS Capital Cost Determination Method

Item		Cost
Direct Costs		
Purchased equipment costs:		
Equipment + auxiliary equipment		$70,000
Instrumentation		
Sales taxes		
Freight		
Purchased equipment cost, PEC		
Direct installation costs:		
Foundations and supports		
Handling and erection		
Electrical		
Piping		
Insulation for piping and duct work		
Painting		
Direct installation cost		
	Total Direct Cost, TDC	$70,000
Indirect Costs (installation)		
Engineering		$7,000
Construction and field expenses (incl. above)		$3,500
Contractor fees		$7,000
Start-up		$1,400
Performance test		$0
Contingencies		$2,100
	Total Indirect Cost, TIC	$21,000
Total Capital Investment, TCI = TDC + TIC		**$91,000**

OAQPS Capital Cost Determination Method

Item		Cost
Direct Costs		
Purchased equipment costs:		
Equipment + auxiliary equipment		Cp
Instrumentation		0.1 x Cp
Sales taxes		0.03 x Cp
Freight		0.05 x Cp
Purchased equipment cost, PEC		PEC= 1.18 x Cp
Direct installation costs:		
Foundations and supports		0.08 x PEC
Handling and erection		0.14 x PEC
Electrical		0.04 x PEC
Piping		0.02 x PEC
Insulation for piping and duct work		0.01 x PEC
Painting		0.01 x PEC
Direct installation cost		0.3 x PEC
	Total Direct Cost, TDC	1.3 x PEC
Indirect Costs (installation)		
Engineering		0.1 x TDC
Construction and field expenses		0.05 x TDC
Contractor fees		0.1 x TDC
Start-up		0.02 x TDC
Performance test		0 x TDC
Contingencies		0.03 x TDC
	Total Indirect Cost, TIC	
Total Capital Investment, TCI = TDC + TIC		

OAQPS Annual Cost Determination Method

Plant Operation:	7884 hrs/yr
Equipment Lifetime:	18 yrs
Interest Rate:	11 %
Capital Recovery Factor:	0.130
Replacement Parts:	$700
Utility Requirements:	
Natural Gas (MM BTU/yr):	0
Electricity (KW/hr):	0
Steam (1000 lb/yr):	0
Cooling Water (therms/yr):	0

Item	Cost Factor	Cost ($/hr)	Total ($/yr or $/ton)
Direct Costs			
Operating labor			
Operator (hrs/shift)	0.25	$48.00	$11,826
Supervisor (% of operator)	15%		$1,774
Maintenance			
Labor (hrs/shift)	0	$48.00	$0
Supervisor (% of labor)	15%		$0
Materials (% of labor)	10%		$0
Replacement Parts (% system replaced/yr)			$700
Utilities Costs			
Natural Gas ($/MM BTU)	$7.19		$0
Electricity ($/KW-Hr)	$0.05		$30
Steam ($/1000 lbs)	$4.64		$0
Cooling Water ($/therm)	$0.10		$0
Recovered solvent value ($/lb)	$0.88		-$6.57
Indirect Costs			
Overhead	60% of labor and materials		$8,160
Administrative	2% of TCI		$1,820
Property taxes	1% of TCI		$910
Insurance	1% of TCI		$910
Capital recovery	Capital recovery factor x TCI		$11,816
Total Annual Cost		Sum of annual costs	**$37,939**
Uncontrolled VOC emission rate (tons/yr)			0.0038
VOC controlled (tons/yr)			0.003724
Controlled emission rate (tons/yr)			7.6E-05
VOC Cost Effectiveness ($/ton)			**$10,187,595**
Uncontrolled HAP emission rate (tons/yr)			0
HAP controlled (tons/yr)			0
Controlled HAP emission rate (tons/yr)			0
HAP Cost Effectiveness ($/ton)			**#DIV/0!**

Appendix D
TKs 350 A, B, C and D Cost Analysis

Air Flow Rate:	50	ft3/min
VOC Emissions Rate:	3.56	tons/year
Portion of emissions which are HAPs:		%
Average Air Stream Concentration:		mg/m3
Equipment Operating Efficiency:	98%	% VOC removal
Ductwork Installation Equipment Cost	**$275,000**	
Plant Operation (hrs/yr):	7884	
Equipment Lifetime (yrs):	18	
Interest Rate (%):	11	
Replacement Parts (% system replaced/yr)	1%	%
Utility Requirements:		
Natural Gas (m3/yr):	0	
Electricity (KW/Hr):	0.18	
Steam (kg/yr):	0	
Cooling Water (L/yr):	0	
Operator cost ($/hr)	60	

Emission rate includes 2.2 tpy from Tk370A and 370B

Need to include ductwork costs for Tks 370A and 370B

Differential pressure 20 " w.c.

Since this is an addition to an existing facility, the cost factors are based on the installation cost estimate rather than purchased equipment price

Cp = equipment costs

OAQPS Capital Cost Determination Method

Item		Cost
Direct Costs		
Purchased equipment costs:		
Equipment + auxiliary equipment		$275,000
Instrumentation		
Sales taxes		
Freight		
Purchased equipment cost, PEC		
Direct installation costs:		
Foundations and supports		
Handling and erection		
Electrical		
Piping		
Insulation for piping and duct work		
Painting		
Direct installation cost		
	Total Direct Cost, TDC	$275,000
Indirect Costs (installation)		
Engineering		$27,500
Construction and field expenses (incl. above)		$13,750
Contractor fees		$27,500
Start-up		$5,500
Performance test		$0
Contingencies		$8,250
	Total Indirect Cost, TIC	$82,500
Total Capital Investment, TCI = TDC + TIC		**$357,500**

OAQPS Capital Cost Determination Method

Item		Cost
Direct Costs		
Purchased equipment costs:		
Equipment + auxiliary equipment		Cp
Instrumentation		0.1 x Cp
Sales taxes		0.03 x Cp
Freight		0.05 x Cp
Purchased equipment cost, PEC		PEC= 1.18 x Cp
Direct installation costs:		
Foundations and supports		0.08 x PEC
Handling and erection		0.14 x PEC
Electrical		0.04 x PEC
Piping		0.02 x PEC
Insulation for piping and duct work		0.01 x PEC
Painting		0.01 x PEC
Direct installation cost		0.3 x PEC
	Total Direct Cost, TDC	1.3 x PEC
Indirect Costs (installation)		
Engineering		0.1 x TDC
Construction and field expenses		0.05 x TDC
Contractor fees		0.1 x TDC
Start-up		0.02 x TDC
Performance test		0 x TDC
Contingencies		0.03 x TDC
	Total Indirect Cost, TIC	
Total Capital Investment, TCI = TDC + TIC		

OAQPS Annual Cost Determination Method

Plant Operation:	7884 hrs/yr
Equipment Lifetime:	18 yrs
Interest Rate:	11 %
Capital Recovery Factor:	0.130
Replacement Parts:	$2,750
Utility Requirements:	
Natural Gas (MM BTU/yr):	0
Electricity (KW/hr):	0.18
Steam (1000 lb/yr):	0
Cooling Water (therms/yr):	0

Item	Cost Factor	Cost ($/hr)	Total ($/yr or $/ton)
Direct Costs			
Operating labor			
Operator (hrs/shift)	0.25	$48.00	$11,826
Supervisor (% of operator)	15%		$1,774
Maintenance			
Labor (hrs/shift)	0	$48.00	$0
Supervisor (% of labor)	15%		$0
Materials (% of labor)	10%		$0
Replacement Parts (% system replaced/yr)			$2,750
Utilities Costs			
Natural Gas ($/MM BTU)	$7.19		$0
Electricity ($/KW-Hr)	$0.05		$74
Steam ($/1000 lbs)	$4.64		$0
Cooling Water ($/therm)	$0.10		$0
Recovered solvent value ($/lb)	$0.88		-$6,154.24
Indirect Costs			
Overhead	60% of labor and materials		$8,160
Administrative	2% of TCI		$7,150
Property taxes	1% of TCI		$3,575
Insurance	1% of TCI		$3,575
Capital recovery	Capital recovery factor x TCI		$46,419
Total Annual Cost		Sum of annual costs	**$79,148**
Uncontrolled VOC emission rate (tons/yr)			3.56
VOC controlled (tons/yr)			3.4888
Controlled emission rate (tons/yr)			0.0712
VOC Cost Effectiveness ($/ton)			**$22,686**
Uncontrolled HAP emission rate (tons/yr)			0
HAP controlled (tons/yr)			0
Controlled HAP emission rate (tons/yr)			0
HAP Cost Effectiveness ($/ton)			**#DIV/0!**

VOC Cost Effectiveness: Regenerative Thermal Oxidizer

Description of Cost				Cost Factor		Cost ($)	Source
Direct Capital Costs (DC):							
Purchased Equip. Cost (PE): *vendor data*:		*cfm*	*cost ($):*				
Basic Equipment (A):	57,600 acfm		80 °F			1,382,241	OAQPS
Auxiliary Equipment (B): Ductwork, fan, stack				0.10	A	138,224	OAQPS
Instrumentation:	included in base price			0.00	A	0	OAQPS
Taxes and freight:				0.08	A*B	121,637	OAQPS
PE Total:						1,642,102	
Direct Installation Costs (DI) Assume package/modular RTO is used							
Foundation & supports:				0.08	PE	131,368	OAQPS
Handling and erection:				0.14	PE	229,894	OAQPS
Electrical:				0.04	PE	65,684	OAQPS
Piping:				0.02	PE	32,842	OAQPS
Insulation:				0.01	PE	16,421	OAQPS
Painting:				0.01	PE	16,421	OAQPS
DI Total:						492,631	
DC Total:						2,134,733	
Indirect Costs (IC):							
Engineering:				0.10	PE	164,210	OAQPS
Construction and field expenses:				0.05	PE	82,105	OAQPS
Contractor fees:				0.10	PE	164,210	OAQPS
Start-up:				0.02	PE	32,842	OAQPS
Performance testing:				0.01	PE	16,421	OAQPS
Contingencies:				0.03	PE	49,263	OAQPS
IC Total:						509,052	
Total Capital Investment (TCI = DC + IC):						2,643,785	

Direct Annual Costs (DAC):							
Operating Costs (O):	sched. (hr/day):	24	day/week:	7.0	wk/yr: 52		
Operator:	hr/shift:	0.5	operator pay ($/hr):		48	26,208	OAQPS
Supervisor:	15% of operator					3,931	OAQPS
Maintenance Costs (M):							
Labor:	hr/shift:	0.5	labor pay ($/hr):		48	26,208	OAQPS
Material:	100% of labor					26,208	OAQPS
Utility Costs:	thermal eff(%):	90	operating temp. (°F):		1,500		
Gas usage	(MMcf/yr):	74.25	heat value (Btu/ft^3):		1,000		
Gas cost	($/MMcf):	7,190				533,879	variable
Pressure drop	(inches WG)	15	fan eff. (%):		60		
Electricity cost	($/kwh):	0.052	fan elec. use (kwh/yr):		1,443,678	75,071	variable
VOC EF	(lb/hr):	13.41	CO EF	(lb/hr):	0		variable
VOC heat value	(Btu/lb):	10,259	CO heat	(Btu/lb):	4,344		variable
VOC + CO heat addition:		(reduction in natural gas expense per year):				-8,469	
Total DAC:						683,036	
Indirect Annual Costs (IAC):							
Overhead:	60% of O&M					49,533	OAQPS
Administrative:				0.02	TCI	52,876	OAQPS
Insurance:				0.01	TCI	26,438	OAQPS
Property tax:				0.01	TCI	26,438	OAQPS
Capital recovery:	interest rate (%):	11					
	period (years):	18		0.13	TCI	343,277	OAQPS
Total IAC:						498,561	
Total Annual Cost (DAC + IAC):						**$1,181,597**	

Uncontrolled VOC "Potential to Emit" (PTE) Emission Rate (tons/yr):				58.6
VOC Removed (tons/yr):	*control device removal eff.:*	*98*	*%*	57.4
PTE Cost Effectiveness ($/ton):				$20,583
NO_x from Control Device Burners (tons/yr):		*0.1*	*lb/MMBtu*	*3.7*

OAQPS cost manual = $886,832 (1999 $)
PC Adjustment = 1.55862775
Adjusted capital cost = $1,382,241

*PC Index Adjustment is Chemical Engineer's Plant Cost Index from Yearly Average for 1999 (390.6)

compared to current, Final July 2008 PC Index (608.8)

VOC Cost Effectiveness: Regenerative Thermal Oxidizer

Description of Cost				Cost Factor		Cost ($)	Source
Direct Capital Costs (DC):							
Purchased Equip. Cost (PE): *vendor data*:		*cfm*	*cost ($):*				
Basic Equipment (A):	7,000 acfm		70 °F			469,755	OAQPS
Auxiliary Equipment (B): Ductwork, fan, stack				0.10	A	46,975	OAQPS
Instrumentation:	included in base price			0.00	A	0	OAQPS
Taxes and freight:				0.08	A*B	41,338	OAQPS
PE Total:						558,069	
Direct Installation Costs (DI) Assume package/modular RTO is used							
Foundation & supports:				0.08	PE	44,645	OAQPS
Handling and erection:				0.14	PE	78,130	OAQPS
Electrical:				0.04	PE	22,323	OAQPS
Piping:				0.02	PE	11,161	OAQPS
Insulation:				0.01	PE	5,581	OAQPS
Painting:				0.01	PE	5,581	OAQPS
DI Total:						167,421	
DC Total:						725,489	
Indirect Costs (IC):							
Engineering:				0.10	PE	55,807	OAQPS
Construction and field expenses:				0.05	PE	27,903	OAQPS
Contractor fees:				0.10	PE	55,807	OAQPS
Start-up:				0.02	PE	11,161	OAQPS
Performance testing:				0.01	PE	5,581	OAQPS
Contingencies:				0.03	PE	16,742	OAQPS
IC Total:						173,001	
Total Capital Investment (TCI = DC + IC):						898,491	
Direct Annual Costs (DAC):							
Operating Costs (O):	sched. (hr/day):	24	day/week:	7.0	wk/yr: 52		
Operator:	hr/shift:	0.5	operator pay ($/hr):		48	26,208	OAQPS
Supervisor:	15% of operator					3,931	OAQPS
Maintenance Costs (M):							
Labor:	hr/shift:	0.5	labor pay ($/hr):		48	26,208	OAQPS
Material:	100% of labor					26,208	OAQPS
Utility Costs:	thermal eff(%):	90	operating temp. (°F):		1,500		
Gas usage	(MMcf/yr):	9.15	heat value (Btu/ft^3):		1,000		
Gas cost	($/MMcf):	7,190				65,780	variable
Pressure drop	(inches WG)	15	fan eff. (%):		60		
Electricity cost	($/kwh):	0.052	fan elec. use (kwh/yr):		178,757	9,295	variable
VOC EF	(lb/hr):	2.90	CO EF	(lb/hr):	0		variable
VOC heat value	(Btu/lb):	10,259	CO heat	(Btu/lb):	4,344		variable
VOC + CO heat addition:		(reduction in natural gas expense per year):				-1,831	
Total DAC:						155,799	
Indirect Annual Costs (IAC):							
Overhead:	60% of O&M					49,533	OAQPS
Administrative:				0.02	TCI	17,970	OAQPS
Insurance:				0.01	TCI	8,985	OAQPS
Property tax:				0.01	TCI	8,985	OAQPS
Capital recovery:	interest rate (%):	11					
	period (years):	18		0.13	TCI	116,663	OAQPS
Total IAC:						202,135	
Total Annual Cost (DAC + IAC):						**$357,934**	

OAQPS cost manual = $301,390 (1999 $)
PC Adjustment = 1.558628
Adjusted capital cost = $469,755

Uncontrolled VOC "Potential to Emit" (PTE) Emission Rate (tons/yr):			12.7
VOC Removed (tons/yr):	*control device removal eff.:*	*98 %*	12.4
PTE Cost Effectiveness ($/ton):			$28,833
NO_x from Control Device Burners (tons/yr):		*0.1 lb/MMBtu*	*0.5*

*PC Index Adjustment is Chemical Engineer's Plant Cost Index from Yearly Average for 1999 (390.6)

compared to current, Final July 2008 PC Index (608.8)

Appendix D
Cost Summary

Unit ID	VOC (t/yr)	Cost ($/yr)	Cost Effectiveness ($/ton)
EV-101	16.4934	$4,815	$292
Col 204	0.5684	$34,984	$61,548
Tk408	0.2744	$30,076	$109,605
COS153-Tk152 and 153	0.003724	$37,939	$10,187,595
Tks 350A B C and D	3.4888	$79,148	$22,686
Fermentation	57.4	$1,181,597	$20,583
CA460	12.4	$357,934	$28,833
	90.628724	$1,726,493	$19,050.17

Appendix B
Technical Support Documentation for
Advance Source Modification Approval

Overview

This section of the TSD describes the elements of this permit that provide the Permittee with the flexibility to make changes at the plant site more quickly and with fewer administrative requirements. This flexible permit is based on provisions in Indiana's air permit regulations and guidance issued by USEPA.

The additional flexibility will exist while assuring compliance with Clean Air Act requirements and protecting air quality. Lilly proposes several flexible permit concepts which have been utilized in other flexible permits issued by IDEM or promoted by USEPA. These flexible permit concepts are based on the use of three elements:

1) Advance identification of the types of changes that will occur under the flexible permit, and the requirements that will apply to those changes;
2) Requiring highly effective emission control systems to assure compliance with applicable emission standards; and
3) Limiting emissions through BACT emission limits to assure protection of air quality.

The permit provides a higher level of flexibility and simplicity because of these features. It also establishes a higher level of environmental performance than would otherwise be required under Clean Air Act requirements applicable to the site. The permit requires Best Available Control Technology be used on the Narasin Animal Health operations when applicable requirements would not otherwise require as high a level of controls. In some cases the site committed to additional upgrades of its emission control equipment beyond what existing rules or a traditional PSD permit would require.

Background and description

Eli Lilly and Company (Lilly) is a research based company that discovers, develops, manufactures, and markets pharmaceutical products for people and animals. Lilly's Clinton Laboratories site manufactures animal health products for the Elanco Animal Health division. The operations at Clinton Laboratories employ more approximately 500 employees

The purpose of this Prevention of Significant Deterioration [PSD] / Flexible Permit application is to allow Clinton Laboratories' Narasin Production Processes to be modified through a series of product and process changes, replacement of existing production equipment, and installation of new production equipment. These changes are anticipated to occur without a gap of 18 months or more between any two of them, and would thus be considered continuous construction. This PSD application will cover only volatile organic compounds [VOCs]. Nitrogen oxides [NOx], sulfur dioxide [SO2], Carbon Monoxide [CO], Particulate Matter [PM], and other PSD pollutants are either not emitted in significant quantities or the expected changes covered by this PSD/Flexible permit application are not anticipated to trigger the requirements of the PSD program.

Although Clinton Laboratories' overall site emission levels have decreased over the past several years due primarily to the elimination of Bulk Pharmaceutical Manufacturing facilities, Lilly anticipates that some of the future modifications in the Elanco Animal Health area could increase emissions above current actual levels. Because of the way emission increases are evaluated under the PSD rules promulgated in 326 IAC 2-2, it is possible that the changes could trigger the requirements of the PSD program for VOCs.

In lieu of evaluating future changes individually for PSD applicability, and potentially requiring time-and resource-consuming permit reviews for each individual change, as well as raising complex aggregation and debottlenecking issues, Lilly proposes to evaluate the parts of the Elanco Animal Health Narasin Operations affected by the changes and the types of changes it intends to make in the future as a group under the PSD program. Essentially the site will be continuously modified over the next 5 years, and instead of evaluating each project for PSD and minor NSR applicability, Lilly will obtain a PSD permit for the range of modifications that will occur over the next 5 years. The resulting PSD permit, which will be incorporated into Clinton Laboratories' Title V permit, will allow Lilly to make changes in the future with minimal administrative requirements, will minimize permitting demands on State regulators, and will assure compliance with all applicable Clean Air Act requirements and protection of air quality. This flexible permit fulfills the requirements of Indiana's air permit regulations for major sources found in 326 IAC 2-2 and 2-7.

Lilly would expect three types of changes that potentially would trigger air permitting requirements and/or changes in the applicable emission standards. More specific descriptions of these changes is described later in greater detail:

- Process change for the Narasin process
- Replacement of existing equipment in the Narasin process
- Addition of new equipment to the Narasin process

Each type of change could occur by itself, or in combination with one or more of the other types of changes. For example; a change in a raw material may result in more uniform product that increases the throughput of a screening operation. Elimination of this bottleneck in finishing could allow an increase in throughput in recovery operations. Another example is a bottleneck caused by the current method of pelletizing and milling the product in the finishing area. A new method using different technology may replace the current process, allowing greater overall production, with lower emissions from this process step.

Below is a more specific description of the types of changes that may occur at Clinton Laboratories that under traditional permitting schemes may trigger air-permitting requirements.

Process changes:

The Narasin process consists of a variety of equipment. Although each piece of equipment has its own individual capacity, its actual productivity is often bottlenecked by upstream or downstream equipment capacities. These bottlenecks can be caused by a variety of process factors such as moisture variations in the product, quality of raw materials, amount of raw materials added, atmospheric conditions, etc. The process changes may involve anything from raw materials to adjusting process control parameters to changing the methods of processing.

Equipment replacement
The equipment in each emission unit is subject to harsh conditions. The mechanical and chemical properties of the materials being processed can corrode or otherwise wear away the equipment. Temperature changes can also affect the safety and performance of equipment. Quality standards require high purity requirements for Narasin. Deteriorating equipment can contaminate the product and eventually lead to it being delayed, reworked, or destroyed. In addition, deteriorating equipment can lead to equipment failure resulting in downtime, Title V deviations, spills, or other environmental releases.

As a result, Clinton Laboratories has preventative maintenance plan in place for many pieces of equipment. Generally, equipment replacement is done with equivalent equipment. Sometimes, equipment will no longer be available and have to be replaced with similar, but improved, equipment. Equipment replacement can lead to increased overall production by reducing reworks and product discards.

New equipment
Clinton Laboratories may need to add additional equipment, or replace equipment, in order to implement a process change or improve productivity. For example: In 2008, the IDEM approved a Source/Part 70 Permit modification for Narasin. This involved the addition of new equipment to enable the Narasin process to convert from a batch blending to a continuous blending process. Also included in this change was new bagging equipment. Once operational, it will replace the former batch process.

Flexible permit concept, scope and proposal

Clinton Lab's flexible permit proposal is based on the concept of pre-approval of changes with known standards for emissions control technology, emission limitations and compliance assurance. Although the production operations will change, the applicable regulatory requirements, the emission control systems to comply with those requirements, and the compliance assurance systems will not change. By approving in advance the types of changes that will likely occur at the site and linking them to the known compliance obligations those changes will entail, the permit can provide flexibility by reducing the administrative burdens of individual pre-approvals.

The Clinton Laboratories' flexible permit proposal consists of the following elements:

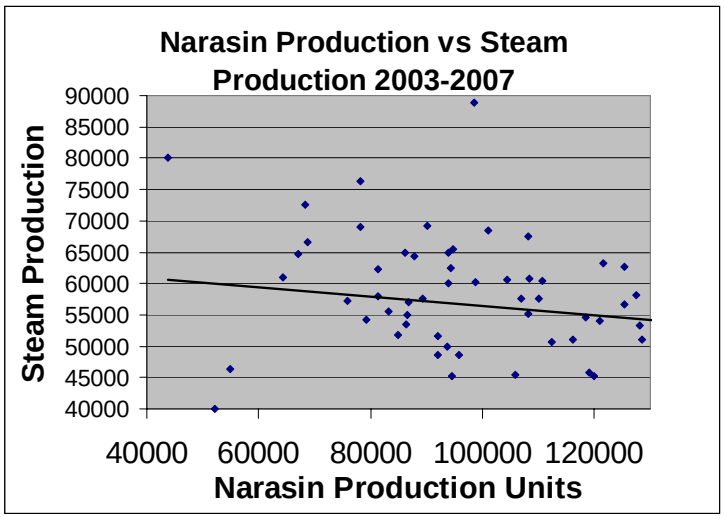
- Advance approval of emission increases associated with anticipated types of changes;
- A requirement to utilize Best Available Control Technology to reduce emissions of the pollutants that would potentially increase above PSD significance thresholds as a result of the changes; and
- A limit on emissions (emissions cap) applicable to the areas subject to the flexible permit provisions and provisions to measure and estimate actual emissions to verify compliance with the cap.

Scope of the flexible permit

As discussed earlier in this application, Clinton Laboratories proposes to obtain a PSD permit for future modifications to the Narasin production process at Clinton Laboratories. The modifications to Narasin include process changes, equipment replacement, and equipment additions to existing operations in the associated Narasin process areas. The following are not included in the scope of this flexible permit: Non-Narasin Fermentation Operations, Non-Narasin Recovery Operations, Non-Narasin Finishing Operations, Analytical Support Laboratories, Boilers for steam production, Utilities operations, and Waste Water Treatment Facilities,

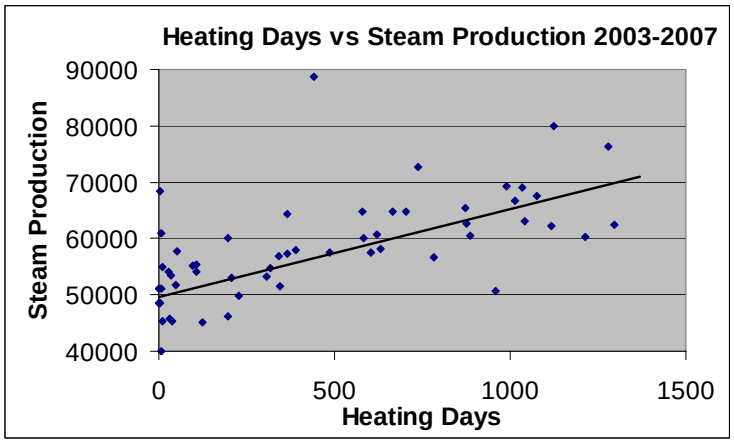
This first graph shows a historical plot from 2003 through 2007 of Narasin production and steam production. Historically, increased production of Narasin has not led to an overall increase in site steam production.

2003 through 2007 of Narasin production and steam production



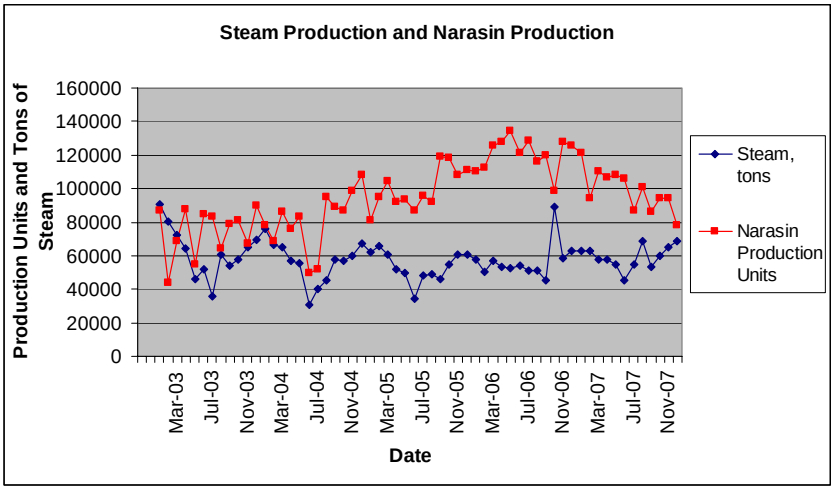
This second graph shows a historical plot from 2003 through 2007 of Indiana heating days and steam production. As opposed to the B-1 plot of Narasin production vs. steam production, the heating days vs. steam production shows a distinct upward trend. This demonstrates that the steam rate is much more dependant on ambient temperatures than on Narasin production.

2003 through 2007 of Indiana heating days and steam production



This third graph shows the Narasin Production and Steam Production for each month between 2003 and 2007. The figure shows that during periods when Narasin production has nearly doubled in the past, there is no significant trend in the production of steam from the boilers.

Narasin Production and Steam Production for each month between 2003 and 2007



Conclusion

The three graphs demonstrate that there has been no apparent historical link between Narasin production rates and steam production from the boilers. It is therefore concluded that the expected changes and increases in Narasin production will not significantly impact boiler steam production or boiler emissions.

Advance approval

The concept of advance approval is the key mechanism for providing flexibility in the permit. Instead of requiring case-by-case administrative review of individual changes proposed by Clinton Laboratories, the advance approval features of the permit condense those many future reviews into a single review that occurs well in advance of the change. As a result, instead of waiting up to several months for the permitting authority to review and approve a change before it can be made, the changes falling within the scope of the advance approval can be made immediately or after a notice is submitted to the permitting authority.

Advance approval works well when the applicable Clean Air Act requirements can be determined for each type of change and described adequately as a requirement in the permit. Because the applicable requirements for manufacturing operations and prospective changes are readily known and easily described as permit terms, Clinton Laboratories is a good candidate for advance approval terms.

The Clean Air Act and the USEPA and IDEM regulations implementing the Act have created several programs that require prior approval from an agency before a change can proceed. These programs include pre-construction permitting programs such as Major and Minor New Source Review and the Title V operating permit program.

Of these prior approval requirements, Clinton Laboratories proposes advance approval provisions to address prior approval requirements of Indiana's Minor NSR program and the Title V operating permit program. In addition, because the flexible permit is being reviewed pursuant to a PSD review process that will establish BACT emission control requirements and federally enforceable emission limits, future changes within the scope of the advance approvals will not trigger major NSR.

Advance approvals are specifically authorized under Indiana's Title V program rules at 326 IAC 2-7-5(16). The advance approval provisions found at 326 IAC 2-7-5(16) also authorize the use of advance approvals in Title V permits as a mechanism to eliminate review procedures of the minor New Source Review requirements of 326 IAC 2-7-10.5. Emission limits or other standards that would be applicable under minor NSR remain applicable.

Clinton Laboratories proposes to use advance approval provisions to allow the following types of modifications to take place in the Narasin production process: process changes; replacement of existing

production equipment with similar equipment, and new equipment additions to existing process operations.

Clinton Labs proposes to add the use of the "advance approval" provisions in the Title V permit to create operational flexibility for Clinton Laboratories. The advance approval conditions in the permit assure that any specific changes or types of changes identified in the permit will comply with all applicable Clean Air Act requirements and allow the source to make changes with minimal administrative delay. The advance approval conditions in the permit also assure that any requirements of IDEM's minor NSR preconstruction permitting program which would apply to a project are satisfied.

Applicability of BACT

The second major element of the flexible permit requires the use of Best Available Control Technology (BACT) to fulfill the technology requirement of the PSD permitting program. BACT applies to both the known modifications occurring upon issuance of the permit and the anticipated modifications that will occur under the advance approval provisions of the permit. The permit will also ensure compliance with other emission control requirements applicable to future changes.

The use of the BACT determination for anticipated future changes depends on two factors. First, under the Indiana PSD regulations, modifications must occur without an interruption of greater than 18 months in order for the BACT determination to remain valid for the future changes. Clinton Laboratories expects to make modifications on a fairly regular basis and does not expect 18 months to pass between any modifications.

Second, the BACT determination would expire in five years. Clinton Laboratories submitted its Title V renewal application in December 2008, and requests that this PSD / Flexible Permit application be combined with it.

As demonstrated by the BACT analysis performed as part of this application, Clinton Laboratories Narasin process already has BACT controls with two exceptions. The first is the product recovery evaporator [EV101]. The emissions from the evaporator are condensed to recover residual amyl alcohol, then vented directly to atmosphere with a maximum estimated potential to emit of 16.82 tons per year of VOCs. The analysis showed that venting this stream to the existing carbon adsorber at 98% control efficiency or 30 ppmv on a 24 hour block average would satisfy BACT requirements. The resulting cost analysis was $523 / ton of VOC controlled. Therefore, Clinton Laboratories concludes that EV101 should be connected to the existing Carbon Adsorber CA460 in order to demonstrate BACT compliance. This will result in a VOC reduction of approximately 16 tons/yr of VOC.

In addition, the BACT analysis identified the need to control fugitive emissions from the Narasin process beyond the LDAR program included in section D.3.5 in the current Title V Operating Permit. Therefore, each emission unit was evaluated for the potential to emit fugitive emissions. The EU-4 Harvest Tanks, EU-8 Recovery, EU-9 New Amyl Tanks, and EU-11 Finishing were identified as potentially having VOC concentrations greater than 5%. Clinton Laboratories requests that a "Lilly Leak Detection and Repair [LDAR] Program" be accepted and incorporated into the Title V Operating Permit. This program specifically details the LDAR requirements that are applicable to the Clinton Laboratories Narasin Process. The insertion of this language is consistent with the method of LDAR inclusion in the current Title V operating permit [T165-6462-00009] section D.3.5.

The BACT determination for this permit is described at greater length in Section 5 of this application. The BACT controls proposed by Lilly also assure compliance with other applicable requirements that apply to Narasin and the associated operations.

BACT Controls and Limits

EU	Description	Pollutant	BACT Controls	BACT Limits	BACT Limit Averaging Period	Other controls
1	Fermentation Batch Make-up	VOC (point)	No Controls Required	NA	NA	
		VOC (fugitive)	No Controls Required*	NA	NA	
2	Fermentation Bump Tanks	VOC (point)	No Controls Required	NA	NA	
		VOC (fugitive)	No Controls Required*	NA	NA	
3	Fermenters	VOC (point)	No Controls Required	NA	NA	
		VOC (fugitive)	No Controls Required*	NA	NA	
4	Fermentation Harvest Tanks	VOC (point)	No Controls Required	NA	NA	
		VOC (fugitive)	Lilly LDAR Program**.	NA	NA	
5	Dry Raw Materials Unloading and Storage	VOC (point)	No Controls Required	NA	NA	
		VOC (fugitive)	No Controls Required*	NA	NA	
6	Liquid Raw Materials Unloading and Storage	VOC (point)	No Controls Required	NA	NA	
		VOC (fugitive)	No Controls Required*	NA	NA	
7	Fermentation Vacuum Cleaning	VOC (point)	No Controls Required	NA	NA	
		VOC (fugitive)	No Controls Required*	NA	NA	
8	Recovery Process	VOC (point)	Carbon Adsorber CA460	reduce VOC emissions by 98% or to a volumetric concentration of 30 parts per million (ppmv***), (whichever is less stringent)	24 Hour Block or Rolling Average	
		VOC (fugitive)	Lilly LDAR Program**.	LDAR	NA	
9	New Amyl Alcohol Unloading and Storage	VOC (point)	No Controls Required	NA	NA	
		VOC (fugitive)	Lilly LDAR Program**.	LDAR	NA	
10	New Clay Unloading and Storage	VOC (point)	No Controls Required	NA	NA	
		VOC (fugitive)	No Controls Required*	NA	NA	
11	Finishing Process	VOC (point)	Carbon Adsorber CA190	reduce VOC emissions by 98% or to a volumetric concentration of 10 parts per million (ppmv***), (whichever is less stringent)	24 Hour Block or Rolling Average	
		VOC (fugitive)	Lilly LDAR Program**.	LDAR	NA	

Emission caps

The flexible permit utilizes an emission cap for VOC's as a mechanism to establish boundaries on the extent of the changes that can occur under the advance approval provisions. The cap applies to all the areas under the flexible permit that could expect to see VOC emission increases as a result of modifications that would occur in the Narasin production areas. The emission cap limits the amount of

VOC emission increases that could occur under the advance approval provisions in the permit. It is set at a level that assures protection of the National Ambient Air Quality Standards.

The emission cap is set at 300 ton/yr of VOCs based on Clinton Laboratories' estimate of the emission increases that could be expected under various process changes and optimized production rates. It includes changes and process optimizations that are expected, as well as those that are possible but less probable, and those that are not yet well defined. It includes ONLY the VOC portion of changes that require other pollutant permitting. In the event a change is desired that would require permitting for any other pollutant, that change would need to obtain its own, individual approval; but the VOC emissions associated with the change would be expected to be made subject to the provisions of this flexible permit as part of that approval. In order to assure the greatest flexibility for Clinton Laboratories, the cap applies to all the emission units under the flexible permit in the aggregate. This approach will allow the greatest flexibility to the site operations and assure air quality standards are still protected.

In addition to the 300 ton/yr VOC cap for the entire Narasin process, a 100 ton/yr cap has been established for the fermenters. The BACT analysis demonstrates that the fermenters do not require controls. In order to ensure this BACT determination remains valid, a cap was established for the fermenter

Clinton Laboratories will demonstrate compliance with the emission cap through a variety of techniques, including continuous emissions monitoring systems (CEMS), and engineering calculations.

VOC Emission Cap and Emission Estimation Method

EU	Description	VOC	Emission Cap Limit (tpy)	Emission Estimation Method
All	EU1 – EU11	Fugitive	300	Lilly LDAR Program, mass balance, and engineering calculations
1	Fermentation Batch Make-up	Point		Calculation
2	Fermentation Bump Tanks	Point		Calculation
3	Fermentaters	Point		Calculation
4	Fermentation Harvest Tanks	Point		Calculation
5	Dry Raw Materials Unloading and Storage	Point		Calculation
6	Liquid Raw Materials Unloading and Storage	Point		Calculation
7	Fermentation Vacuum Cleaing	Point		Calculation
8	Recovery Process	Point		CEMs, Calculation
9	New Amyl Alcohol Unloading and Storage	Point		Calculation
10	New Clay Unloading and Storage	Point		Calculation
11	Finishing Process	Point		CEMs, Calculation

Additional Emission Unit Emission Cap and Emission Estimate Method

EU	Description	VOC	Emission Cap Limit (tpy)	Emission Estimation Method
3	Fermenters	Point	100	Calculation

Flexible Permit Strategy Summary

EU	Description	VOC	BACT controls (for modified units)	Emissions cap (tpy)	Compliance monitoring	Advance approval
EU 4, 8, 9, 11	EU-4, EU-8, EU-9, and EU-11	Fugitive	Lilly Leak Detection and Repair Program – Appendix C.	300 for EU 1-11 combined 100 for EU3.	Lilly Leak Detection and Repair Program – Appendix C.	See Note 1.
EU 1, 2, 3, 5, 6,7, 10	EU-1, EU-2, EU-3, EU-5, EU-6, EU-7, and EU-10	Fugitive	Controls not required		No Monitoring Required.	
1	Fermentation Batch Make-up	Point	Controls Not Required		No Monitoring Required	
2	Fermentation Bump Tanks					
3	Fermenters					
4	Fermentation Harvest Tanks					
5	Dry Raw Materials Unloading and Storage					
6	Liquid Raw Materials Unloading and Storage					
7	Fermentation Vacuum Cleaning					
8	Recovery Process		Carbon Adsorber CA460		reduce VOC emissions by 98% or to a volumetric concentration of 30 parts per million (ppmv***), (whichever is less stringent)	
9	New Amyl Alcohol Unloading and Storage		Controls Not Required		No Monitoring Required	
10	New Clay Unloading and Storage					
11	Finishing Process		Carbon Adsorber CA190		reduce VOC emissions by 98% or to a volumetric concentration of 10 parts per million (ppmv***), (whichever is less stringent)	

Note 1: Terms to require all new and modified equipment to meet BACT controls, other applicable requirements, and stay within emission limits

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
We Protect Hoosiers and Our Environment.

Mitchell E. Daniels Jr.
Governor

Thomas W. Easterly
Commissioner

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

SENT VIA U.S. MAIL: CONFIRMED DELIVERY AND SIGNATURE REQUESTED

TO: Don Blair
Eli Lilly & Company - Clinton Laboratories
10500 S SR 63
Clinton, IN 47842

DATE: October 1, 2009

FROM: Matt Stuckey, Branch Chief
Permits Branch
Office of Air Quality

SUBJECT: Final Decision
Significant Source Modification
165-27702-00009

Enclosed is the final decision and supporting materials for the air permit application referenced above. Please note that this packet contains the original, signed, permit documents.

The final decision is being sent to you because our records indicate that you are the contact person for this application. However, if you are not the appropriate person within your company to receive this document, please forward it to the correct person.

A copy of the final decision and supporting materials has also been sent via standard mail to:
George H. Rogers - GM
OAQ Permits Branch Interested Parties List

If you have technical questions regarding the enclosed documents, please contact the Office of Air Quality, Permits Branch at (317) 233-0178, or toll-free at 1-800-451-6027 (ext. 3-0178), and ask to speak to the permit reviewer who prepared the permit. If you think you have received this document in error, please contact Joanne Smiddie-Brush of my staff at 1-800-451-6027 (ext 3-0185), or via e-mail at jbrush@idem.IN.gov.

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We Protect Hoosiers and Our Environment.

Mitchell E. Daniels Jr.
Governor

Thomas W. Easterly
Commissioner

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

October 1, 2009

TO: Clinton Public Library

From: Matthew Stuckey, Branch Chief
Permits Branch
Office of Air Quality

Subject: **Important Information for Display Regarding a Final Determination**

Applicant Name: **Eli Lilly & Company – Clinton Laboratories**
Permit Number: **165-27702-00009**

You previously received information to make available to the public during the public comment period of a draft permit. Enclosed is a copy of the final decision and supporting materials for the same project. Please place the enclosed information along with the information you previously received. To ensure that your patrons have ample opportunity to review the enclosed permit, **we ask that you retain this document for at least 60 days.**

The applicant is responsible for placing a copy of the application in your library. If the permit application is not on file, or if you have any questions concerning this public review process, please contact Joanne Smiddie-Brush, OAQ Permits Administration Section at 1-800-451-6027, extension 3-0185.

Enclosures
Final Library.dot 11/30/07

Mail Code 61-53

IDEM Staff	GHOTOPP 10/1/2009 Eli Lilly and Company-Clinton Labs 165-27702-00009 Final		AFFIX STAMP HERE IF USED AS CERTIFICATE OF MAILING
Name and address of Sender	▶	Indiana Department of Environmental Management Office of Air Quality – Permits Branch 100 N. Senate Indianapolis, IN 46204	Type of Mail: **CERTIFICATE OF MAILING ONLY**

Line	Article Number	Name, Address, Street and Post Office Address	Postage	Handing Charges	Act. Value (If Registered)	Insured Value	Due Send if COD	R.R. Fee	S.D. Fee	S.H. Fee	Rest. Del. Fee Remarks
1		Don Blair Eli Lilly and Company-Clinton Labs 10500 S SR 63 Clinton IN 47842-0099 (Source CAATS) via confirmed delivery									
2		George H Rogers GM Eli Lilly and Company-Clinton Labs 10500 S SR 63 Clinton IN 47842-0099 *(RO CAATS)*									
3		Clinton City Council and Mayors Office 259 Vine Street Clinton IN 47842 *(Local Official)*									
4		Vermillion County Health Department 257 Walnut Street Clinton IN 47842-2342 *(Health Department)*									
5		Clinton Public Library 313 S 4th St Clinton IN 47842-2398 *(Library)*									
6		Vermillion County Commissioners P.O. Box 190 Newport IN 47966 *(Local Official)*									
7		J.P. Roehm PO Box 303 Clinton IN 47842 *(Affected Party)*									
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